



Perspectives Heritage Solutions Pty Ltd

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December 2004

AAV Project No. 2833

Post Wildfire Indigenous Heritage Survey

Volume 1: Background, Survey, Results and Recommended Management Options

**A Report to Parks Victoria, the Department of
Sustainability and Environment, and Aboriginal Affairs**

Victoria

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Cover plate: View from Mount Sarah Track (view northeast)

Executive Summary

During 2003 a large bushfire burnt over 1.2 million hectares of private and public land in the high country of northeast Victoria and Gippsland. The fire and suppression activities affected a range of values in the highlands including Aboriginal heritage values. The Public Land Ecological and Cultural Bushfire Recovery Program determined that the best way to address and enhance effective cultural heritage management was an increased understanding of the nature and extent of the impact of bushfires on Indigenous heritage values.

The Public Land Ecological and Cultural Bushfire Recovery Program aimed to collect this information through a project which would investigate and assess the impact of the bushfire and fire suppression activities on Indigenous cultural heritage values on public land. This project would also include an assessment of the impact of the bushfire on non-material heritage values including spiritual places and historic attachments. The project would be managed jointly by Parks Victoria (PV) and the Department of Sustainability and Environment (DSE).

Parks Victoria and the Department of Sustainability and Environment therefore commissioned Perspectives Heritage Solutions Pty Ltd to conduct an archaeological survey for Aboriginal cultural heritage values within 12 study areas (later expanded to 14 areas) in the highlands and alpine regions of northeast Victoria and Gippsland (see Figure 1). The project required close consultation with, and participation of local Indigenous communities and traditional owners.

The assessment has therefore comprised a background study of known archaeological values, modelling to produce a set of sensitivity zoning statements about site patterning in the selected study areas, interviews with traditional owners, a review of archival documentary archival sources to produce an ethnohistory, an archaeological survey for cultural sites, an assessment of the impact of the fires and fire suppression activities on Aboriginal cultural values in the study areas, training and mentoring of Aboriginal field teams and a report detailing the results of the study and survey, the risks posed to the Aboriginal heritage values and management issues and recommended management options for the future protection of Aboriginal heritage values in the project area.

The report has been divided into four volumes: Volume 1—a study presenting a review of the known archaeology of the project area, sensitivity zoning statements, results of the survey and specific management recommendations for cultural heritage sites; Volume 2—a review of the impact of the fire and fire suppression activities on Aboriginal cultural heritage values and general principles for addressing the impact issues; Volume 3—an account of the consultation process, the ethnohistory, oral history, interviews with traditional owners, a plain language summary of the results of the survey and training; and Volume 4—all survey data, specific site location information and maps showing site locations and archaeologically sensitive areas.

This volume, Volume 1, presents the background review and results of the survey.

The study area consisted of 14 study units of varying size ranging between 70 km² (Mount Mittamatite) to 3160 km² (the expanded Dargo area) within a complex range of alpine/sub-alpine and footslope environments. A survey for Aboriginal archaeological values was conducted in the study areas between late January and April 2004 with several survey teams made up of two archaeologists, and up to six Indigenous staff. The survey targeted areas of interest within the fire affected areas and a total of 434 hectares was surveyed representing about 0.1% of the project area. The survey teams recorded 325 Aboriginal and non-Aboriginal archaeological sites. All sites were fully recorded and placed on the Aboriginal Affairs Victoria Site Register and the Heritage Victoria Inventory. An analysis of the site location, density and contents

suggest that the region was heavily exploited and this is consistent with oral sources suggesting that the area was a rich resource zone.

An assessment of the impact of the fires and fire suppression activities was carried out during the survey. The sensitivity zoning statements were also tested and refined during the survey and, based on the background research and the results of the fieldwork, the assessment of impacts to cultural heritage values and the sensitivity zoning statements, the study has identified areas of sensitivity for potential Aboriginal archaeological remains and has made a series of recommended management options to mitigate impact on the known sites and any potential but as yet unknown sites. These are summarised in the table below. A series of principles for the management of impact to heritage values during wildfire preparedness, suppression and recovery are presented in Volume 2.

Consultation was undertaken with all the relevant Aboriginal representatives and representative groups by the project managers and in the field by the archaeologist. Consultation was conducted with the Gippsland Regional Cultural Heritage Program, the North East regional Cultural Heritage Program, the Gippsland East Gippsland Aboriginal Cooperative, Bangerang Cultural Centre, Mungabareena Aboriginal Corporation, Moogji Aboriginal Council, the Gunai Kurnai, Yeerung Kurnai, Monaro People, the Bidawal People, the Dhuduroa People, Waveroo People, and the Taunaurong Clans. Their views, where appropriate, are incorporated in the recommended management options (see Volume 3).¹

¹ Archaeological reports may be independently reviewed by Aboriginal Affairs Victoria, and the relevant Aboriginal community. Although the findings of a consultant's report will be taken into consideration, recommendations in relation to managing heritage places should not be taken to imply automatic approval of those actions by Aboriginal Affairs Victoria, or the Aboriginal community.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
All areas	All surface works in the management areas	Various	Artefact scatters, isolated artefacts, scarred trees, quarries, hearths, grind stones, grinding grooves, stone arrangements, rock shelters	R. 1	<p>General recommendation for all ground disturbing works across all land management tenures</p> <p>Aboriginal Sites</p> <ul style="list-style-type: none"> Follow PV and DSE cultural heritage guidelines during planning for ground disturbing works (Cultural Heritage Planning Phase). The management recommendations in this report should be consulted during this planning phase to assist this process. Where works are likely to impact upon cultural heritage values, consultation with both traditional owners and the relevant Aboriginal community will be required and a Consent to Disturb permit sought from the relevant Aboriginal community under the terms of the <i>Aboriginal and Torres Strait Island Heritage Protection Act</i> 1984 before any works can proceed (see Appendix 3). Follow PV and DSE cultural heritage guidelines during the works (Project Implementation and Delivery). Some larger and more important sites may require individual heritage management plans (see below). <p>All areas and areas of potential archaeological deposits (PADs)</p> <p>Where works are carried out in areas where there are no known sites or in areas of potential archaeological deposits (PADs), PV and DSE heritage guidelines should be followed. The following should be noted:</p> <ul style="list-style-type: none"> Consult with the relevant Aboriginal representatives and the agency Indigenous coordinator prior to conducting works in these areas. An archaeological survey or sub-surface testing may be required in PADS prior to works commencing. Monitoring of works by relevant Aboriginal representatives may be required of PADS during works. In all areas, including PADs, works staff should be alert and observe for Aboriginal materials during all ground disturbing activities. If located, stop all works in the vicinity immediately that it is safe to do so. Note the location of any finds. Report any finds or disturbance to the Works Supervisor who should then inform the appropriate people, including the relevant Indigenous agency representative, relevant Aboriginal representative and AAV. Works in this location cannot proceed without a Consent to Disturb permit. A qualified archaeologist and the relevant Aboriginal representatives should then attend the site promptly to fully record the site, place the site on the AAV Sites Register and determine appropriate management through consultation. The archaeologist can assist the agency to obtain a 'Consent to Disturb' permit following the above procedures. <p>Human remains</p> <p>If human remains are located follow the procedure outlined in Appendix 5. It is important that this protocol be adhered to completely.</p>

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
			Dreaming tracks, massacre sites, Travelling routes etc (see Volume 3)		Aboriginal places <ul style="list-style-type: none"> During the planning phase for any project, the potential for impact to Aboriginal places should be considered during the planning process. Planners should be sensitive to the potential for impact to significant places of spiritual, social, historical and other heritage values to Aboriginal people which may not necessarily have material remains (e.g. dreaming tracks). The location of these places and the potential for impact can only be established through a thorough consultation process with relevant Aboriginal elders (traditional owners) with special knowledge of the proposed impact areas (see Volume 3). If known places are located near the proposed works, consult with the relevant Aboriginal representatives and the agency Indigenous coordinator prior to conducting works in these areas. An archaeological survey or sub-surface testing may be required in these areas prior to works commencing. Monitoring of works by relevant Aboriginal representatives may be required during works. It is possible that works may not be permitted in some locations (e.g. massacre sites).
			Gold mining sites, dwellings, tracks, early settlement sites		Non-Aboriginal sites <ul style="list-style-type: none"> If non-Aboriginal finds are located, stop all works in this location immediately, report finds as above, and inform Heritage Victoria. Remove or minimise impact in the area. A qualified archaeologist should attend the site to record any finds, determine the significance of the site and provide a heritage management plan.
All areas	All surface works		Lithic scatters, gold mining sites, early settlement sites, cattlemen's huts, muster sites etc.	R. 2	Mixed Aboriginal pre-contact sites and post-contact non-Aboriginal sites <ul style="list-style-type: none"> Consult AAV, relevant Aboriginal representatives and HV when undertaking any site stabilisation works. Any proposed site works should recognise both sets of values. Works on one set of values should not proceed if they affect the other set of values. HV should be provided with a copy of this report and their attention drawn to this recommendation.
Areas with large sites or a high density of sites	Vehicles, walkers and riders	High	All site types	R. 3	Restriction of access to some special archaeological areas <ul style="list-style-type: none"> Heritage precincts should be managed with sensitivity. Assess sites in areas of high public usage with Aboriginal representatives. Develop access strategies and heritage action plans for sites at risk Restrict access or control access in some locations.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Area 1: Mt Sarah/Winchester/Dargo High Plains					
Maes Hut 1 (AAV 8323-0061)	Camping, vehicles, pedestrian	Very high	Artefact scatters	R. 4	<ul style="list-style-type: none"> Inspect regularly for disturbance from camping and latrines and for further exposure of artefacts. If erosion or disturbance occurs, consideration should be given to restricting access in the site area and providing formal locations for campsites and parking. Consideration should be given to providing a composting toilet. This will not interfere with the use of the hut. Further investigations should be considered including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives.
Blue Rag Range Sites 1–7 (AAV 8323-0035–0041)	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 5	<ul style="list-style-type: none"> If an excavation proceeds, a Schedule 1 excavation permit should be sought from AAV. Preferably no works should take place in or adjacent to these sites including any further disturbance from F.C.L. works. Existing fire control lines should be used along this ridge, and no further widening should occur if practicable. Preference should be given to hand trail or air attack rather than dozer trail in fire suppression on this ridgeline. If rehabilitation works are planned, the relevant Aboriginal representatives should monitor any works on the F.C.L.s. A Consent to Disturb permit should be obtained from the Gippsland East Gippsland Aboriginal Co-operative (GEGAC), for all sites likely to be affected.²
Blue Rag Range 1 (AAV 8323-0035)	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 6	<ul style="list-style-type: none"> Track maintenance should be confined to the existing track where practicable. Preferably no works should take place in or adjacent to this site including any further disturbance from F.C.L. works. Existing fire control lines should be used along this ridge, and no further widening should occur if practicable. Preference should be given to hand trail or air attack rather than dozer trail in fire suppression on this ridgeline. Consultation should be undertaken with relevant Aboriginal representatives prior to any works in or adjacent to the site.
Mt Sarah Track	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 7	<ul style="list-style-type: none"> No further control lines beyond existing lines should be put along this ridgeline in the future without careful consideration of the impact on Aboriginal cultural heritage sites along the track. Relevant Aboriginal representatives should monitor rehabilitation of the F.C.L.s. A Consent to Disturb permit should be obtained from the GEGAC for all sites likely to be affected.
Mt Sarah Track 5 (AAV 8223-0081)	Camping, vehicles, pedestrian	Very high	Artefact scatters	R. 8	<ul style="list-style-type: none"> Consider revegetation works in this location and restrict access to parking bays and individual camp/tent areas. Consider putting in a composting toilet to restrict latrine excavation. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives

² In the following recommendations all relevant community organisations with statutory responsibilities under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* are listed as the preliminary referral body. It should be noted however, that both DSE and PV have established procedures for an inclusive consultation process for heritage issues on Crown land which will involve not only the statutory community bodies but also native title claimants and traditional owners. Traditional owners and native title claimants are not listed in these recommendations in order not to preempt the PV and DSE consultation process.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
					should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site.
Mt Sarah Scarred Trees, Mt Sarah 2-9 (AAV 8223-0051–0058)	Vehicles, fire suppression activities	Very high	Scarred trees	R. 9	<ul style="list-style-type: none"> An archaeologist with scarred tree expertise and an arborist or botanist should inspect the trees and determine the origin of the scarring. The following information should be provided to the specialists prior to the inspection of the trees: <ul style="list-style-type: none"> Landuse of this management zone (timber harvesting history). Fire history of this management zone. Fire suppression activities history of this management zone. If the scarring is determined to be cultural, the experts should provide management recommendations for the scarred trees.
Guys Hut Mount Sarah 1 (AAV 8223-0050)	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 10	<ul style="list-style-type: none"> The wheel ruts should be filled with material foreign to the area with the assistance of the relevant Aboriginal representatives and the track reconstituted so that wheel ruts do not occur in the future. The track should not encircle the hut. Following management works the site should be regularly monitored to ensure stability of site works. <i>(Works to stabilise this site are currently in progress).</i>
Crooked River 2 (AAV 8323-0026)	Vehicles, camping	Very high	Artefact scatters	R. 11	<ul style="list-style-type: none"> The site should be regularly monitored by PV staff (see final recommendation R.66). If the situation deteriorates, consideration should be given to revegetation works in this location and access restricted to parking bays and individual camp/tent areas. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Crooked River Sites 3–9 (AAV 8323-0027–0033)	Vehicles, camping, European heritage stabilisation works, visitors	Very high	Artefact scatters	R. 12	<ul style="list-style-type: none"> Further consultation should be undertaken by PV/DSE or relevant land manager when undertaking track management works in the site locations. The community recommendation during the survey was that a GEGAC representative should move all artefacts exposed on the track to the bush on the side of the track prior to any track works and should monitor works to locate further artefacts exposed during the grading process. The condition of the sites should be periodically monitored to see whether further artefacts are being exposed. If the sites deteriorate and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site. No works should be carried out on any historic mine site in the Crooked River without relevant Aboriginal representatives (e.g. safety fences around historic mine shafts). HV should be given a copy of this report and their attention drawn to this issue.
Red Rose Spur 1 (AAV 8323-0048)	Vehicles, picnic area pedestrians	Very high	Artefact scatters	R. 13	<ul style="list-style-type: none"> The condition of the site should be monitored occasionally. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works.

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					<ul style="list-style-type: none"> If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site.
Area 2: Bundarra/Glen Wills					
Omeo Road 1 (AAV 8324-0029)	Sediment movement	Very high	Artefact scatters, quarries	R. 14	<ul style="list-style-type: none"> Monitor regularly for artefact movement particularly over the next five years. If artefacts are observed to be washed onto the parking area and road, stabilisation measures should be considered. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site.
Omeo Road 2 (AAV 8324-0110)	Sediment movement, pedestrians, vehicles	Very high	Artefact scatters	R. 15	<ul style="list-style-type: none"> Monitor regularly for artefact movement particularly over the next five years. Ensure that it is not being impacted by vehicles or subject to collecting. Encourage regrowth in the area.
Cobungra River Track 1 (AAV 8323-0087)	Vehicles, stock, camping	Very high	Artefact scatters	R. 16	<ul style="list-style-type: none"> It is recommended that the track be closed immediately east of the Cobungra River on the Emu Creek Track. A gate should be installed at this point with later works to provide a parking spot which would allow anglers access to the river, but would not provide through access to the Bundarra River valley. The track is also used twice a year by farmers to move stock and the by CFA as a fire access route. A key to the gate could be provided to farmers and by the CFA to access the track. No further ground disturbing works should take place in the Crown land area without an impact assessment by a qualified archaeologist and relevant Aboriginal representatives. The area should be allowed to rehabilitate naturally.
Mount Cope 3 (AAV 8324-0154)	Fire, water induced erosion	Very high	Rock shelter and possible deposit	R. 17	<ul style="list-style-type: none"> Further investigations should be considered including controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives should be considered in this location. The excavation would aim to retrieve data about the timing and nature of occupation on the Bogong High Plains. Given the size of the shelter, it is recommended that a minimal impact excavation be carried out using the methodology used by the Southern Forests Research Group in southwest Tasmanian rockshelters (Allen and Cosgrove 1996: 36–38). If an excavation proceeds a Schedule 1 excavation permit should sought from AAV.
Mount Cope 6 (AAV 8324-0155)	Fire, water induced erosion	Very high	Rock shelter and possible deposit	R. 18	<ul style="list-style-type: none"> Further investigations should be considered including controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives should be considered in this location. The excavation would aim to retrieve data about the timing and nature of occupation on the Bogong High Plains. Given the size of the shelter it is recommended that a minimal impact excavation be carried out using the methodology employed by the Southern Forests research Group in southwest Tasmanian rockshelters Allen

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					<ul style="list-style-type: none"> and Cosgrove 1996: 36–38). If an excavation proceeds a Schedule 1 excavation permit should sought from AAV.
Area 3: Gibbo					
Mitta Mitta Gibbo Confluence (AAV 8424-0051)	Vehicles, camping, pedestrians	Very high	Artefact scatters	R. 19	<ul style="list-style-type: none"> No further works should be carried out in this locality without prior consultation with relevant Aboriginal representatives and Moogji Aboriginal Council (MAC) and a Consent to Disturb permit. The condition of the site should be monitored. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works. Access should be restricted to the main tracks and any informal tracks closed. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from MAC for the site.
Upper Gibbo River 1 (AAV 8424-0052)	Vehicles, camping, works on historic site	Very high	Artefact scatters	R. 20	<ul style="list-style-type: none"> The artefacts are located in association with an historic mine site. If works are carried out to improve or restore the river crossing at this point to provide through access on the track, an assessment of the impact on heritage values should be carried out prior to carrying out any works by a suitably qualified archaeologist with experience in both non-Aboriginal and Aboriginal archaeology and relevant Aboriginal representatives. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC for the site. HV should be consulted regarding the impact assessment. No works should be carried out on the mine site without an Aboriginal monitor and consultation with HV. HV should be given a copy of this report and their attention drawn to this issue. The condition of the site should be monitored occasionally (once per 5 years). If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works.
Area 4: Tambo River					
Scrubby Creek/Tambo Spur 1 (AAV 8423-0024)	Vehicles	Very high	Artefact scatters	R. 21	<ul style="list-style-type: none"> Periodic monitoring of the condition of the site should be carried out. If the site deteriorates, site stabilisation works should be considered. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC. It is recommended that consideration be given to carrying out further investigations including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location. If an excavation proceeds, a Schedule 1 excavation permit should be sought from AAV.

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Area 5: Mt Taylor Tubbet					
Willis Campground (Willis 9B) (AAV 8524-0041)	Fire suppression activities, camping, vehicles	Very high	Artefact scatters, possible <i>in situ</i> deposits	R: 22	<ul style="list-style-type: none"> Consideration should be given to developing a heritage action and management plan for this site to control the development of formal and informal tracks within the site and possibly the closure of some tracks. Heavy machinery should not be used within, or adjacent to, the site and any future fire suppression activities should aim to avoid the sensitive Snowy River corridor. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works and restricted access. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC for the site. Stabilisation should include the prevention of erosion and some revegetation. The condition of the site should be regularly monitored (annually if possible). It is recommended that consideration be given to carrying out further investigations including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location. If an excavation proceeds, a Schedule 1 excavation permit should sought from AAV.
Gattamurh Creek 1 (AAV 8524-0200)	Fire suppression activities, camping, vehicles	Very high	Artefact scatters, possible <i>in situ</i> deposits	R. 23	<ul style="list-style-type: none"> The condition of the site should be regularly monitored (possibly annually). If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works and restricted access. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC for the site. Stabilisation should include the prevention of erosion and some revegetation. It is recommended that consideration be given to carrying out further investigations including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location. If an excavation proceeds, a Schedule 1 excavation permit should sought from AAV.
Tingaringy 1, 2 and 3 and Tingaringy Summit (AAV 8623-0080–0082, 8624-0003)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 24	<ul style="list-style-type: none"> It is recommended that grading of this track be overseen by relevant Aboriginal representatives in site locations. Consideration should be given to discussing with MAC whether the artefacts should be removed from the road by Indigenous monitors before grading. A Consent to Disturb permit should be sought from MAC before works commence.
Armstrong 4 (AAV 8524-0199)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 25	<ul style="list-style-type: none"> It is recommended that grading of this track be overseen by relevant Aboriginal representatives in site locations. Consideration should be given to discussing with MAC whether the artefacts should be removed from the road by Indigenous monitors before grading.

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					<ul style="list-style-type: none"> A Consent to Disturb permit should be sought from MAC before works commence.
Amboyne Creek 2 (AAV 8624-0002)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 26	<ul style="list-style-type: none"> It is recommended that grading of this track be overseen by relevant Aboriginal representatives in site locations. Consideration should be given to discussing with MAC whether the artefacts should be removed from the road by Indigenous monitors before grading. A Consent to Disturb permit should be sought from MAC before works commence.
Springfields Property (AAV 8523-0159)	Agricultural activities, stock, vehicles, collecting	Very high	Artefact scatters, scarred trees, collecting	R. 27	<ul style="list-style-type: none"> It is recommended that AAV negotiate with the owners to gain access to the assemblage collected from the property by the owners to record the collection and also arrange to record the scarred trees on the property.
Area 6: Yalmy Road/Moonkan					
Moonkan Track, Moonkan 1 and 2 (AAV 8523-0092, -0093)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 28	<ul style="list-style-type: none"> It is recommended that PV should carry out works only in the presence of a qualified archaeologist and relevant Aboriginal representatives to minimise damage to the site, and when access is improved, to fully record the extent and contents of the site. The degree to which the site extends into the bush and is connected with the Varneys Track sites should also be explored. The archaeologist should identify where <i>in situ</i> deposits are retained and consideration should be given to undertaking some controlled scientific excavation at the site during this process. The aims of this excavation would be to obtain data which would provide information about the nature and timing of occupation in this area of the Snowy River corridor. At the end of the works the archaeologist and community representative should reassess the significance of the sites and should make a full set of recommendations for the protection of the site. Consultation should be undertaken with MAC and PV with the intent to the site's possible inclusion on the Register of the National Estate. The Varneys Track and Moonkan Track area should be monitored regularly (annually) subsequently. Consideration should be given to re-installing the Moonkan locked gate at the southern end of the track at the intersection. AAV should reconsider the status of the two sites (Moonkan 1 and Moonkan 2, AAV 8523-0092, -0093) and consider amending the site registration to encompass both sites as one larger site. <i>(These works are currently being carried out).</i>
Varneys Track between the	Fire suppression	Very high	Artefact scatters	R. 29	<ul style="list-style-type: none"> It is recommended that if works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the

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Snowy River and the Moonkan Track, Hicks 20–24 (AAV 8523-0094–0098)	activities, vehicles				<p>MAC for the sites.</p> <ul style="list-style-type: none"> At the end of the works on the Moonkan Track the archaeologist and relevant Aboriginal representatives will reassess context of the Varneys Track sites and determine whether they should be included in the consultation process outlined in R. 28. The Varneys Track area northwest of the Moonkan intersection should be monitored regularly (annually). No further ground disturbing works should be carried out in this location without a heritage impact assessment by a qualified archaeologist and relevant Aboriginal representative. AAV should reconsider the status of the five sites identified on Varneys Track and consider amending the site registration to encompass these as one large single site.
Area 7: Nariel Pinnibar					
All Nariel Pinnibar Sites	Various, forestry harvesting activities	High	Artefact scatters, scarred trees	R. 30	<ul style="list-style-type: none"> The study unit is an area of low density occupation, but small low density sites will be located occasionally, frequently associated with watercourses. PV/DSE staff should follow R1 when carrying out any works in this study unit. If works are proposed within 100 metres of a watercourse, consideration should be given to undertaking prior archaeological inspections of such areas with an experienced relevant Aboriginal representative.
Cattlemans Creek 1 (AAV 8424-0030)	Vehicles	Very high	Artefact scatters	R. 31	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without a heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location, PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the Bangerang Cultural Centre (BCC) and Mungabareena Aboriginal Corporation (MGAC) for the site.
Cattlemans Creek 2 (AAV 8424-0031)	Vehicles	Very high	Artefact scatters	R. 32	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without a heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Gibsons Hut 1–7 (AAV 8424-0034–0040), Dunstons Track 1–2 (AAV 0032–0033), Wild Boar Track 1 (AAV 8424-0045)	Vehicles	Very high	Artefact scatters, scarred trees	R. 33	<ul style="list-style-type: none"> It is recommended that if works are carried out in these locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Paddys Joy 1 (AAV 8424-0041)	Vehicles	Very high	Artefact scatters	R. 34	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without an heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Shady Creek 1, 1-2, 4 (AAV 8424 0042-0044)	Vehicles	Very high	Artefact scatters	R. 35	<ul style="list-style-type: none"> It is recommended that if works are carried out in these locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Area 8: Mitta Mitta Dartmouth					
Lake Dartmouth 1 and 2 (AAV 8424-0049-0050)	Water erosion, speed boats	Very high	Artefact scatters	R. 36	<ul style="list-style-type: none"> It is recommended that the land manager Murray Goulburn Water be informed of the site locations and encouraged to consult with relevant Aboriginal representatives including BCC and MGAC about site management and impact mitigation.
Hollow Way 1 (AAV 8324-00148)	Track maintenance vehicles	Very high	Artefact scatters	R. 37	<ul style="list-style-type: none"> It is recommended that the Shire of Towong be informed of the site location and encouraged to consult with BCC and MGAC regarding the management of the site. It is recommended that any grading be overseen by relevant Aboriginal representatives. Consideration should be given to discussing with relevant Aboriginal representatives whether artefacts should be moved off the road by Indigenous monitors before grading. A Consent to Disturb permit should be sought from BCC and MGAC before works commence.
Mitta Gap 1 (AAV 8324-0149)	Easement slashing/ maintenance vehicles	Very high	Artefact scatters	R. 38	<ul style="list-style-type: none"> The relevant electricity body responsible for this transmission line (SP1 PowerNet) should be informed of the site and responsibilities under the State and Commonwealth Acts. The site should be periodically monitored to review site stability and condition and any works associated with the transmission line should be monitored by relevant Aboriginal representatives and a Consent to Disturb permit obtained from BCC and MGAC prior to works commencing. If the site deteriorates it is recommended that site stabilisation works be carried out in consultation with the relevant Aboriginal representatives. It is recommended that consideration be given to carrying out further investigations including a small controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location with the aim of providing information about the nature and timing of occupation in this area. If an excavation proceeds a Schedule 1 excavation permit should sought from AAV.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Area 9: Stanley State Forest					
Stanley Forest Area	Various, recreation activities, bike riding, walking, track maintenance, forestry harvesting	Various, moderate to low	Artefact scatters	R. 39	<ul style="list-style-type: none"> The study unit is an area of possible higher density occupation, but extensive alluvial mining in the 19th century has potentially destroyed most sites in areas where sites would be expected (e.g. watercourses). PV/DSE staff should follow R1 when carrying out any works in this study unit.
Guys Creek area	None apparent	Very high	Artefact scatters	R. 40	<ul style="list-style-type: none"> It is recommended that if works are carried out in this area it should be re-examined by a qualified archaeologist with experience in quartz artefact technology, to determine whether shattered quartz in this area is Aboriginal knapping debris or 19th century goldmining debris.
Sheppards Creek 1 (AAV 8225-0178)	None apparent	Very high	Artefact scatters	R. 41	<ul style="list-style-type: none"> It is recommended that if works are carried out in these locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought for the site from the BCC and MGAC or the Minister for Aboriginal Affairs and TC depending on location.
Area 10: Buffalo N. P.					
Buffalo N. P. and surrounding Crown land in the project area	Various, recreation activities, bike riding, walking, track maintenance, forestry harvesting	Various	Artefact scatters, quarries, <i>in situ</i> deposits, scarred trees, isolated artefacts, rock shelters, art sites	R. 42	<ul style="list-style-type: none"> The study unit is an area of variable density occupation, with higher site densities on the western side of the plateau and on the plateau itself. No works should be undertaken in site locations without a heritage impact management plan prepared by a qualified archaeologist and relevant Aboriginal representatives including representatives of the Taunaurong Clans (TC). PV/DSE staff should follow R1 when carrying out any works in this study unit.
Buffalo River 1 (AAV 8224-0065)	Vehicles, camping, pedestrians	Very high	Artefact scatters	R.43	<ul style="list-style-type: none"> The condition of the site should be monitored occasionally when PV inspects the area. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and TC for the site.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Nine Mile Track 1–5 (AAV 8224–0059–0063), Durling Track Sites (AAV 8224–0070)	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R. 44	<ul style="list-style-type: none"> If works are carried out in these locations PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and TC for the sites.
Nug Nug Track 1–4 (AAV 8224–0054–0057), Nug Nug 1–2 (AAV 8224–0071–0072), the Nug Nug area	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters, rock shelters, art sites, scarred trees	R. 45	<ul style="list-style-type: none"> The area is potentially quite sensitive and there is some potential to locate rockshelters with occupation deposits and also larger sites. If works are carried out in these site locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and the TC for any site disturbance. PV staff should be alert to finding good shelter sites in this area. If shelter sites are located, the PV staff should inspect closely for signs of occupation and art. The location should be recorded with a GPS and AAV contacted to organise an inspection.
SEC Transmission Line 1–2 (AAV 8224–0073–74)	Easement maintenance, works on mining heritage site, track maintenance, vehicles, slashing	Very high	Artefact scatters	R. 46	<ul style="list-style-type: none"> The relevant electricity body responsible for this transmission line (SP1 PowerNet) should be informed of the sites and responsibilities under the State and Commonwealth Acts. The sites should be periodically monitored to review site stability and condition and any works associated with the transmission line should be monitored by a relevant Aboriginal representatives and a Consent to Disturb permit obtained from the Minister and the TC prior to works commencing. If the sites deteriorate, it is recommended that site stabilisation works be carried out in consultation with relevant Aboriginal representatives.
Lake Catani 2/3 and 4 (AAV 0033–0034)	Walkers, frost, water	Very high	Artefact scatters	R. 47	<ul style="list-style-type: none"> The condition of the sites should be monitored. If the sites deteriorate and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and the TC for the site.
Area 11: Mount Selwyn					
Mount Selwyn Sites	Various, fire suppression activities, track maintenance,	Various	Artefact scatters, scarred trees, rock shelter sites	R. 48	<ul style="list-style-type: none"> The study unit has evidence of variable occupation densities, with higher site densities on ridgelines and higher areas than the lower, damper, river valleys. No works should be undertaken in Aboriginal site locations without a heritage impact management plan prepared by a qualified archaeologist and representatives of the relevant Aboriginal communities. PV/DSE staff should follow R1 when carrying out any works in this study unit.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
	camping, walking, forestry harvesting				
Buffalo Range Dog Trap Site (AAV 8224-0064)	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R. 49	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without an heritage impact assessment by a qualified archaeologist, relevant Aboriginal representatives, and BCC and MGAC representatives It is recommended that if works are carried out in this location PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Kiewa Valley West 3 (AAV 8324-0124)	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R.50	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without an heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Mount Murray Site	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R. 51	<ul style="list-style-type: none"> A site was found on Mount Murray but not recorded as it was thought to be out of the survey team's community boundaries. This site should be recorded by a qualified archaeologist, relevant Aboriginal representatives, and GEGAC at the earliest opportunity.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Tawonga Huts Site Complex, Wurrdun Liwik 1–14 (AAV 8324-0125–0138)	Track maintenance, fire suppression activities, vehicles, riders, stock, camping, bushwalkers	Very high	Artefact scatters, rock shelters, <i>in situ</i> deposits	R. 52	<ul style="list-style-type: none"> ▪ The Tawonga Huts sites should be recorded in detail with further exploration conducted of the surrounding ridgelines. The recording process should be carried out by a qualified archaeologist with the assistance of relevant Aboriginal representatives. ▪ An effective Heritage Management Plan should be prepared for the area. ▪ Consideration should be given to a consultation program with the Aboriginal community regarding the possible nomination of the site to the Register of the National Estate. ▪ AAV should note that this archaeological exercise would form a suitable training opportunity. ▪ Several possible rockshelter locations were observed adjacent to Wurrdun Liwik 2 (AAV 8324-0126) in the site complex, but there was insufficient time to investigate them. These shelters should be investigated for possible deposits and fully recorded at the same time as the surface sites. ▪ It is also recommended that PV review access through the area in consultation with the relevant Aboriginal representatives and consideration be given to controlling access more closely through the sites to minimise impact by campers, walkers and riders. The management plan should address this issue. ▪ The condition of the sites should be regularly monitored. ▪ No further ground disturbing works should be carried out in this location without an assessment of the impact on Aboriginal heritage by a qualified archaeologist and relevant Aboriginal representatives. ▪ If the sites deteriorate and a large number of artefacts become exposed, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site. ▪ It is also recommended that consideration be given to installing interpretative signage at the hut. Consultation should be undertaken with the relevant Aboriginal representatives about wording. The sign could point out the important and strong connection of the Aboriginal community with the alpine region without indicating site location. ▪ No works should be carried out on the huts without relevant Aboriginal representatives. ▪ HV should be given a copy of this report and their attention drawn to this issue. ▪ Consideration should be given to carrying out further investigations in the valley including subsurface testing to determine whether there is any depth of deposit.
Area 12 Mount Mittamatite					
Mt Mittamatite	Walkers, vehicles, track maintenance, fire suppression activities	Very high	Artefact scatters, quarries/stone sources	R. 53	<ul style="list-style-type: none"> ▪ It is recommended that consideration be given to carrying out further survey in the park. ▪ This area would be the ideal location for a training program and AAV should give this some consideration. ▪ No works should be carried out in any site location without carrying out a works assessment as per PV Guidelines, which should be followed closely. ▪ Consultation should be undertaken with the relevant Aboriginal representatives, relevant Aboriginal representatives should monitor any works and a Consent to Disturb permit should be sought from the BCC and MGAC before any works commence.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Mt Mittamatite 2, Mount Mittamatite 8 (AAV 8425-0011, -0017)	Walkers, fire suppression activities	Very high	Artefact scatters, stone sources/quarries	R. 54	<ul style="list-style-type: none"> It is recommended that access through these sites be reviewed in consultation with the relevant Aboriginal representatives and consideration be given to controlling access more closely through the sites to minimise impact by park users, particularly in the areas to the northeast of Ranch Road. The condition of the sites should be regularly monitored. If the sites deteriorate, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Area 13: Expanded Dargo Area					
Expanded Dargo Area Study Area	Various, fire suppression activities, walkers, vehicles, track maintenance, resort activities, forestry harvesting	Very high	Artefact scatters, grinding stones, grinding grooves, rock arrangements, <i>in situ</i> deposits, scarred trees, rock shelters	R. 55	<ul style="list-style-type: none"> The study area contains a high density of Aboriginal occupation sites and is highly significant. Sites are confined to high ridges, scarce flat areas and river terraces and flats. Any works undertaken in these highly sensitive areas must be preceded by an heritage impact assessment carried out by a qualified archaeologist and members of the relevant Aboriginal community. All proposed works in the Hotham/Dinner Plain area should be monitored by relevant Aboriginal representatives.
Wire Plain 1 (AAV 8324-0114)	Development, car park, fire	Very high	Artefact scatters	R. 56	<ul style="list-style-type: none"> It is recommended the Hotham Resort Management Committee and DSE Alpine Resort Unit is informed of the site location and all legislative responsibilities. No disturbance should be carried out to the site without prior consultation with relevant Aboriginal representatives and GEGAC and a Consent to Disturb permit from GEGAC. All works should be supervised by relevant Aboriginal representatives.
Dinner Plain Track 1-4 (AAV 8323-0047, -0074-0076), Precipice Plain 1 (AAV 8323-0073), Victoria Track 1-2 (AAV 8323-	Fire suppression activities, resort development, vehicles, forestry activities, timber harvesting	Very high	Artefact scatters, <i>in situ</i> deposits, scarred trees, grinding stones, stone source/quarries	R. 57	<ul style="list-style-type: none"> It is recommended that a qualified archaeologist assisted by relevant Aboriginal representatives, map the extent of the sites, take a larger sample of artefact recordings and explore the potential for subsurface deposits and an effective Heritage Management plan be developed for the entire site complex. It is recommended that consideration be given to further investigations including controlled scientific excavations in a number of areas of the site by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives. The aims would be to determine the nature of occupation and timing of occupation in the Hotham area. If an excavation proceeds a Schedule 1 excavation permit should be sought from AAV. The site is potentially scientifically highly significant and is of great significance to the Aboriginal community. Following further investigations consideration should be given to undertaking consultation with the Aboriginal

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
0071–0072)					community to see whether the community would like the site placed on the Register of the National Estate.
Dargo River Road 3 and 4 (AAV 8323-0064–0065)	Camping, vehicles, track maintenance	Very high	Artefact scatters	R. 58	<ul style="list-style-type: none"> ▪ The condition of the sites should be regularly monitored. ▪ If the sites deteriorate, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Wonnangatta River 2 (AAV 8323-0016)	Camping, vehicles	Very high	Artefact scatters	R. 59	<ul style="list-style-type: none"> ▪ If the site deteriorates, and a large number of artefacts become exposed, or are moved onto the road and lay-by, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Wonnangatta River 4 (AAV 8323-0017)	Camping, vehicles	Very high	Artefact scatters	R. 60	<ul style="list-style-type: none"> ▪ No stabilisation works are required currently, but it is recommended that the condition of the site should be regularly monitored. ▪ If the site deteriorates, and a large number of artefacts become exposed in the camp area, consideration should be given to site stabilisation works and should include controlling the development of informal tracks. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Wonnangatta River 5 (AAV 8323-0018)	Fire, visitation, timber harvesting	Very high	Scarred tree	R. 61	<ul style="list-style-type: none"> ▪ No special management works are required by GEGAC representatives who feel ‘nature’ should take its course’, but the tree should be monitored when practical to do so.
Wonnangatta River 6 (AAV 8323-0011)	Camping, vehicles, erosion	Very high	Artefact scatters	R. 62	<ul style="list-style-type: none"> ▪ The site needs urgent stabilisation. Consultation should be undertaken with PV and relevant Aboriginal representatives to determine the most appropriate method. ▪ The PV sign should be removed and placed elsewhere. ▪ Ideally the site should be covered with a thin covering material foreign to the area (e.g. white sand), then a covering of soil and finally vegetation indigenous to the area. ▪ The relevant Aboriginal representatives may recommend that the site is carefully recorded by a qualified archaeologist and then all artefacts collected instead. <p><i>(These works are currently being implemented)</i></p>
Wonnangatta River 8 (AAV 8323-0013)	Camping, vehicles, erosion	Very high	Artefact scatters	R.63	<ul style="list-style-type: none"> ▪ Consultation with GEGAC representatives established that no stabilisation works were required currently, but it is recommended that the condition of the site should be regularly monitored. ▪ If the site deteriorates, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Area 14: Tom Groggin					
Tom Groggin Area	Camping, fire suppression activities, forestry harvesting	Various	Artefact scatters, scarred trees, <i>in situ</i> deposits	R. 64	<ul style="list-style-type: none"> The study unit is an area of moderate to low density occupation. Sites may occur fairly frequently particularly associated with watercourses. No works should be undertaken in site locations without a heritage impact management plan prepared by a qualified archaeologist and representatives of the MAC. PV/DSE staff should follow R1 when carrying out any works in this study unit. Where works are planned in sensitive locations such as within 100 m of a watercourse, works should be monitored by MAC and Monaro People representatives.
Tom Groggin (TG) 12 (AAV 8524-0197)	Camping, vehicles	Very high	Artefact scatters	R. 65	<ul style="list-style-type: none"> Site TG12 is on the Dogmans Hut camping area immediately adjacent to the Snowy River so was the most intensively used of all areas where sites were found and the only one which might deteriorate and/or where works might be carried out. If the site deteriorates, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the Moogji, in consultation with the Monaro People.
Other Recommendations					
Monitoring Program				R. 66	<ul style="list-style-type: none"> Consideration should be given to the development of a monitoring program for the sites located in the Alpine National Park. This would more efficiently monitor this valuable resource, provide valuable training for PV/DSE staff and opportunities to liaise with the relevant Aboriginal community. When established the program could be integrated with track inspection or other regular maintenance programs. The program should undertake to: <ul style="list-style-type: none"> Develop a regular inspection regime and effective inspection procedures. Identify the physical condition and any conservation works required. Establish a management framework where better planning can be developed and undertaken, and where heritage funding across State and Commonwealth government can be sought and allocated. Identify training opportunities for participants and for PV/DSE staff. When established, the program could be integrated with track inspection or other regular maintenance programs. A training or heritage awareness program should be developed that complements this inspection program and which enables a minimum level of information to be collected. An example of necessary information is provided in Appendix 6.

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Acknowledgements

A large number of people have assisted with the preparation of this assessment and report including:

Russell Mullett (Gunai Kurnai) to whom I am deeply indebted.

Julia Cusack, Bindi Thomas, Mathew Phelan, John Tunn, Kirsty Lewis (Aboriginal Affairs Victoria).

Kate Millar, Ricky Mullett, Murray Rankin, Peter Jacobs, Patrick Fricker, Andy Nixon, Libby Jude, Peter Lawrence, Felicity Brooke, Dave Foster, Ian Christie, Christine Wrench, Colin Leigh (Parks Victoria).

Rachel Mullett, John Mongta (Monaro People).

John Hayes, Eadie Terrick, Margaret Terrick (Bidawal People)

Chris Allen, Tania Carter, Tom Martin, Nigel Beswick, Paula Martin (Moogji Aboriginal Council).

Shaun Huguenin, Glen Digby, Lionel Dukakis, Gail Penfold, Ted Stabb, Rob Stewart (DSE).

Mick Harding, Barry Kenny, Kevin Atkinson (Northeast and Gippsland Regional Cultural Heritage Units).

Alan Murray (Mungabareena Aboriginal Corporation).

Kelvin Atkinson, Sandy Atkinson (Bangerang Cultural Centre).

Brian Patterson, Trish Terry, Troy Melville, Damien Melville, Michelle Monk (Taunurong Clans).

Albert Mullett, Colon Mullett, Malcolm Sealy, Timmy Farnham, Colin Hood, Johnny Martin, Samuel and Benjamin Pender, Grattan Mullett, Norman Hood, Robert Hood, Alan Green (Gunai Kurnai, Yeerung Kurnai and GEGAC).

Garry Murray, Ken Stewart, Jida Murray Gulpilil, Nick Stewart, Cain Raudino, Andom Renell, Kevin Melrose, Thomas Kinchela, Lisa Arnold, Neil (Sunny) Newman. (Dhudhuroa People).

John Doyle, Cassandra Marsh (Perspectives Heritage Solutions Pty Ltd).

Phillip Hughes, Wilfred Shawcross, David Wines, Chris Price, Terry Kelly, David Johnson, Sophie Collins, Oliver McGregor, Phil Hunt, Doug Williams, Claudia Zipfer (Team Archaeologists).

Abbreviations

AAV	Aboriginal Affairs Victoria (DVC)
AHC	Australian Heritage Commission
AMG	Australian Map Grid
APZ	Archaeological Potential Zoning
ASA	Actual Survey Area
BCC	Bangerang Cultural Centre
BPA	Board for the Protection of the Aborigines in the Colony of Victoria
DNRE	Department of Natural Resources and Environment (formerly DCNR, now DSE)
DSE	Department of Sustainability and Environment
DP	Dhudoroa People
DVC	Department for Victorian Communities
ECC	Environment Conservation Council (formerly LCC)
EGU	East Gippsland Uplands (Victorian Alps Bioregion)
EIS	Environmental Impact Survey
ESA	Effective Survey Area
FCL	Fire Control (Containment) Line
FMA	Forestry Management Area
GEGAC	Gippsland East Gippsland Aboriginal Co-operative
GIS	Geographic Information Systems
GRCHP	Gippsland Regional Cultural Heritage Program
GRU	Geographic Representation Unit
HN	Northern Fall (Victorian Alps Bioregion)
HS	Southern Fall (Victorian Alps Bioregion)
HV	Heritage Victoria (DSE)
ICOMOS	International Council on Monuments and Sites
LCC	Land Conservation Council (now ECC)
M.A.S.L	Metres above sea level
MGAC	Mungabareena Aboriginal Corporation
MAC	Moogji Aboriginal Council
MP	Monaro People
NERCHP	North east Regional Cultural Heritage program
NNTT	National Native Title Tribunal
NSW NPWS	New South Wales National Parks and Wildlife Service
PAD	Potential archaeological deposit
RFA	Regional Forest Agreement
SA	Study Areas
TC	Taunurong Clans
VA	Victorian Alps (Victorian Alps Bioregion)

1 Introduction

During 2003 a large bushfire burnt over 1.2 million hectares of private and public land in the high country of northeast Victoria and Gippsland. A large number of ground-disturbing activities were required to contain and suppress the fire including the construction of over 3000 access tracks and fire containment lines, and widening of 1600 existing tracks. The fire affected a range of environments including low altitude riparian environments, eucalypt forests, alpine heathlands, grasslands and bogs.

The Public Land Ecological and Cultural Bushfire Recovery Program, a program set up by several agencies to assist the recovery of communities, the environment and infrastructure, recognised that Indigenous cultural heritage values within the bushfire affected areas were significantly affected by both the fire and the fire suppression activities. The program believed that effective ongoing management and better planning for cultural heritage values in the highland and alpine regions would be enhanced through an increased understanding of the nature and extent of the impact of bushfires on Indigenous heritage values.

The Public Land Ecological and Cultural Bushfire Recovery Program aimed to collect this information through a project which would investigate and assess the impact of the bushfire and fire suppression activities on Indigenous cultural heritage values on public land. This project would also include an assessment of the impact of the bushfire on non-material heritage values including spiritual places and historic connections. The project would be managed jointly by Parks Victoria (PV) and the Department of Sustainability and Environment (DSE).

There was a limited amount of information about the nature and extent of precontact and post-contact Aboriginal occupation of the proposed study areas. Many of the proposed study areas had not been subject to any cultural heritage investigation, although oral and historical information exists for the study region. Archaeological scoping studies had already been conducted in the fire affected areas in public land, locating a range of Aboriginal cultural sites, and this information formed the basis for the selection of the proposed study areas.

Parks Victoria (PV) and the Department of Sustainability and Environment (DSE) therefore required that an archaeological survey for Aboriginal cultural heritage values be conducted within 12 study areas (later expanded to 14 areas), in the highlands and alpine regions of northeast Victoria and Gippsland. The project would require close consultation with, and the participation of, the relevant local Indigenous communities and the mentoring and training of Indigenous staff employed by DSE and PV in field techniques including artefact identification, use of field equipment, site recording and in developing management options.

1.1 The Study Areas

PV and DSE have therefore commissioned Perspectives Heritage Solutions Pty Ltd to undertake the project in the following 12 study areas:

- (1) Mount Sarah/Winchester/Dargo High Plains.
- (2) Bundarra River/Glen Valley.
- (3) Gibbo River.
- (4) Tambo River.

- (5) Mount Taylor/Tubbut.
- (6) Yalmy Road/Moonkan Track.
- (7) Nariel/Mount Pinnabar.
- (8) Mitta Mitta/Dartmouth.
- (9) Stanley State Forest.
- (10) Mount Buffalo.
- (11) Mount Selwyn.
- (12) Mount Mittamatite.

The 12 project areas were later increased to 14 study units with the inclusion of two extra units: expanded Dargo (13) and Tom Groggin (14) (Figure 1).

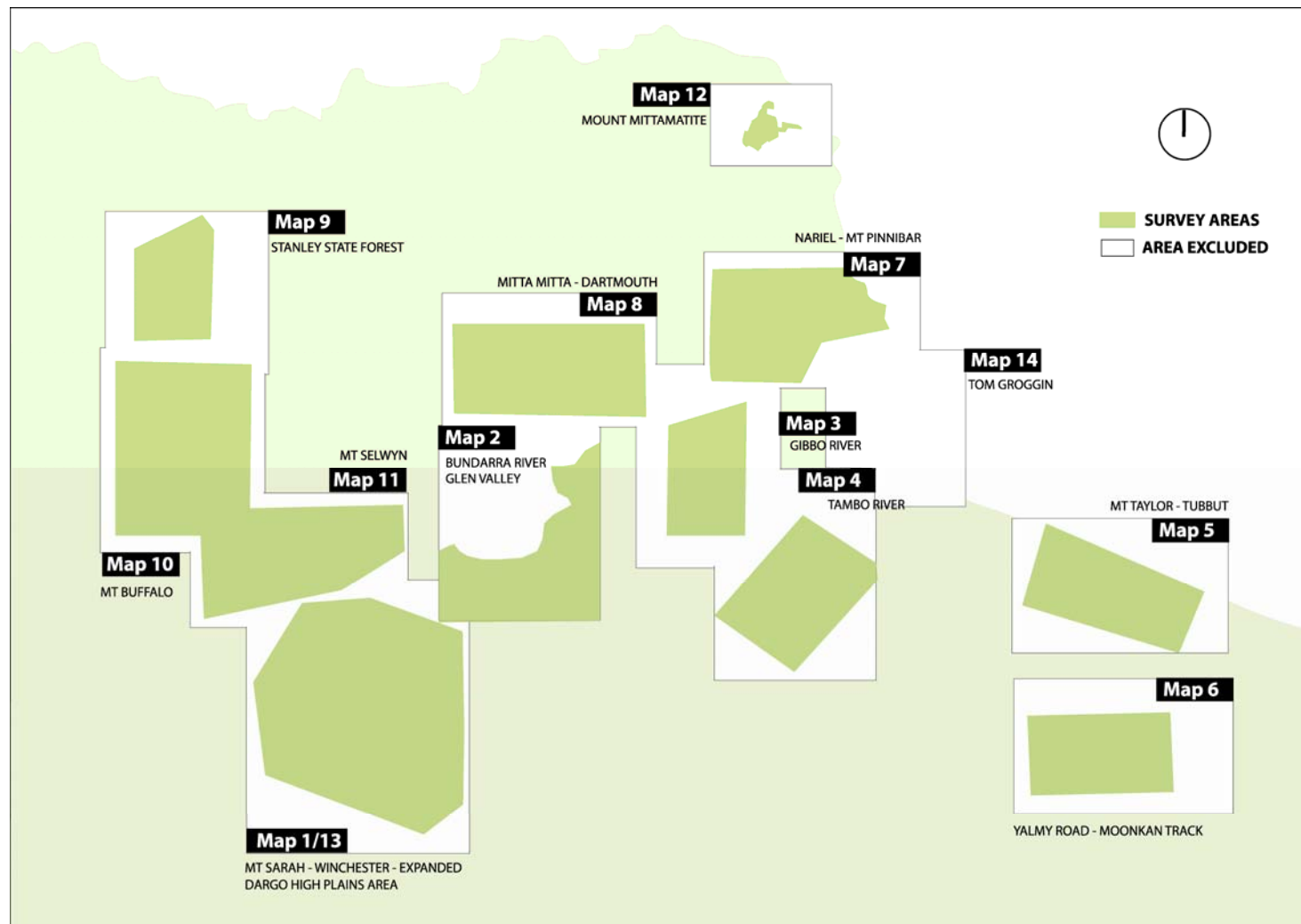
The brief provided to the consultants outlined the following objectives to be carried out in close association with relevant Aboriginal representatives including traditional owners:

- To develop and execute an archaeological survey strategy which exploits the enhanced ground surface visibility conditions and tests currently understood predictive models of Indigenous occupation across the project area.
- To assess and document the nature and extent of damage caused by wildfire and the associated fire suppression activities to Indigenous cultural heritage values across the project area, and to provide recommendations for protection and future management. This assessment should also identify and discuss the concept of a cultural landscape, spiritual significance and of historical connections to Indigenous communities.
- To target areas not previously surveyed but of known or predicted occupation.
- To assess identified Aboriginal cultural heritage sites and areas in each survey location for their condition using criteria normally applied to the assessment of cultural heritage values.
- To work with the Aboriginal community in documenting matters such as cultural significance and traditional interpretation of recorded sites, and in developing appropriate management options.
- To make recommendations for the development of Heritage Action Plans for the significant Indigenous cultural heritage values of the project area.
- To mentor and train Indigenous staff employed by DSE/PV during the project in the area of heritage field survey, including cultural artefact, identification and handling, use of field equipment, site recording and in developing management options'

The project was managed by a Steering Committee made up of DSE, PV and Aboriginal Affairs Victoria (AAV) representatives and representatives of Indigenous stakeholder groups. The field survey was carried out by Joanna Freslov, Phillip Hughes, Russell Mullett, David Wines, David Johnston, Terry Kelly, Chris Price, Wilfred Shawcross, Claudia Zipfel, Sophie Collins, Oliver McGregor, Doug Williams and Phil Hunt for Perspectives Heritage Solutions Pty Ltd, and representatives of the following Aboriginal groups:

- Gippsland East Gippsland Aboriginal Cooperative.
- Mungabareena Aboriginal Corporation.

Figure 1: Study areas



- Moogji Aboriginal Council.
- Bangerang Cultural Centre.
- Gunai Kurnai People.
- Yeerung Kurnai People.
- Taunaurong Clans.
- Dhuduroa People.
- Monaro People.
- Bidawal People.

The conduct of the survey and the assessment comply with the *Guidelines for Conducting and Reporting upon Archaeological Surveys in Victoria* (AAV 1997) and the conservation principles of *The Burra Charter* (Marquis-Kyle and Walker 1992).

1.2 Consultation and Stakeholders

Consultation was carried out with all stakeholders prior to the project commencement by PV, DSE and AAV. Indigenous participation in the project design, through the project Steering Committee, and also participation in the selection of the project consultant, ensured consultation commenced at the inception of the project and resulted in Indigenous ownership of the project.

Project archaeologists also have statutory obligations to notify Aboriginal Affairs Victoria (DVC) prior to conducting heritage assessments and to consult with Aboriginal people regarding their heritage. The consultant therefore carried out a preliminary consultation process with Indigenous stakeholders that built on the preliminary consultation process carried out by the committee, and continued the consultation process throughout the project. This consultation process forms the basis for the significance assessment and for the recommended actions (see Volume 3).

1.3 Consultation with Statutory Bodies

1.3.1 Aboriginal Affairs Victoria

When a survey is conducted for Aboriginal sites in Victoria, it is a requirement of the *Archaeological and Aboriginal Relics Preservation Act 1972* that a Schedule 2 'Notification of Intention to Carry out a Survey' be lodged with Aboriginal Affairs Victoria prior to conducting an archaeological survey. Aboriginal Affairs Victoria was notified of the intention to conduct a survey on 14 January 2004. Acknowledgement of the receipt of the Schedule 2 application can be found in Appendix 2.

During the background review of the archaeology of the study areas and surrounding regions, the Aboriginal Affairs Victoria Aboriginal Sites Register, Aboriginal Historic Places Database, Reports Listing and Geographic Information Systems Mapping Program were checked for information about sites and archaeological studies in the study area.

1.4 Consultation with Other Stakeholders

1.4.1 Aboriginal Community Organisations

Consultation with the relevant Aboriginal people for any given area can be quite complex and time consuming in Victoria. The complexity is the legacy of a series of changes in

legislation and government policy over the last 30 years, which had the intent to promote the role of Aboriginal people in the management of their own heritage.

Though not hierarchical, three tiers of Aboriginal stakeholders can be broadly identified who should be consulted about projects: Regional Cultural Heritage Programs, Local Aboriginal Communities and Native Title Stakeholders. Aboriginal people with an interest in an area may have representation in all or only one section of these community organisations or representative bodies. These groups are discussed briefly below.

1.4.2 Regional Cultural Heritage Programs

AAV funds heritage programs in five regions across the State whose function is to coordinate and facilitate heritage protection and effective consultation with Aboriginal people in those regions, though they do not have legislated responsibilities. In the study area the relevant regional organisations are the Gippsland Regional Cultural Heritage Program (GRCHP) and the Northeast Regional Cultural Heritage Program. Mr Mick Harding and Mr Kevin Atkinson were contacted prior to the survey to discuss the project. Mr Harding participated in the survey. (Consult Volume 3 for full details of the consultation process).

1.4.3 Local Aboriginal Communities

In order to facilitate Aboriginal participation and consultation in heritage matters, Part IIA of the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* established a network of locally based Aboriginal communities (Simmons 1997: 10). The communities and their exact geographic boundaries are listed in the schedule to this Act. Aboriginal people associated with these legislated communities may have a range of associations with the land within their boundaries. Their ties to the community areas may have existed since the pre-contact period and contact period, or they may be historical from the post-contact period or from the recent past through marriage or kinship.

The study area falls within the legislated boundaries of a number of co-operatives and communities. All consultation with community groups is recorded in Volume 3 in the consultation section

1.4.4 Native Title Claimants

The survey was carried out almost entirely on Crown land. All relevant native title claimants (traditional owners) were consulted about this project and many actively participated in the survey. The record of consultation (Volume 3) should be referred to regarding this process.

1.4.5 Discussion

The consultation process initiated by the Steering Committee identified all the current nominated Aboriginal community stakeholders who either indicated that they wish to be consulted about cultural heritage within the study areas, or who have a statutory responsibility for Aboriginal cultural heritage in the study areas. They were consulted about the survey, informed of the results of the survey and conferred with regarding the management recommendations.

1.5 The Report

The project was extensive in its coverage of issues and in sheer scale. As a result the project report has been divided into four volumes. These are:

1.5.1 Volume 1: Survey, Results, Management of Cultural heritage Values, Recommendations

- Discussion of the basis for the sensitivity zoning modelling.
- A brief review of the archaeology of the alpine region.
- Survey results for the 14 study areas.
- Management recommendations
- Bibliography.
- Brief.
- Notifications and permits.
- Legislative requirements.
- Significance assessment.
- Advice on the discovery of human remains.
- Glossary.

1.5.2 Volume 2: Management of Impacts to Indigenous Cultural Heritage Values During Fire Suppression Activities

- Background review.
- Methodological procedures and results.
- Management context.
- Management options.
- Bibliography.

1.5.3 Volume 3: Post-contact history, Oral History, Record of Consultation

- Post contact history.
- Oral history and interviews.
- Consultation process.
- Plain language summary of the survey results.
- Bibliography.

1.5.4 Volume 4: Site Survey Data

- All data recorded during the survey.

1.5.5 Report Distribution

To comply with the requirements of PV, DSE and the relevant statutory body, AAV, copies of the final report will be provided to the following organisations:

- Parks Victoria (copies as required).
- DSE (copies as required).
- Aboriginal Affairs Victoria (two copies).
- Aboriginal representative bodies (copies as per the brief).
- One copy will be retained by the consultant.

The following sections therefore comprise the report on the survey.

2 A Review of Archaeological Investigations and Predictive Models in Forested Landscapes in Eastern Australia³

2.1 Context

Numerous studies in forested areas in eastern Australia, including the present study areas, have shown that from the known archaeological resources and their environmental settings it is possible to predict with varying degrees of confidence the nature, distribution and location in the landscape of the as yet undiscovered archaeological resources. The following summary review of the application of archaeological predictive statements to forested landscapes in eastern Australia is based on the detailed review undertaken by Hughes for the development of an Aboriginal heritage management model for the Victorian forests (Hughes and Buckley 2000: 6–23).

This review starts with NSW and Tasmania, as it is in those two states that the greatest amount of systematic archaeological investigation of forested land has occurred.

2.2 New South Wales

2.2.1 Early Work in Southern NSW

The results of early work in the southern coastal hinterland forests in NSW indicated that in rugged terrain there was a strong correlation between landscape characteristics (especially landforms) and site location. The work of Egloff (1984) and Byrne (1984) in the Five Forests and the Wandella-Dampier Forests showed that most sites consisted of small scatters of stone artefacts located in saddles and other flat areas along the spines of ridges (referred to as ridgelines). Byrne (1984) argued that the constraints implicit in the rugged terrain were likely to have limited both Aboriginal movement and habitation to ridgelines. Byrne (1984) interpreted the archaeological record as marking a pattern of movement across the landscape (along ridgelines) rather than a pattern of settlement. Lomax (1997) has termed Byrne's model of site locations the 'ridgeline' model of movement.

³ This section has been compiled by Phillip Hughes

In the Wandella-Dampier survey area (which had been subject to relatively low intensity logging) the density of sites was 1.3/km². In contrast, in the Five Forests (which had been intensively logged) the density was 0.34/km². Byrne (1984) considered that the difference indicated the high rate of attrition of sites under logging. Just as the steep terrain constrained Aboriginal movement across the landscape (confining it to ridgelines), so the network of logging access tracks was similarly constrained. The outcome is that roads follow ridgelines and coincide with the most likely placement of archaeological sites. Also, log dumps can only be sited on flat ground, and this is at such a premium in rugged country that often all the 'flats' on a ridgeline will be so used.

2.3 Later Work in NSW

2.3.1 Background

Detailed up-to-date overviews of archaeological investigations in forested landscapes in eastern NSW and management procedures and implications are presented in Hall and Lomax (1996) and Lomax (1997). Numerous EIS surveys have been undertaken for State Forests of NSW (see references for reports examined for this study) as well as overviews for NPWS, AHC and other agencies, or for research purposes (e.g. Gollan 1992, Hall 1992, James and Conyers 1995, Packard 1991).

Almost all of the archaeological sites recorded in these surveys have been surface scatters of stone artefacts. Consequently the following discussion concentrates on this type of archaeological occurrence.

Other kinds of sites have been found in the course of these surveys. These include rock shelter occupation and art sites, rock engravings, axe grinding grooves, quarries, stone arrangements, bora rings, scarred trees and burials. Mostly these were uncommon to rare, except where sandstone crops out. In the Sydney region, for example, several thousand 'sandstone sites' (mainly rock shelters, rock engravings and axe grinding grooves) have been recorded within or in close proximity to State forests or other forested lands (see Kinhill 1995a & b). Site types such as burial grounds, scarred trees and bora grounds are generally located in those areas which were the primary focus of Aboriginal occupation and exploitation, i.e. productive lowland riverine areas and the coastal and estuarine zones, rather than the more marginal areas occupied by the present day commercial forests (Lomax 1997:10).

2.3.2 Results

The forested areas investigated in the course of these EIS and other surveys cover tens to hundreds of thousands of hectares each. In terms of area surveyed, coverage was minuscule, however as Lomax (1997) argued, the work to date can be considered a reasonable starting point for formulating an understanding of the archaeological resources as a basis for their management. Thousands of artefact occurrences or sites have now been recorded in forests. They occur in all forest types at average densities of 0.4 to 3.1 artefact occurrences per kilometre of survey transect (Table 1, which includes comparable data from Victoria). In the eight survey areas described by Hall and Lomax (1996: 35) 66% to 83% of the artefact occurrences had between one and four artefacts, and only 0% to 8% had more than 50 artefacts.

Table 1: Stone artefact occurrences recorded in nine comparable forest surveys

STUDY AREA	TOTAL NO. OF ARTEFACT OCCURRENCES	TOTAL LINEAR KM SURVEYED	ARTEFACT OCCURRENCES PER KM	SOURCE
East Gippsland				
Cann River	165	53	3.1	Hall 1991
Snowy River	121	82	1.5	Hall 1991

STUDY AREA	TOTAL NO. OF ARTEFACT OCCURRENCES	TOTAL LINEAR KM SURVEYED	ARTEFACT OCCURRENCES PER KM	SOURCE
Cobberas	98	43	2.3	Hall 1991
Errinundra	32	32	1.1	Hunt 1993
Combienbar	13	20	0.7	Hunt 1993
Genoa-Wingan	56	52	1.1	Hunt 1993
Lower Snowy	56	51	1.1	Hunt 1993
Central and Northern NSW				
Morisset	71	39	1.8	Kinhill 1995a
Gloucester	25	26	1.0	Byrne 1992
Kempsey/Wauchope	55	38	1.4	Packard 1992
Grafton	50	28	1.8	Hall and Lomax 1993a
Tenterfield	9	25	0.4	Byrne 1993
Casino/Murwillumbah	74	43	1.7	Hall and Lomax 1993b
All studies	825	532	1.6	

(Hall and Lomax 1996, Table 1 with additional data from East Gippsland and Tenterfield)

There was some evidence to support Byrne's (1984) observation that the density of archaeological materials is higher in unlogged forests than in logged forests. Kuskie (1994: 36–44) found that there were slightly fewer (but generally much smaller) sites and considerably lower densities of artefacts in the logged Dorrigo forests than in the unlogged forests. The frequency of occurrence of artefacts in unlogged forest was 40 times higher than in unlogged forests. There was an average of 29 artefacts in artefact scatters in unlogged forests as against 2.5 artefacts in logged forests. The difference was consistent across environmental units. He tentatively concluded that logging activities in the logged forests had affected the archaeological record to the extent that only a small proportion of the original population of artefacts could be detected during his survey. It should be noted however that Kuskie mainly surveyed disturbed tracks in both logged and unlogged areas, not the forest floors themselves.

The patterns of site distributions across the landscape varied within and between survey areas, as described and discussed below.

Very few excavations have been undertaken to determine how representative the surface visible manifestations of the artefact occurrences might be of the localities where artefacts have been recorded. Two excavation programs in the forests of northern NSW—in Nulla Five Day Forest (Lomax 1994) and eastern Chaelundi State Forest (Sullivan *et al.* 1996) – have provided comparable data on this issue.

Sullivan *et al.* (1996) excavated five of the Chaelundi State Forest surface stone artefact scatter sites in northeast NSW originally recorded by Kuskie (1994). The results showed that the surface-visible exposures may represent the range of artefact types and raw materials, but grossly under-represent the density of stone artefacts in undisturbed sites (Sullivan *et al.* 1996:55). The average artefact densities at these five sites as revealed by the excavations were between 26 and 406/m². When compared with the densities from the recorded surface exposures (mainly along tracks) the indications were that sub-surface artefact densities can be 100 to 10,000 times higher in the undisturbed parts of the sites than were evident from track exposures. This may be an extreme example as the

excavated sites were selected because they were considered to have good archaeological potential.⁴

In her excavations of the Comara Range site, located on a ridge saddle in rugged ranges of the Nulla Five Day Forest, Lomax (1994) recorded an average artefact density of about 17/m², rising to a maximum of 41/m² in undisturbed parts of the site. Again, these densities were up to several orders of magnitude higher than those recorded from surface exposures of artefacts in this site.

Hence the archaeological occurrences (generally termed sites) which are recorded in the course of forest surveys merely reflect what can be seen on the surface in imperfect 'windows' of archaeological visibility (see also Lomax 1997). Many other surface sites remain undetected, even in areas surveyed, because they are obscured by vegetation or organic litter. The results of the limited excavations undertaken to date indicate that even greater amounts of archaeological material occur undetected beneath the surface (even where the soils are very shallow).

2.3.3 The Location of Archaeological Sites in the Landscape

The ranges in composition, sizes, densities and frequencies of occurrence of archaeological sites (in particular stone artefact occurrences) appear to show more variability within forests at the district level than between forests at the regional or State level. There are however, considerable variations in site location within and between forests, variations which reflect the opportunities and constraints imposed on prehistoric Aboriginal use of the land by the physical configuration of the landscape.

In dissected forested uplands in particular, site location is determined principally by terrain characteristics (Lomax 1997). As discussed above in relation to Byrne's (1984) ridgeline model, this is a direct reflection of the topographic constraints imposed upon human movement, where movement is restricted to specific pathways such as ridgelines. This ridgeline model has been shown to apply to steep, dissected forested uplands regardless of where they occur geographically. In such landscapes the nature and distribution of archaeological sites can be predicted with a relatively high degree of confidence.

In less dissected terrain the tendency for archaeological materials to cluster on linear landforms away from water such as ridgelines was much less pronounced, reflecting the fact that the constraints on Aboriginal movement were correspondingly less pronounced (Hall and Lomax 1996, Lomax 1997). In these landscapes there is little landform focus for site formation, although sites tend to occur more frequently on high ground (such as terraces or ridge spurs) adjacent to waterways and swamps than elsewhere. Because of the lack of landform focus, it is correspondingly more difficult to both predict site locations and to intersect sites by surveys.

The effect of differing degrees of dissection of the landscape on the frequency of occurrence of archaeological sites along ridgelines was illustrated by Hall and Lomax (1996, Figure 2) in their analysis of data for the Casino and Grafton forest management areas in NSW. In the more highly dissected inland ranges there were about three artefact occurrences per kilometre of survey transect, compared with less than one artefact occurrence per kilometre in the much less dissected lowland hills.

A summary of the different relationships between archaeological site distributions and different landscape settings for a number of forest studies is presented in Table 2.

⁴ Similar results have been observed in a series of excavations of surface lithic scatters in the King River valley, southwest Tasmania, where high artefact densities (e.g. 100/m²) were found in sediments beneath low density surface scatters (e.g. 1–2/m²) (Freslov in prep.).

Table 2: The distribution of archaeological sites in forested landscapes

STUDY AREA	LANDFORM PATTERN	DISTRIBUTION OF ARCHAEOLOGICAL SITES	SOURCE
Otway Ranges			
34 survey blocks	Highly variable ranging from coastal to inland plateau with moderately to steeply sloping terrain on the coastal and inland sides of the plateau.	<p>Artefacts were found in all landform elements surveyed, i.e. they were widely distributed across the landscape. Three archaeological sensitivity zones were defined and mapped:</p> <ul style="list-style-type: none"> • SZ1 - southern periphery of Otway Range. Highest sensitivity with both shell middens and artefact scatters, and possibly rock shelter sites. • SZ2 - Northern periphery of Otway Range. Moderate sensitivity with artefact scatters predicted to occur on the crests of ridges and hills • SZ3 - Interior of Otway range. Low sensitivity with small artefact scatters predicted to occur on tops of ridges. 	Richards 1998
Central Highlands			
Nine specific survey areas	Mainly dissected uplands between 300m and 900m above sea level. Lowland foothills below 300m.	Artefacts were found in all landform elements surveyed, i.e. they were widely distributed across the landscape. Most of the artefacts (and at the highest densities) occurred either in association with drainage lines (on the lower slopes, flats and creek banks) or on crest and saddles along ridgelines (the latter especially in steep, dissected terrain)	Grinbergs 1993
East Gippsland			
Cann River, Snowy River and Cobberas	Coastal and alluvial plain Low-lying hills Dissected highlands Dissected plateau Intermontane valleys	<p>In all landform patterns the highest densities of artefacts always occur along drainage lines or around swamps, with a relatively lower density along ridgelines. Very few artefacts occur on upper slopes. Along drainage lines, artefacts occur on stream flats and banks and spurs immediately above them.</p> <p>Drainage lines act as pathways, are sources of water, are highly productive in plant and animal foods and offer access to adjacent forest resources.</p> <p>Ridgelines were probably used as pathways by people traversing the country between drainage lines or other resource areas such as quarries</p> <p>Spurs provided access between ridgelines and drainage lines, as well as suitable campsites from which to exploit the valley resources.</p> <p>Away from riparian areas, dry sclerophyll forests and woodlands have higher artefact densities than wet sclerophyll types.</p> <p>There was little variation between the lowland hills (Cann), highlands (Snowy) and the sub-alpine zone (Cobberas)</p>	Hall 1990, 1991, 1992, Geering 1981
Errinundra, Combienbar, Genoa-Wingan and Lower	Similar range to the earlier surveys by Hall (1991)	Similar to Hall (1991) surveys, but less clear cut relationships between site distribution and environmental settings	Hunt 1993

STUDY AREA	LANDFORM PATTERN	DISTRIBUTION OF ARCHAEOLOGICAL SITES	SOURCE
Snowy			
Orbost District	Similar range to the earlier surveys by Hall (1991) but without coastal and alluvial plains components	Similar to Hall (1990) surveys, but with more substantial site occurrence along elevated landscape features such as ridgelines and spurs in the absence of major valleys and watercourses in the survey areas.	Knight and Evans 1998
Southern NSW			
Five Forests	Mainly steep-sided moderately dissected uplands	Most sites were located in saddles and on other flat areas along ridgelines. Apart from the few poorly drained flats adjacent to creeks, the only flat ground was on ridgelines	Byrne 1984
Dampier-Wandella	Steep-sided dissected uplands	Most sites consisted of small scatters of stone artefacts located in saddles and other flat areas along ridgelines. Only one of the 27 sites found was along a drainage line. The sites were seen as marking a pattern of prehistoric movement across this landscape rather than one of settlement, with the ridges being used as a web of pathways.	Byrne 1983, 1984,
Queanbeyan-Badja	Hilly to mountainous terrain	Similar to Hall (1990) survey, i.e. most archaeological materials on raised ground (especially spurs) along drainage lines. Spurs and upper slopes used rather than ridgelines, possibly because upper slopes provided greater protection from the weather than ridgelines, and spurs may have been used as routes for crossing major ranges.	Grinbergs and Knight 1995
Batemans Bay	Coastal hills	Similar to Hall (1990) survey, but with large artefact scatters occurring at junctions of major ridges, especially those adjacent to river or stream valleys. Linear features were not only routes of movement but also resource and occupation zones.	Knight 1996
Central and Northern NSW			
Morisset	Mainly highly dissected steep-side sandstone plateau. Some low rolling hills	About 4,800 recorded sites in region encompassing the forests (mainly 'sandstone sites' associated with sandstone outcrops). Study area divided into 10 environmental zones for which comprehensive predictive statements made with levels of confidence ranging from high for archaeologically well-known zones to low for zones which were archaeologically unknown. Because of the highly distinctive sandstone terrain in these zones, the kinds of sites and their topographic settings were appreciably different from other forests in eastern Australia. The nature and distribution of stone artefact occurrences was broadly similar to that described for other forests, i.e. in this highly dissected terrain most occur on ridgelines rather than drainage lines, except where the latter are in valleys broad enough to have alluvial flats and terraces.	Kinhill 1995a & b
Gloucester-Chichester	Mainly dissected uplands	Highest artefact densities were on spurs and ridges, with the focus of Aboriginal activity in the zone between drainage lines and ridges. Few artefact occurrences were found on flats along creek lines.	Byrne 1992
Grafton	Coastal ranges	Very few and small sites on ridges, low spurs and stream flats. Moderate potential for	Hall and Lomax 1993a

STUDY AREA	LANDFORM PATTERN	DISTRIBUTION OF ARCHAEOLOGICAL SITES	SOURCE
		sandstone shelter sites.	
Tenterfield	Lowland hills	Very few and small sites on ridges, low spurs and stream flats. Some potential for sandstone shelter sites.	Byrne 1993
	Ranges and escarpment ranges, and escarpment ranges foothills	Relatively high density of sites along ridgelines, spurs and stream banks/flats. Highest density on low spurs adjacent to streams. In the foothills some potential for sandstone shelter sites.	
	Ranges zone – dissected uplands with two sub zones:	Artefacts were most densely concentrated in the 450–750m altitude range in the lower altitude forests, arguably because this had a higher index of ‘habitability’ because of its warmer climate and more abundant food resources (medium-sized macropods). In both sub-zones saddles and crests appear to have been favoured over slopes and creek flats in terms of artefact density.	
	Lower altitude-eastern geology belt-coastal hardwood		
	Higher altitude –granite-tablelands hardwood	On both the high altitude ranges and plateau the densities of artefacts were very much lower. In the ranges most occurred in saddles and on crests. On the plateau there was a tendency for most to occur close to swamps.	
Casino-Murwillumbah	Plateau/swamp zone (higher altitude)		Hall and Lomax 1993b
	Coastal ranges and lowlands	Relatively few and small sites widely dispersed over the landscape rather than confined to topographically defined lines of movement or water. Highest densities found on flatter parts of the terrain wherever this occurred (including along drainage lines).	
	Escarpment ranges and ranges	The largest and most complex sites found in this zone. Sites occur along ridgelines and stream banks/flats and low spurs. Highest densities on ridge hillocks, saddles and benches. High potential for quarries.	
Dorrigo	Volcanic ranges	These formed the highest parts of the landscape and contained large areas of wet sclerophyll and rainforest. Sites relatively common, but very small in size. No clear patterns of relationships with topography or forest type, and unexpected patterns of site distribution were common.	Kuskie 1994
	Escarpment ranges characterised by plateaux and steep hills	Numerous artefact scatters, some of them large, along ridgelines (low gradient ridges and saddles) and on low spurs adjacent to drainage lines, especially major creeks. Some sites found on stream and swamp banks. The highest artefact densities occurred close to major watercourses. Densities were higher on narrow ridgelines than on broader ridgelines.	

Clearly there has been considerable variation within and between survey areas. Terrain/landform pattern has proved to be the major determinant of site location, but other factors such as distance away the coast and major coast valleys, altitude and vegetation type also clearly influence the patterns of archaeological site nature and distribution.

The sampling strategies used in these surveys concentrated on those parts of the landscape most likely to contain archaeological sites in the form of scatters of stone artefacts such as ridgelines, spurs and drainage lines. Those parts of the landscape least likely to contain artefact scatters, especially steeply sloping ridge sides, have received less attention, partly because access to such areas is often very difficult and 'archaeological visibility' is usually extremely poor due to the lack of forest tracks. The densities of artefacts recorded from ridge sides were almost always very much lower than elsewhere in the landscape, but sizes of the areas surveyed and the numbers of artefacts recorded were usually too small to allow firm conclusions to be drawn.

In their survey of parts of the McPherson State Forest in Sydney Basin sandstone terrain the Kinhill (1995b) survey team covered 58 ha of mainly steep valley sides as well as all intervening ridgelines and drainage lines. The reason for concentrating on valley sides was to locate 'sandstone sites' such as rock shelters with art and occupation deposit, engravings and axe grinding grooves. At the same time the ground surfaces that were crossed between sandstone outcrops were examined for stone artefacts. The densities of artefacts on ridgelines and flat shelves on otherwise sloping ridge sides were in the order of 50 times those recorded on the ridge slopes themselves (Kinhill 1995b:45). This confirms the findings of other studies (often inferred as much as demonstrated) that steep hill slopes have little if any archaeological material on them

2.3.4 Disturbance of archaeological sites in forests, including by wildfire

The forest soils on and in which artefact scatters are found have been disturbed by a range of natural processes including soil bioturbation (by micro and macro fauna), tree growth and tree fall/throw. Even where the soils are very stable and there is no lateral movement of the soil these processes will rapidly rework the artefact-bearing soils, mixing the artefacts and thereby significantly affecting their depositional integrity (Gollan 1992:44, Lomax 1997:12). Heavy rainfall and runoff (especially following recent bushfires) can have a dramatic effect on erosion rated in forested catchments (see Hughes and Sullivan 1981). However such erosion normally only moves the fine fraction of the soil (sand, silt and clay), leaving the gravel and stone artefacts as a lag.

The results of excavations by Sullivan *et al.* (1996) indicate that whereas the artefact assemblages in archaeological sites in thin forest soils appear to have no vertical stratigraphic integrity, there has been very little lateral movement of artefacts (even on slightly to moderately sloping ground).

2.4 Tasmania

In the mid 1980s Cosgrove (1990) was commissioned to undertake the first systematic fieldwork in Tasmania, in three environmentally distinct State Forests.

Cosgrove (1990:112-113) produced detailed predictive statements for the types, characteristics and locations of archaeological sites which would occur in each of these three forests. Although he made no attempt to map different environmental-archaeological zones on the basis of his predictive statements, he identified areas including flat to gently inclined land, spurs, crests, aquatic areas, sandstone and limestone geology as being potentially archaeologically sensitive (Cosgrove 1990:118).

The salient elements of the observed and predicted nature and distribution of archaeological materials across the landscape are summarised in the following section. As in NSW and Victoria, most of the sites were small surface scatters of stone artefacts (an

average of about four artefacts per site) and were located in a relatively limited range of topographic locations (e.g. on flat ground adjacent to water, on ridges and on spurs).

Following on from Cosgrove's (1990) work, McConnell (1995, see also 1994), devised the Archaeological Potential Zoning (APZ) system (see also Lomax 1997:21, Sim 1996). The zoning system was designed to improve survey for Aboriginal archaeological sites with a view to enhancing protection of significant archaeological sites and improving management of Aboriginal cultural resources in State forests. Using archaeological and environmental data, McConnell (1995) subdivided and mapped at a scale of 1:25,000 all Tasmanian State forests into zones. Where feasible, Zones were ranked from High to Very Low according to the potential of the zone to contain archaeologically significant Aboriginal sites.

The system was developed as a desktop exercise and data from some 150 published and unpublished reports on surveys in or adjacent to forests was used in developing it (McConnell 1995:12). The existing archaeological data indicated to McConnell (1995:19–22) that site patterning in Tasmania could be relatively well described in environmental terms (although the reasons for the site location may be cultural rather than environmental). Some of the environmentally related patterning that had been identified across Tasmania included:

- Sites are unlikely to occur on steep slopes (>10–15°).
- Sites occur close to permanent water, generally in well drained positions.
- Sites occur on ridges and/or flat, dry land.
- Sites occur at major vegetation change boundaries, primarily forest/heath interfaces.
- Sites are likely to be focussed around potential specialised resources such as material for stone artefact making (quarries).

The data indicated a hierarchy of environmental factors correlating with site patterning, which at the general level was:

topography (landform)>slope>water availability>vegetation +/-or geology

Vegetation was of less apparent importance because it is determined to varying degrees by other factors, especially topography, as well as being less reliable due to changes over time resulting from influences such as climatic change, burning and land clearance.

Sim (1996) undertook a program of surface survey to test the predictive potential of the model. While the results from the high and very low zones accorded with expectations, those from the medium and low zones did not. A higher density of archaeological materials was found in low zones than in medium zones, contrary to zoning expectations. It was recommended that medium and low zones be combined and treated as one zone for survey purposes.

As the APZ system was being developed, Smith (1995a & b) undertook an assessment of archaeological survey methods in forested environments in Tasmania. In a detailed review of forest survey reports from Tasmania, Victoria and NSW, Smith (1995a: 22–23) identified the following range of recurring constraints:

- A lack of ground surface visibility in undisturbed forests limits surface site recovery.
- The representativeness of the archaeological sample located during the survey was unclear.
- The use of road lines as survey transects/trajectories did not give adequate cover of all environmental sampling strata.

- The survey strategy and interpretation of the results was limited because the survey area was not defined by research questions.
- The amount of archaeological material recorded was considered too small to adequately characterise the archaeology of the survey area.
- There is a potential for predictive statements of site location to be self-fulfilling if they are used to formulate sampling strategy.
- There is a lack of comparability between the results of many forest surveys due to differences in recording procedures, especially in regard to visibility measures and effective coverage of the survey, and because of inadequate reporting of the methods used in devising the survey strategy and carrying out the fieldwork.

The emphasis throughout Australia has been on pre-operational surveys in order to locate archaeological materials, assess their significance and make management recommendations before the areas in which they occur are subjected to logging. It has generally been assumed that post-operational surveys (i.e. after logging operations have occurred) will be more effective at locating archaeological materials because of the improved conditions of 'archaeological visibility' in the disturbed areas. The supplementary study by Smith (1995b) demonstrated that logging operations do not necessarily improve 'archaeological visibility' and therefore the effectiveness of archaeological surveys. Similarly, although conditions of 'archaeological visibility' are generally much improved in areas which have been recently burnt, this is not always the case.

2.5 Victoria

2.5.1 Eastern Victoria

The amount of archaeological work undertaken in Victorian forests has been very much less than in NSW or Tasmania. The investigations undertaken in East Gippsland (Hall 1990, Hunt 1993) were funded by the National Estates Grant Program through the Australian Heritage Commission, with the findings eventually being incorporated into the East Gippsland Regional Forest Agreement (RFA) signed in February 1998. The findings of the archaeological investigations undertaken by Bird (1993) and Grinbergs (1993) in the Central Highlands region were similarly funded and eventually incorporated into the Central Highlands RFA signed in March 1998.

In Victoria the only surveys undertaken directly relating to logging activities have been of timber harvesting coupes in the Orbost district of East Gippsland (Knight and Evans 1998, see also Table 2 in this section). These were funded by AAV, with logistic support being provided by DNRE (now DSE).

In all respects the findings of these various surveys were broadly similar to those for similar forested landscapes in NSW (see Tables 1 and 2) with respect to the nature and distribution of archaeological sites found and to the survey, sampling and site detection issues that needed to be addressed. This is not surprising in part because several of the archaeologists involved had either been pioneers in archaeological survey work in forests in both NSW and Victoria (Roger Hall) or have had extensive experience in both states using methods developed by Hall and his colleagues (Alistair Grinbergs and Tom Knight).

2.5.2 Gippsland and East Gippsland⁵

More recently McConnell carried out a project similar to her Tasmanian work (McConnell *et al.* 2002; Volumes 1–3). In this project McConnell *et al.* (2002) developed a sensitivity

⁵ This section was compiled by Joanna Freslov

Table 3: Synthesis of sensitivity zoning statements for the project study areas in McConnell *et al.* (2002)

McCONNELL STUDY UNIT	RELEVANT PROJECT STUDY UNIT	PREDICTIVE STATEMENTS
Northwest Gippsland Uplands	Mt Sarah/Winchester/Dargo High Plains	<p><i>Sensitive Areas—Upper Catchments (North of Aberfeldy, Crooked River)</i> River and creek terraces, ridges, spurs and saddles, flat alpine terrain, volcanic geology. Large sites are associated with volcanic geology, river terraces and stone quarries.</p> <p><i>Sensitive Areas—Lower Catchments (South of Aberfeldy, Crooked River)</i> Unzoned</p>
Central Gippsland Uplands	Mt Sarah/Winchester/Dargo High Plains; Tambo River, Yalmy Road/Moonkan, Mt Taylor Tubbut	<p><i>Sensitive Areas—Preliminary Synthesised Predictive Statements</i> Unzoned Spurs and ridge crests, gently sloping land close to water, flood plain edge/lower gentle slope junction, river flats, flat land over 1200 m, grinding grooves in tertiary and Pleistocene quartz-rich sandstones. Stone sources including silcretes, quartz, cherts, quartzites from conglomerates and granites, Silurian volcanics and syenites and andesites; fine grained volcanics from Snowy River, porphyries from Triassic volcanics. Caves and rockshelters in Buchan limestone and Silurian Cowombat Formation. Limestone Pomaderris Shrubland.</p>
Victorian Alps Northern Fall	Bundarra, Glen Valley, Gibbo River	<p><i>Sensitive Areas—Preliminary Synthesised Predictive Statements</i> Flat ground adjacent to water sources, plain. Plain edge on lower slopes. Well drained gentle slopes. Ridges and flat benches in hilly or mountainous areas. Level areas below 1000 m. Broad ridges on ranges on flat land near headwaters of creeks. In or adjacent to open woodland with grassy understorey in alpine and sub-alpine areas. Edge of alpine wet heathland and forest/woodland in sub-alpine areas. Rare on steep slopes and exposed ridges. Less frequent above 1800m. Campsites associated with moth exploitation near granite and basalt boulder outcrops and block streams. Scarred trees rare due to clearance and 1939 fires. Rockshelters and caves in Silurian limestone. Quarries and campsites associated with areas of basalt and older tertiary sediments, syenite and porphyry with Triassic igneous rocks, rhyolite, porphyry, quartzite with Devonian rocks and metasediments, andesite, rhyolite, porphyry with Palaeozoic volcanics.</p>

McCONNELL STUDY UNIT	RELEVANT PROJECT STUDY UNIT	PREDICTIVE STATEMENTS
East Gippsland Tablelands	Mt Taylor/Tubbut	<p><i>Sensitive Areas—Preliminary Synthesised Predictive Statements</i></p> <p>Slopes of less than 10°.</p> <p>Interface of riparian forests and alpine wet heathland and other vegetation types.</p> <p>Montane Dry Woodlands.</p> <p>Interface of lower slopes and valley or river flat.</p> <p>Creek or riverbanks or within 100–200 m of a water source or third order and larger watercourse.</p> <p>Creek headwaters on valley floors and broad alpine ridges.</p> <p>Flat benches on slopes associated with water.</p> <p>Small scatters and isolated finds on ridgelines.</p> <p>Rockshelters and caves in limestone.</p> <p>Silcrete from tertiary basalt edges, rhyolite, porphyry, volcanic breccias from Devonian Snowy River volcanics, mylonite from Silurian mylonite, porphyry from Silurian volcanics, quartz from Silurian granites, chert from Ordovician rocks.</p>

zoning system for Victorian Crown forest areas managed by DSE which included the Gippsland and East Gippsland forestry management areas (FMAs). The zoning was based on a broad range of Aboriginal heritage values developed through a consultation process with Indigenous stakeholders, review of the then current literature, preparation of a preliminary zoning model, field testing of the model and the development of protocols for the sensitivity zoning and regional workshops on the protocols and the zoning plans (McConnell *et al.* 2002, Volume 1: 8). Significantly McConnell *et al.* 2002 include broader values than archaeological sites, such as potential resource zones, travel routes and significant places such as massacre sites. The document is quite detailed and relevant statements for the study areas for this project are listed in Table 3.

For the study area there were few detailed studies and sensitivity zoning statements were mainly synthesised from a number of (often) small scale studies. McConnell *et al.* (2002, Vol. 3: 23) estimated that less than 1500 ha had been surveyed within the Gippsland FMAs. Two areas in the Post Wildfire Survey study area—the Northwest Gippsland Lower Catchments and the Central Gippsland Uplands were unzoned due to insufficient information (McConnell *et al.* 2002, Vol. 3: Figure 5). In summary, sensitivity zoning statements for the Gippsland and East Gippsland FMAs are very similar to those for the forested areas of NSW including the following:

- ‘The highest density areas for archaeological sites (artefact scatters (including stone knapping sites), isolated artefacts, scarred trees) are close to creeks, rivers, swamps, lakes and other natural freshwater sources, including larger intermittent water sources (usually within c.100–200m);
- Well drained or slightly elevated terrain on or at the edge of river floodplains (e.g., on levees, terraces, high banks, and adjacent gently sloping hill toeslopes) will be a focus for artefact scatters, isolated artefacts and burials;
- Ridges and spurs (particularly spurs that connect ridges and valley or uplands and lowlands) will be a focus for artefact scatters and isolated artefacts;
- Areas of limestone with karst development and areas of granite outcrop on ridges are likely to have caves/rockshelters with occupation deposits, or possibly burial and/or rock paintings, and a concentration of associated artefact scatters;
- Areas of well drained flat to undulating sub-alpine woodlands (particularly at woodland and grassland/heathland edges) will have high concentrations of artefact scatters and isolated artefacts;
- In East Gippsland a strong correlation between high site and artefact densities and riparian forest has been found;
- A number of particular geological formations or units that are of, or contain, suitable tool stone are probable locations for tool stone quarries, and associated artefacts scatters (reduction and camping sites) are likely in a c.50-300m radius’ . . . (McConnell *et al.* 2002, Vol. 3: 24–25).

McConnell *et al.* (2002, Vol. 3: 25) predict that these locations are where *most* sites will be located—approximately 80% of existing sites and more than 95% of rarer site types—while the remaining 20% of sites will occur in the non-sensitive zones and will comprise predominantly medium to small artefact scatters, isolated artefacts and scarred trees. She also noted that broad-scale environmental disturbance is likely to adversely affect sensitivity including mining, quarrying, road construction, clear felling of timber and severe forest fires (McConnell *et al.* 2002, Vol. 3: 25).

2.5.3 The Otway Ranges

In 1991 Richards (1998) undertook an archaeological investigation of his mostly forested study area of about 2,129 km² as part of the then Victoria Archaeological Survey's Statewide Survey Program. The findings of this study are summarised in Table 2. Three sensitivity zones were defined and mapped and predictive statements on the characteristics of the archaeological record expected in each of them were prepared. In two of his sample areas he undertook a programme of shovel test sampling where one metre square test pits were excavated on a regular grid. Sites were found in this way that were not detectable on the forest litter obscured ground surface.

2.5.4 The North East Forest Region

Hughes prepared an archaeological sensitivity zoning statement (with maps and commentary) for the previously defined 19 Geographical Representation Units (GRUs) that made up the region (Hughes and Buckley 2000, Chapter 4 and Annex B). It is important to note that with the exception of the alpine and sub-alpine zones that occur in several of the GRUs, insufficient fieldwork has yet been undertaken to test the predictive statement.

2.6 Summary and Overview

The following points are drawn from the experience in NSW, Victoria and Tasmania.

1. Numerous archaeological field surveys have now been undertaken in forested regions; especially in NSW and these have led to the recording of several thousand 'archaeological occurrences'. Almost all of these 'archaeological occurrences' have been surface scatters of stone artefacts, most of which contain between one to four artefacts and a few more than 50 artefacts. Other site types have been recorded, including scarred trees, quarries, stone arrangements, rock art sites and rock shelters with occupation deposit. Only in the Sydney Basin area, where there are relatively high densities of 'sandstone sites' (rock shelters with art and occupation deposits, axe grinding grooves and rock engravings) do other sites types approach or exceed in number stone artefact occurrences in the open (see for example Kinhill 1995a & b).
2. The proportions of each forest region which have been archaeologically surveyed are minuscule—typically less than 0.0001% of the total region under study. Even in the small proportions which were intensively surveyed, the conditions of 'archaeological visibility' (i.e. the likelihood that artefacts will be detected if present on the ground surface) were generally poor. Furthermore, the limited excavations that have been undertaken indicate that the numbers of artefacts on the ground surface may be only a very small fraction of those buried in the underlying forest soils (see Sullivan *et al.* 1996). Hence it is likely that even the most thorough archaeological surveys in forests have located only a tiny fraction of the total archaeological resource actually present in areas surveyed. Because of the difficulties in detecting artefacts if present on the forest floor, random or probabilistic sampling strategies have been largely abandoned in favour of strategies which concentrate the survey effort on areas with good 'archaeological visibility', especially forest tracks. This strategy has been described as 'controlled non-random sampling' (Packard 1991). As Bird (1993) has pointed out, while this approach provides greater amounts of data about the context of sites than random or probabilistic strategies, the samples are not 'representative' and she argues that more rigorous (and costly) methods of establishing the nature of the sample are required if regional scale sensitivity zoning models are to be developed.

3. The sensitivity zoning statements which have arisen from these studies have all been of a very general nature (see Table 2). In all cases where there was a specific predictive statement based on desktop research at the outset of the study, the statement was revised considerably in the light of the survey results. To varying degrees the researchers have been able to identify the more obvious correlations with environmental factors such as topography and to a lesser extent geology, altitude/climate and vegetation, and to explain them in terms of Aboriginal movement across the landscape (e.g. Byrne, Hall, Lomax and Packard) or the 'habitability' (Gollan 1992) of the landscape in question. However, all of the researchers point out that their predictions with regard to the nature and distribution of archaeological sites are very general (often to the extreme) and far from universally applicable, even within the areas for which they are proposed. Thus, for example, whereas on average the highest densities of artefacts in the sample surveys might have been found on spurs overlooking drainage lines, leading to the prediction that in the wider region such spurs will have high archaeological potential, the point may have been made that in fact artefacts were found on only half of the spurs inspected. In no case such as this has the researcher had sufficient confidence in his/her database to make a more specific, definitive predictive statement such as 'Spurs overlooking creeks will have the highest archaeological potential. 50% of such spurs will have artefact occurrences, and these will contain on average 10 artefacts, most of which will be made on silcrete'.
4. Importantly, the sensitivity zoning models developed for specific Forest Management Areas in NSW on the basis of EIS surveys do not appear to have been further tested and refined by follow-up surveys.
5. The reported and predicted patterns of the nature (size and contents), frequency of occurrence and locations of archaeological occurrences have varied considerably between studies, even when the environmental settings (especially landforms) were broadly similar (see Table 2). The only conclusions that can be drawn are extremely broad ones, such as in dissected uplands, where topographic constraints affected human movement, site location is principally (but not always) along ridgelines. In less dissected terrain there is a lack of landform focus, although sites tend to occur more frequently on high ground adjacent to waterways and swamps than elsewhere.
6. With three exceptions, none of the researchers has attempted to map the limits of the environmentally-based zones to which their sensitivity zoning statements apply. One exception was the Morisset Forestry District (Kinhill 1995a), where the forests were divided into 10 environmental zones predicted to have different kinds, frequencies of occurrence and locations of archaeological sites. This degree of detail was only possible because of the wide range of site types present in the region (especially 'sandstone sites') and large database of existing site type and locational information (drawn from a total of 4,800 sites) on which to base the predictive statement and associated mapping. Another was for the Glen Innes determination where for relatively small areas of forest environmentally-based predicted Archaeological Units were mapped at a scale of 1:25,000 in order to provide a basis for more objectively assessing the representativeness of the preliminary reserve system (State Forests NSW 1996). The final study was the Otway Range study (Richards 1998) where the mainly forested terrain was divided into three sensitivity zones predicted to have different kinds, frequencies of occurrence and locations of archaeological sites.
7. In Tasmania use of the APZ system with its units mapped at a scale of 1:25,000 has provided a cultural heritage management system which can be applied routinely to overall forestry management operations to a degree not yet achieved in other states. However, Tasmania suffers the same recurring restraints in obtaining effective data from site surveys that have been experienced in NSW and Victoria.

8. In particular, the results of the relatively intensive surveys undertaken by Sim (1996) to test the APZ system appear not to have provided enough data to allow robust comparisons to be made between the archaeological patterns in the different zones. This further emphasises the difficulties in obtaining data on 'representative' samples of archaeological materials in different landscape zones without the application of strategies that are more rigorous (and costly) than have been applied to date.

2.7 Implications for Sensitivity Zone Modelling in the Eastern Victoria Forested Areas, Including Areas Affected by the Recent Wildfires

To reiterate, despite the relatively large amounts of archaeological survey work and associated data analysis and modelling done to date in NSW and Victoria only very generalised regional predictive models have been proposed, and with few exceptions no attempts have been made to produce map-based sensitivity zone models or archaeological sensitivity zoning in the forests under study. Very broad scale archaeological sensitivity zoning maps and statements have been prepared for the North East Forest Region as part of the RFA process (Hughes and Buckley (2000) but their veracity has yet to be tested adequately.

The range of environmental settings (in terms of topography, geology, vegetation and altitude/climate) in the eastern Victorian forested areas broadly is similar to that of NSW, especially southern NSW. It is likely that patterns of Aboriginal occupation and use of, and movement through, the eastern Victorian forests were broadly similar to those described for NSW (and East Gippsland). It is already known, albeit from a relatively small number of sites, that the same range of site types (predominantly stone artefact occurrences) are to be found in the eastern Victorian forests.

The major difference between NSW and Victoria is that in most of the Victorian forests there has been relatively little archaeological survey work done which might provide a database from which to develop with confidence detailed predictive models of archaeological sensitivity zoning which might be applied at the local or regional level with confidence.

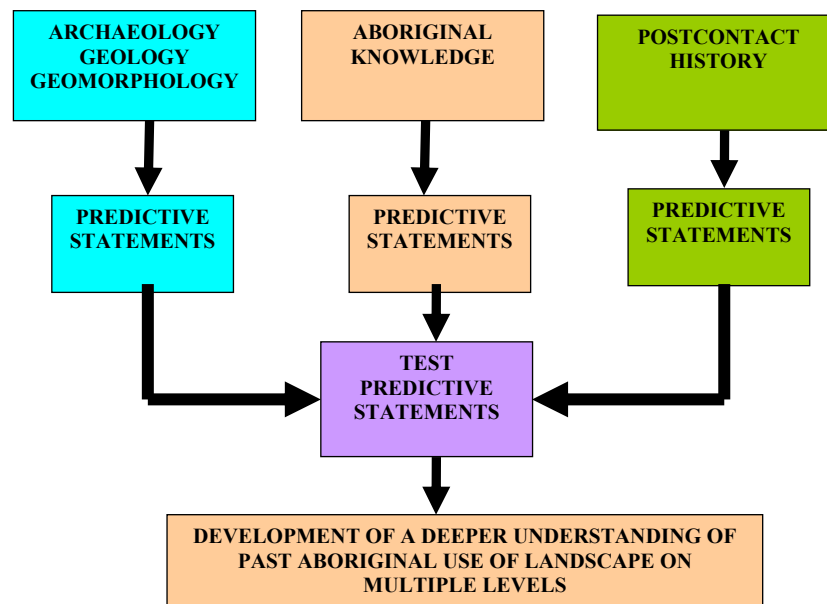
The same range of fieldwork problems in locating archaeological materials under conditions of generally very poor 'archaeological visibility' (especially in recently undisturbed forests) will apply in all eastern Victorian forested landscapes.

3 Methodology and Context for the Development of Sensitivity Zoning Statements for Aboriginal Cultural Landscapes

3.1 Introduction⁶

The brief required that the project specifically address predictive modelling in the study areas. In other words the project should investigate the patterning and distribution of sites in the alpine and sub-alpine landscape to better understand past Aboriginal use of this country. Three approaches were combined to investigate past Aboriginal occupation and use of the high country on a number of levels. The strategies are shown below (Figure 2).

Figure 2: Methodology for sensitivity zone modelling



A review of the known archaeology, geology and geomorphology was used to predict resource zones favourable for past Aboriginal occupation. As well, Indigenous informants used their cultural knowledge to make predictive statements about movement, occupation

⁶ Introduction by Joanna Freslov

and activities of past Aboriginal groups within the study areas. Finally, ethnohistory was used to make predictive statements based on documented observation of Indigenous occupation and behaviour in the study areas. The three types of predictive statements were combined and tested in the field to construct a more complex understanding of past use of the Victorian Highlands. The sensitivity zone modelling presented in this volume therefore underpins much of the survey strategy, results analysis and the management tools presented in volumes 1, 2, and 3.

In this section the justification and context for first approach (known archaeology, geology, and geomorphology) is provided. Although most sensitivity zone modelling in Victoria and other states relates directly to forested areas, it has an important and direct applicability to most of the survey areas in this study. A review of this material has been presented in the previous section to assist understanding of the following survey and management sections. The following section outlines the methodology and some of the basic information used to develop the sensitivity zoning statements for each study area.

3.2 Framework for the Archaeological Sensitivity Zoning Statements Prepared for this Study⁷

3.2.1 Caveat

In the course of a number of meetings with Aboriginal communities in different RFA areas up until the end of 1998 there was broad, but not universal, agreement that a model for Aboriginal cultural heritage management based on a 'predictive modelling approach' should be undertaken. When a preliminary version of the model prepared by Hughes, drawing on data for the North East Victoria RFA region (see Hughes and Buckley 2000) was presented to a Workshop in Albury-Wodonga in February 1999 the Aboriginal participants expressed strongly their fears that, amongst other things, the model would provide an automated system for the identification of places of value which would make Aboriginal input redundant.

These concerns were largely allayed when the final model was produced in the final report. However, major concerns expressed by the Aboriginal community in that region on how the model might be further developed and used as a management tool, ownership of the processes and outcomes, and Aboriginal input to its development and use remain to be resolved.

The Aboriginal Heritage Sensitivity Zoning project carried out by McConnell *et al.* (2002) was based on the Hughes and Buckley (2000) approach but extensive consultation was conducted with traditional owners and Aboriginal communities to develop protocols for the use of the zoning model. The Sensitivity Zoning Project also utilised a broader approach to heritage including the inclusion of contemporary places.

A number of issues were raised during the consultation process including terminology and the use and misuse of zoning models and the consultants have noted these concerns and have attempted to deal with them in this project. Consultation established that the term 'sensitivity zoning' was preferable to the term 'predictive modelling' (McConnell *et al.* 2002 Vol. 3: 1). In this project sensitivity zoning has replaced predictive modelling where appropriate. McConnell *et al.* (2002 Vol. 3: 1) also found that Aboriginal community was concerned about the way in which zoning might be used. In particular there was concern that zoning would be used without appropriate consultation or indeed used by Government bodies to plan for works or other activities without reference to the relevant Indigenous community. McConnell *et al.* (2002 Vol. 3: 1) recommended that use of the zoning system be incorporated into a set of protocols known as an Aboriginal Heritage Management System (AHMS). The sensitivity zoning developed for

⁷ Phillip Hughes

the current project was tested in the field with the consent and participation of the traditional owners and Aboriginal community representatives. In this project the zoning was refined very actively by the incorporation of Indigenous knowledge and understanding of the cultural landscape in the project area. The final zoning statements discussed in Section 20 are thus a combination of many strands of knowledge listed at the commencement of this section. As will be seen, the Aboriginal view is entirely commensurate with the archaeological view so that both Indigenous and scientific ownership of the statements has to some extent been addressed.

The potential for misuse of the sensitivity zoning developed for this project still remains. Since the sensitivity zoning project was completed a number of changes in the participation of Aboriginal communities in Crown land management have been initiated by both PV and DSE. A discussion paper, *Indigenous Land Management Framework* is currently being circulated by DSE. The document states that the Indigenous Land Management Framework will form a key component of the Victorian Government's 'Aboriginal Land and Resource Development Strategy' which will 'address the dispossession of Aboriginal land and culture'. The feedback from the discussion paper will form the basis of future land and resource management policies (DSE 2004: 11). Parks Victoria has implemented a formal framework for working with Indigenous communities (PV 2001) and has well established process for planning and implementing works on Crown land set out in the PV *Guidelines for Working with Aboriginal Communities and Protection of Cultural Sites*. Consequently the consultants did not consider it appropriate that they recommend protocols for using the final sensitivity zoning proposed by the project, as it is clear that PV already has an established system of consultation and pre-planning for works in both sensitive and non-sensitive zones within which the proposed zoning can be ethically used. Similarly DSE is currently developing similar systems and the consultants will submit a submission in response to the Discussion Paper, rather than propose recommendations in this report.

3.3 Framework

3.3.1 Environmental Approaches

The basis of the archaeological sensitivity zoning statement prepared for each target area is the argument advanced by Hughes and Sullivan (1984) that use of environmental approaches to assessing archaeological significance—and by inference archaeological sensitivity—is an important component of the overall cultural heritage assessment and management process.

The results of numerous investigations throughout Australia have shown that the nature and distribution of archaeological sites across the landscape are generally very strongly influenced by environmental factors such as bedrock geology, landforms and associated soils and vegetation, and climate. These factors influenced the availability of plant and animal foods and other organic raw materials, raw materials for stone artefacts, suitable campsites, and landforms and rock types upon which rock art could be executed. They also affected the ease with which people could travel across the land (Hughes and Sullivan 1984: 35). These environmental factors are also important in that they have affected the degree to which sites have survived in the face of natural and human agencies of disturbance and destruction, and they affect the likelihood of sites being detected by ground survey.

Taking a similar approach, Hall and Lomax (1996), argued that different local and regional environmental settings would have provided distinct sets of constraints on, and opportunities for, prehistoric land use. Gollan (1992: 29-30) developed the concept of forest 'habitability', determined largely by a mix of bio-physical variables which could be mapped by Geographic Information Systems (GIS). He suggested that habitability may be a good predictor of site density, type and ultimately chronology, and that it could be used to explain the absence as much as the presence of sites.

In taking an environmental approach to sensitivity zone modelling, it is acknowledged that a wide range of cultural and social factors would also have influenced the nature and distribution of sites across the landscape, independent to varying degrees from the influence of environmental factors. An example of this was the seasonal presence of Bogong moths in the

high mountains (a set of environmental factors) having provided an impetus for people to gather in the mountains for ceremonies, story telling, marriage arrangements, trade and other socio-cultural reasons. For many parts of Victoria however, especially further back in prehistory, we have no direct information about what these cultural and social factors might have been.

3.3.2 Environmental Mapping

On a regional level, the mapping of environmental zones is made easier if 'land systems' maps or other maps of integrated landscape data are available (Hughes and Sullivan 1984). Such maps are, by definition, derived from the integration of biophysical information—geology, landforms, soils and vegetation (the last three of which in turn reflect the influence of past and present climates). As such they provide only a generalised set of information on any one of these, but as truly integrated environmental data they provide an ideal basis for archaeological assessment.

The use of 'land systems' or similar maps at scales of 1:250,000 to 1:1,000,000 (with associated reports) for regional archaeological modelling has been successful in many parts of Australia, as illustrated by the examples in Hughes and Sullivan (1984).

Using an approach analogous to land systems, each RFA region in Victoria has been divided into broad Geographic Representation Units (GRUs) based on variations in landform, geology, vegetation and climate across the region (see for example Hughes and Buckley 2000, Chapter 4). Because of the lack of archaeological data for most if not all the RFA regions and uncertainty about the degree to which the different and very generalised zonation/predictive models developed for other forested regions in eastern Australia might be applicable, it was recommended by Hughes and Buckley (2000: 37) that the GRUs be used as the basic mapping and descriptive unit as they provide appropriate generalised environmental information mapped at a small scale.

For work in smaller areas or where a larger scale base map is required, the more detailed 'land unit' or 'environmental unit' information provided in the environmental reports and on large-scale topographic maps can be used to assist in plotting these landscape units on aerial photographs. If the data are available from a GIS, it is possible to produce large-scale maps of these units to use as a mapping basis for archaeological work. However it must be stressed again that the use of large-scale, detailed environmental mapping for archaeological predictive modelling and/or sensitivity zonation is not warranted unless the associated predictive models of site types and locations are also detailed and have been demonstrated to be effective at prediction. It is the opinion of the consultants that this is not the case for the forested regions in eastern Australia investigated to date.

3.3.3 Data Sets Used in this Study

For this project DSE/PV provided the consultants with two sets of maps which were used as the main source of data for preparing the archaeological sensitivity zoning statement and the survey strategy. The information on both sets of these maps was sourced from the DSE Corporate Spatial Library. One set was a map showing the boundaries of each Study Area superimposed on a topographic map at a scale of 1:100,000. The other set comprised GIS generated maps dated 5 December 2003 and at a scale of 1:220,000.

1. Fire Extent—Bogong Complex Fires 2003 Map. As well as showing the extent of January/February 2003 fire affected areas and dozer control lines, this map showed the drainage and road networks, major mountains and hills, private versus public land and the major settlements. It also showed the types and locations of known Aboriginal sites/places registered with AAV
2. Fire Severity Checkplot. Fire severity classes superimposed on the same layers used for Map 1, but without the Aboriginal sites information layer.

3. Landforms –Derived from Land Systems Mapping. This was not in fact a landforms map, but a map of lithology (or rock type) derived from land systems mapping. The main lithologies relevant to this study are:
 - Unconsolidated deposits, mainly Quaternary valley alluvium and colluvium.
 - Granites or gneisses.
 - Limestone.
 - Sedimentary rocks, mainly mudstone or sandstone.
 - Metamorphic rocks, mainly schist.
 - Acidic volcanic rocks, mainly rhyolite.
 - Basic volcanic rock, mainly basalt.
4. Vegetation. A total of 115 ecological vegetation classes are mapped. Collectively these maps contain a similar range of information as that used to define the GRUs (at least for the North East Forests region west of the Great Dividing Range). These data were used along with additional data obtained from 1:250,000 geological sheets (available from the Geoscience Australia website) and published 1:100,000 topographic maps. The 1:250,000 geological sheets in particular contain much more detailed lithological information than that presented on the GIS map. Where differences occur in the descriptions, the former has been used in preference to the latter.

Each of the 14 Survey Areas (SAs) included in this study is smaller than a GRU. Because of this, the Survey Areas rather than the larger GRUs are used as the basic mapping and descriptive unit in this study. Five of the present Survey Areas occur in the North East Forests region (SAs 7, 8, 9, 10, 11 and 12). Hughes made extensive use of GRU and related data in his North East Forests region study (Hughes and Buckley 2000), and to the extent practicable the environmental data used in the present study has been checked against and/or used in conjunction with the data used in the earlier study. Neither consultant has used or is familiar with the GRUs for East Gippsland and they have not been used in this present study.

3.4 Developing the Sensitivity Zoning Statement for Each Survey Area

1. For each SA a ‘sensitivity zoning statement’ of the likely nature, distribution and frequency of occurrence of archaeological sites is to be made for the SA as a whole and for environmentally distinct sub-zones within the SAs, which may or may not be able to be mapped separately. In preparing the statement consideration is to be given to factors which might influence the prediction, such as :
 - i. Geology and topography.
 - ii. Vegetation/land use (including disturbance history).
 - iii. Known archaeology.
2. Within SAs it has been possible in some circumstances to delineate on either the 1:100,000 topographic sheets or the 1:250,000 geological sheets environmental sub-zones likely to have different archaeological patterns. A combination of criteria can be used in delimiting these sub-zones, including landforms, geology, altitude and vegetation. The data are often already in the geospatial data sets.

3.4.1 Assigning Sensitivity Ratings

Following the criteria proposed by Hughes and Buckley (2000, Chapter 3), on the basis of the archaeological sensitivity zoning statement, an archaeological sensitivity rating can be given to the SA as a whole and sub-zones within it. Criteria for determining sensitivity ratings are considered below. In the absence of an adequate archaeological database for

all but a very few forested areas in Victoria a simple scale of high, medium, low and very low sensitivity is applied. Because of the lack of data it is only possible provide an inferred quantified basis for any of the various criteria.

The approach taken by Richards (1998: 46) for the Otway Range is adopted here. The Otway Range is environmentally similar in terms of geology, topography, resources availability and land use history to most of the forested landscapes in eastern Victoria. In his assessment of the sensitivity of different zones Richards took into account the following parameters.

$SITEDENS = \text{number of surface archaeological sites}/\text{km}^2$

$ARTDENS = \text{number of surface stone artefacts}/\text{km}^2$

$SITEAREA\% = \text{total area occupied by all sites (m}^2\text{)} \times 100/\text{total area of zone (m}^2\text{)}$

$ARCHDENS = SITEDENS \times ARTDENS \times SITEAREA\%/1000$

Richards found that these parameters, especially ARCHDENS, provided useful measures of variation in sensitivity for comparative inter-zonal analysis. Following the methods advocated by Richards (1998), and inferring comparable data for eastern Victoria as obtained for the Otway Ranges, the following criteria were used for determining the sensitivity ratings for the zones.

SENSITIVITY	SITEDENS	ARTDENS	SITEAREA%	ARCHDENS
RATING				
High	40	250	3	30
Medium	30	100	2	6
Low	20	50	1	1

3.4.1.1 High

The archaeological sites in the zone as a suite are likely to be deemed to be of high archaeological sensitivity because of a combination of the following interrelated characteristics.

- High ARCHDENS (average 30, lower limit 15).
- Compared with other zones in the region, a wide range of archaeological site types and complexes of sites in addition to surface scatters of stone artefacts, including examples of most of the following: rock shelters with archaeological deposit (and/or rarely with art), stratified archaeological deposits in the open (including shell middens), scarred trees, quarries for ground and flaked artefacts, and stone arrangements.
- In most classes of archaeological site type their size/complexity/information content is greater than average.
- Compared with other zones in the region, a comparatively large number and wide range of Aboriginal places of contemporary cultural importance, including contact/historic places such as missions, depot stations, cemeteries and massacre sites, and known important pathways/tracks across the landscape.
- Most sites and places (greater than 75%) and their environmental settings undisturbed or relatively undisturbed both by land use activities such as mining, farming, timber harvesting or infrastructure development (e.g. roads and power lines), and by natural erosion processes.

3.4.1.2 *Medium*

The archaeological sites in the zone as a suite are likely to be deemed to be of medium archaeological sensitivity because of a combination of the following interrelated characteristics.

- Medium ARCHDENS (average 6, range 3–15).
- A range of archaeological site types in addition to surface scatters of stone artefacts, including occasional examples of at least two or more of the following: rock shelters with archaeological deposit and/or art, stratified archaeological deposits in the open (including shell middens), scarred trees, quarries for ground and flaked artefacts, and stone arrangements.
- In each class of site or place type represented their size/complexity/information content is about average for the region.
- Many sites and places (but probably less than 50%) and their environmental settings have been disturbed substantially by land use activities, or by natural erosion.

3.4.1.3 *Low*

The archaeological sites in the zone as a suite are likely to be deemed to be of low archaeological sensitivity because of a combination of the following interrelated characteristics.

- Low ARCHDENS (average 1, range 0.5– 3).
- Narrow range of site types in addition to surface scatters of stone artefacts.
- In most classes of archaeological site type their size/complexity/information content smaller than average.
- Compared with other zones in the region, a relatively small number and narrow range of Aboriginal places of contemporary cultural importance.
- A high proportion (at least 50%) of the sites and places and their environmental settings have been disturbed substantially by land use activities, or by natural erosion.

3.4.1.4 *Very low*

Presence of Aboriginal archaeological materials, but in numbers and/or ranges which fall below the thresholds set for the Low category.

3.5 Archaeological Site Patterning

3.5.1 General Considerations

Even though the archaeological database is extremely sparse for all but parts of East Gippsland and the alpine area, the indications are that like all other forested parts of eastern Australia, scatters of stone artefacts in the open are overwhelmingly the most common type of site in the forested landscapes of eastern Victoria. The sensitivity zone ‘models’ reviewed in this report and the statements prepared for each of the Survey Areas (SAs) are focussed on assessing the likely locations, frequencies of occurrence and (to a very limited extent) sizes of such sites (in terms of numbers of artefacts).

3.5.2 Scarred Trees

Recorded scarred trees are also common, but the consultants consider that many if not most of these scars are either not artificially produced, or if they were, they are not of Aboriginal origin. AAV have recently produced an excellent guide to recognising and recording scarred trees in Victoria (Long 2003). The manual is based on extensive research by Long and provides simple criteria for distinguishing between natural and cultural phenomena in a range of conditions. Much of the research into scarring carried out by Long (in prep.) has been conducted in the Murray Basin and north central Victoria. Ethnographic accounts of the use of tree species at higher altitudes are unknown and the use to which tree bark, particularly snowgum bark, might be used in the alpine/sub-alpine areas is difficult to determine (A. Long, pers. comm.). While the AAV manual was useful as the basis for recording scarred trees in the Post Wildfire Survey, it became clear during the survey that the origin of scarring in some higher altitude species was difficult to determine with confidence (see Section 6, SA 1). Overall a fairly conservative approach to assessing scarring on trees by team archaeologists, traditional owners and Aboriginal community representatives developed during the survey, based on discussion and observation. However, a recommendation has been made for an expert to review some of the scarring on snow gums in SA 1, which will lead to further clarification on this issue if the recommendation is adopted.

3.5.3 Rockshelters/Overhangs

There is one group of site types in the study area which are deemed on a wide range of criteria to be potentially of high archaeological and cultural significance. These are rock shelters and overhangs with rock art and/or archaeological deposits formed in suitable rock types. The rock types with the highest potential to contain shelters/overhangs are (1) the Ordovician granite-like gneiss which is characteristic of the Bogong High Plains and adjacent alpine areas, and (2) Devonian granite. Granites of earlier age (Ordovician and Silurian) seldom form outcrops or large boulders with shelters/overhangs. Other rock types which can contain shelters are limestone (e.g. the Buchan caves) and quartz sandstone.

These rock types with the potential to form shelters, while relatively common in the broader North East and Gippsland areas, are uncommon in the SAs.

3.5.4 Raw Materials for Stone Artefact Manufacture

In the archaeological surveys carried out in the wider region encompassing the 14 SAs by the consultants and others (Table 2) several kinds of flaked stone artefact raw materials have been commonly reported: quartz, silcrete, volcanic (fine-grained and including rhyolite and porphyry), quartzite, chert and mudstone (fine grained and usually silicified). Almost without exception these raw materials would have been obtained locally and generally at most within 10 kilometres of the site. Thus on the Bogong High Plains, where it occurs ubiquitously in the local rocks, more than 90% of the artefacts are made on quartz (Hughes and Clarkson 2002), whereas further southwest in the Mount Howitt area, rhyolite and quartz are roughly co-dominant. There quartz is also locally ubiquitous, but rhyolite also occurs widely in the area, including in the Devonian Wellington Rhyolite.

Where relevant, the sensitivity zoning statements identify parts of the landscape where differences in the raw material composition of artefact assemblages occur because of different underlying geology/lithology.

3.5.4.1 Quartz

Quartz occurs very commonly as veins or inclusions in very many rock types in the region, but especially the very widespread Palaeozoic sedimentary and metamorphic rocks and, to a lesser extent, granites. Hence quartz artefacts tend to occur in all artefact assemblages in the region, but in variable proportions.

3.5.4.2 *Volcanic Rocks*

Volcanic rocks (mainly of Palaeozoic age) which could be sources of the fine-grained, mainly acidic *volcanic* raw materials also occur widely and include units specifically mapped as rhyolite. Most of these rocks are prone to deep surface weathering, and occurrences of fresh, hard rock suitable for quarrying are likely to be uncommon. Many of these raw materials would have been derived indirectly from river cobbles. Nevertheless, archaeological sites on or near such volcanic rocks would be expected to have a higher percentage of artefacts made from *volcanics* than sites away from such rock types.

3.5.4.3 *Silcrete*

Silcrete was produced by the silicification near the surface of unconsolidated Tertiary sediments, so where these sediments occur there is the chance of silcrete also being present. The Tertiary basalts often overlie Tertiary sediments, so silcrete is often indirectly associated with basalt. Silcrete was probably a preferred raw material for making flaked stone artefacts and therefore may have been carried more widely across the landscape than the other types.

3.5.4.4 *Chert*

Chert can occur as lenses and nodules in metamorphic, igneous/volcanic and limestone rocks. Many of the artefacts called chert are probably incorrectly identified and are instead very fine-grained examples of other rock types, including silcrete and volcanic rocks (including tuff).

3.5.4.5 *Mudstone*

Mudstone is also very fine grained and hard (especially when silicified), and is often called chert. It tends to occur as mudstone layers in sedimentary rocks which have undergone secondary alteration. Some mudstones may be silicified tuff.

3.5.4.6 *Quartzite*

Quartzite can come from metamorphic rocks or from altered sandstone. Some stone artefacts labeled as quartzite are probably actually coarse-grained silcrete.

3.5.4.7 *Hornfels*

A raw material type seldom specifically recognised separately is hornfels, a metamorphic fine-grained rock formed by the heat alteration of host rocks around the margins of large granite intrusions. Hornfels is difficult to identify in hand specimen and is most commonly classed as a volcanic rock.

3.5.4.8 *Cambrian Greenstone*

Cambrian greenstone (a distinctive kind of metamorphosed igneous rock) used for making edge-ground axes/hatchets was quarried at Howqua, just to the south of the study area. This greenstone does not crop out in the study area, but the possibility exists that axes from these or other unknown quarries of greenstone may be found on archaeological sites in the 14 SAs, especially the southwestern ones

3.6 Conclusion

Specific sensitivity zoning statements were prepared for each study area. These statements are outlined in the relevant sections in the following SA sections. At the end of each SA section a review of the statements is conducted and the statements are adjusted based on the results of the survey. While the previous two sections have outlined the basis and methodology for the sensitivity zoning prepared for this project, the next section provides an overview of the known archaeology of the Victorian alpine and sub-alpine region and comparative regions in NSW and ACT.

4 Archaeology of the Project Area

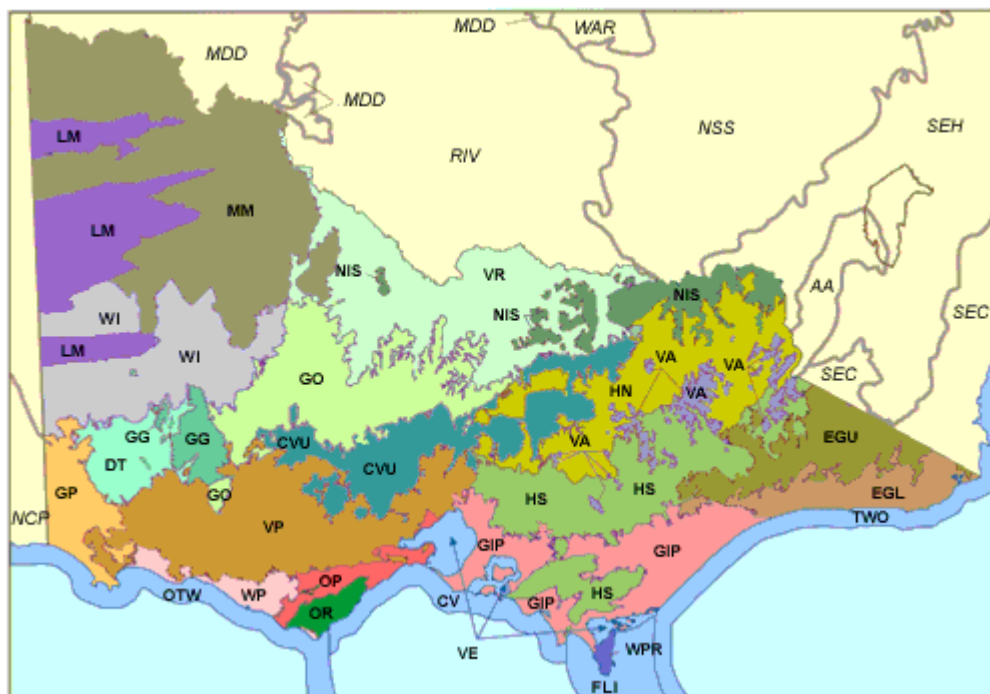
4.1 Introduction

While the archaeology of the project area has been generally discussed in the previous section in order to reach an understanding of site patterning in the landscape, in this section an overview is provided of the archaeology of the study area in terms of current interpretations of the site patterning, chronology and occupation of the highland areas of southeastern Australia. The archaeology of the project areas is described in more detail in the individual study units in the following sections.

While overall a large number of studies have been completed in the project area, the majority of these are quite small in scale and are concentrated around the alpine resorts. As others have noted, very little of the region has been surveyed (McConnell *et al.* Vol. 3, 2002). The major studies and a few of the relevant smaller studies are discussed below.

It is useful to divide the project area into three bioregions to discuss the archaeology: the Northern Fall (HN in Figure 3) and adjacent Victorian Alps (VA), the Southern Fall (HS) and adjacent Victorian Alps (VA) and the East Gippsland Uplands (EGU) (Figure 3).

Figure 3: Bioregions of Victoria⁸



⁸ Source: www.nre.vic.gov.au/plntanml/biodiversity/what.htm#map

4.1.1 Northern Fall and Adjacent Victorian Alps

This area includes Mount Buller, Mount Stirling, Mount Buffalo, Falls Creek, the Bogong High Plains, Mount Fainter, the Kiewa, Buckland, Buffalo and Lower Mitta Mitta river valleys, Mount Selwyn (on the boundary), Mitta Mitta, Dartmouth, Nariel Pinnibar, Tom Groggin and Mount Mittamatite.

A larger number of studies have been conducted around the Falls Creek area and Bogong High Plains than elsewhere in the alpine/sub-alpine areas of Victoria, including one major study (Hughes and Clarkson 2002) (see Table 4). The studies are centered around the ski resort of Falls Creek and the Rocky Valley Storage area. Sites on the Northern Fall and Victorian Alps are sparse, restricted in raw material diversity and generally consisting of small isolated finds or scatters made almost exclusively on quartz (Hughes and Clarkson 2002). Other raw materials are rare with items such as a flaked igneous cobble and two basalt flakes found at Ruined Castle at Falls Creek (AAV 8324-0039) and a basalt hammerstone found on the edge of the Rocky Valley Storage (AAV 8324-0023) comparatively uncommon (Hughes and Clarkson 2002: 7). Similarly, a grindstone made on gneiss (AAV 8324-0009), found in the Cobungra Gap below the Bogong High Plains and the Hotham heights can be considered unusual.

A large number of small sites have been located on the Mount Buffalo plateau, mainly quartz, though there are reports of ground edge axes and axe grinders being collected from the plateau earlier last century (Mitchell 1949). There are few reported sites in the foothills surrounding Mount Buffalo (Thompson 1996). In the foothills, sites are slightly more varied and include the art sites of Mount Pilot and Mudgegonga.

4.1.2 Southern Fall and Adjacent Victorian Alps

This area includes Mounts Baw Baw, Buller, Stirling, Howitt, Hotham, the Dargo High Plains, and the many river valleys of the Tambo, Mitta Mitta, Dargo, Crooked, Wongungarra, Wonnangatta, upper Mitta Mitta, Big, Cobungra, Victoria, and Bundarra river valleys, the large Omeo and Benambra valleys and the upper Snowy River valley. A number of studies have been carried out within this area including several large studies (David *et al.* 1998; Freslov and Goulding 2002; Hall 1990, 1991) and many smaller studies (see Table 4). A relatively large number of sites have so far been located in this region. Again sites are, like the Northern Fall, generally small in the higher areas with the majority of artefacts made on quartz.

Sites in the Caledonia River area and Mount Howitt and Howitt Plains area are markedly different to those elsewhere in the alpine/Subalpine zones with high site densities and with a greater diversity of raw materials. Following a wildfire in the Caledonia area of the Victorian Alps in December 1997–January 1998, David *et al.* (1998) carried out an intensive sample survey of the fire affected areas. Aboriginal resource exploitation and potential occupation zones were targeted including areas adjacent to water (river and creek valleys), flatter topography (saddles, ridges, spurs), rock outcrops (Bogong moth habitat), vegetation types, and disturbance (David *et al.* 1998: 33). Visibility was generally excellent (average 60–80%) in the fire affected areas and 25 Aboriginal sites were found (David *et al.* 1998: 35, 39). Site types located comprised isolated artefacts (5), artefacts scatters (19) and two quarries (one associated with an artefact scatter) (David *et al.* 1998: Table 8). Artefact raw materials in sites were generally diverse compared to other alpine areas, mainly rhyolite, basalt, quartz and chalcedony (David *et al.* 1998: 39). It was concluded that most sites were transient camps with a small number of larger sites likely to represent longer occupation episodes (David *et al.* 1998: 659–60).

Although it was assumed that the high density of sites may have been a product of the greater visibility in the fire affected areas, a subsequent survey by Freslov and Goulding (2002) in the adjacent Mount Howitt and the Howitt Plains area demonstrated that site densities were equally high with sites discovery high despite poor visibility. Materials were also diverse in the sites. Goulding and Freslov (2002: 71) found that all cortex on the artefacts was river rolled suggesting that artefacts were commonly made on river

cobbles and transported up to the higher plains. The raw material diversity therefore reflected the geology of the river catchment rather than local geology and outcrops.

A small number of surveys conducted around the Dinner Plain area near Hotham have suggested site patterning is very different in this area. Hughes and Clarkson (2002: 8) noted that there were about 4000 artefacts in a site Dinner Plain 1 (AAV 8323-0007) in an area of approximately one square kilometre (one artefact/250m²). Nearby at Horsehair Plain at 1300 m.a.s.l., a very large site complex, HP 1–4 (AAV 8323-003–0006) was also found during construction of an airport to service the ski resort of Hotham (Hughes and Clarkson 2002). About 18,000 (mainly) quartz artefacts were found in a small sheltered valley on the plateau above the Cobungra River. The site complex was located close to permanent water in the snow gums at the interface between the snow gum woodland and the grassy plain (W. Shawcross pers. comm.). An excavation was carried out in the site by Shawcross and there was some depth of deposit to c. 40 cm (A. Mullett pers. comm.). The site is still undergoing some analysis including radiocarbon dating, so that there is still insufficient information to comment on why such a large and dense site was located in this area.

Sites in the region are generally located on summit ridges, broad highland plains, or spur ridges, with many sites associated with gneissic outcrops, snow gums and water (Hughes *et al.* 2002). Larger sites are located at lower altitudes.

4.1.3 East Gippsland Uplands

Two sites, New Guinea Cave II on the Snowy River and Cloggs Cave near Buchan are at lower altitudes (below 200 m.a.s.l.) and while they indicate the antiquity of occupation in this region to before the glacial maximum (21,000 to 17,000 BP), they do not necessarily provide an insight into later occupation of the area (Ossa *et al.* 1995; Flood 1980). An analysis of both cave deposits has indicated relatively sparse occupation of this region during the last glacial maximum.

Large-scale surveys by Hall (1990) in the Snowy River National Park identified 124 artefact sites, two scarred trees and a rock shelter site. Over 92% of the scatters were isolated artefact finds, through materials were diverse. Sites were generally associated with drainage lines and clustering of resource zones and lines of movement though there were lower densities of artefacts on ridgelines (Hall 1990: iv). Hall (1991) also carried out further surveys in East Gippsland in 1992 including the Cobberas Mountains. The survey results were similar to the Snowy River survey. Hall (1991: xi) located 395 sites comprising mainly isolated finds. These were generally associated with drainage lines though many were located at the interface between the drainage line and the forest or woodland vegetation (Hall 1991: x).

Table 4: Summary of site location information for the project area

SITE OBSERVATIONS	LOCATION	SOURCE
Northern Fall and Adjacent Alpine Region		
1 artefact scatter, 16 isolated finds located on broad summit ridges/undulating plateau, spur ridges. No sites on valley slopes	Falls Creek–Mount McKay	Shawcross, Hughes & Mullett 1999
2 isolated artefacts finds located on a summit ridge, one on a spur ridge	Falls Creek resort	Shawcross 1999, Shawcross and Hughes 1998d
3 artefact scatters, 12 isolated finds on spur ridges, 2 on valley slopes one on a broad valley with minor drainage lines	Rocky Valley Storage Falls Creek	Hughes 1999
31 scatters and isolated artefacts, three scarred trees, 1 shelter site, 2 literature references to collections Art sites in the foothills. Artefact sites associated with the alluvial river valleys	Mount Buffalo	Thompson 1996; Bell 1999; Mitchell 1949

SITE OBSERVATIONS	LOCATION	SOURCE
No sites	Mount Beauty to Howmans Gap	Clark 1997a
Southern Fall and Adjacent Alpine Region		
Four quartz artefacts on a ridge, 1500–1900 m.a.s.l.	Mount Hotham/Mount Higginbottom	Shawcross & Hughes 1998a
Artefact scatter on a ridge crest 1500–1900 m.a.s.l.	Mount Hotham	Shawcross & Hughes 1998b
Artefact scatter at 1840 m.a.s.l. 1500–1900 m.a.s.l.	Mount Hotham	Shawcross & Hughes 1998c
Large scatter at 1550 m.a.s.l.	Dinner Plain	Shawcross, Hughes & Mullett 1998b
Six isolated finds, 1–2 artefacts	Loch Dam Mount Hotham	Shawcross Hughes & Mullett 1998a
Large, dense scatter at 1300 m.a.s.l. >18,000 artefacts	Horsehair Plain	Australian Archaeological Survey Consultants P/L, Mullett 1997
No sites	Dinner Plain to Omeo	Clark 1997b
No sites	Mount Buller to Alpine Ridge	Clark 1997c
4 scatters, 2 isolated finds above the treeline	Mount Stirling	Du Cros & Assoc. 1995
25 sites: 5 isolated finds, 19 scatters and 1 quarry on ridges and plateaux	Caledonia Fire Area	David <i>et al.</i> 1998
Isolated artefact at Mount Pendergast	Benambra	McNiven 1996
Artefact scatter in a poor environment	Benambra	Lance 1988
8 artefact scatters, 1 isolated artefact located at low altitude, associated with water	Benambra	du Cros 1987
12 artefact scatters associated with sheltered locations, edges of small grassy plains, basalt boulder streams	Mt Howitt	Freslov and Goulding 2002
5 sites on low knolls and rises, foothills	Marble Gully	Huys and Johnston 1995
10 sites on creek edges	Bindi Station	Hall 1991
East Gippsland Uplands		
Cloggs cave occupation site. Occupation deposit dating to glacial maximum	Buchan	Flood 1980
New Guinea Cave II occupation site. Occupation during Last Glacial maximum and art site	Snowy River	Ossa <i>et al.</i> 1995
Artefact scatters, isolated artefacts, with greater site densities associated with mosaic forests, higher frequencies sites associated with water courses	Cobberas–Tingaringy, Snowy Parks	Hall 1991
Artefact scatters, isolated artefacts associated with stream terraces, ridges, spurs	Errinundra	Hunt 1993
53 sites, some large dense sites, on well drained ground beside the Snowy River, fewer smaller sites away from river	Snowy River valley NSW	Geering 1981, 1982
22 sites, one stone arrangement, associated with Snowy River, ridgelines, spurs, woodland gentle slopes	Upper Snowy River valley, NSW and Vic.	Grinbergs 1992
36 sites including artefact scatters and 7 scarred trees associated with drainage lines and	Upper Snowy River valley,	Tunn 2003

SITE OBSERVATIONS	LOCATION	SOURCE
confluences, small sites associated with ridgelines	Willis	

4.1.4 NSW and ACT Highlands

Studies that have been carried out in areas adjacent to the project area are probably more relevant than the studies carried out at lower altitudes by Hall (1990, 1991). Like the Victorian Alps sites at higher altitudes, sites are generally small and sparsely distributed on ridgelines (Flood 1980: 207). In more sheltered valleys such as the upper Snowy River, Jindabyne and Tumut valleys, which are at lower altitudes (<900 m.a.s.l.) sites occur more frequently and are larger and denser (Flood 1980: 184–5). Flood (1973) has carried out a large-scale study of the NSW, ACT and Victorian highlands and her results suggest that camps were most likely to be seasonally occupied in summer in the 900–1500 m.a.s.l. zone. Sites at higher altitudes (between 1500–1800 m.a.s.l.), were most likely to be associated with the exploitation of the Bogong moth. Artefact raw materials were diverse and included silcrete, quartzite, quartz, hornfels, chert and other unidentified fine-grained volcanic and sedimentary or metamorphic rock (Flood 1980; Geering 1981, 1982).

More recent studies in the Thredbo Valley have found a high density of sites, most probably dating to between c. 4500 to 1000 BP (Kamminga 1992: 109). It is thought that the artefact density represents repeated visits by small groups of people over a relatively long period of time (Kamminga 1992: 109).

4.2 Chronology

There are no absolute radiocarbon dates for sites in the project area that can indicate timing of occupation of the Victorian highlands. New Guinea Cave and Cloggs Cave both have deposits with evidence of occupation dating to the last glacial maximum at between 21,000 BP to 17,000 BP, but both are at lower altitudes (Flood 1980; Ossa *et al.* 1995). In the ACT the Birrigai rockshelter excavated by Flood (1980) has a sparse occupation dating from a similar time period, c. 21,000 BP.⁹ But elsewhere a small number of sites excavated on the Monaro Plains and at Jindabyne to the northeast, date to the Late Holocene with dates ranging between 4400–1000 BP (Tunn 2003: 22). This suggests that occupation in the highlands was probably quite sparse during the last climatic downturn with occupation possibly only increasing in the last 5000 years. More dates from Victorian highlands sites are required to provide an adequate dating framework with which to fully explore the temporal depth of occupation in the project area.

4.3 Discussion

Most discussions of Aboriginal occupation in the highlands centre on resource exploitation, particularly the exploitation of Bogong moths. To some extent this focus has excluded a more complex understanding of past Aboriginal social, settlement and economic strategies. These theories are reviewed briefly here.

Clark (1993) and Flood (1980) both believe that the primary reason for Aboriginal travel to the highlands was the exploitation of Bogong moths. Bogong moths migrate annually to the cooler alpine region in large numbers during the hotter months of summer (Flood 1983: 202). Large numbers aestivate in rock crevasses in thick overlapping plaques (Flood 1983: 203). Europeans were amazed when they heard that Aboriginal people gathered and ate the moths, and reported that they roasted them quickly and ate the

⁹ Years before present

abdomens (Flood 1983: 203). The high productivity of the mountains during the summer, including the large supply of moths, allowed large numbers of people to gather for ceremonies in the sheltered valleys below the moth aestivation areas (Flood 1983: 203).

However, as more research has been undertaken this interpretation has been reviewed and subsequent researchers have suggested that use of the alpine and sub-alpine zones was more complex (Bowdler 1981a; Grinbergs 1992; Hughes *et al.* 2002; Kamminga 1992). It has been suggested that only men had eaten the moths, so that if the moths were a staple allowing large populations to inhabit the alpine region for months at a time, only half of the population were eating well in the highlands (Bowdler 1981a: 103). Bogong moths have been observed to shelter under bushes at lower altitudes, so that these may have also been exploited by women and children (Kamminga 1992: 110). Moths are a seasonal resource, subject to resource fluctuation and this must have been offset by the use of other resources in the highland areas (Bowdler 1981a: 103). In fact, a wide range of foods was available in these areas including the daisy yam (*Microseris scapigera*), a known staple, which is larger in the highlands than in the lowlands (Bowdler 1981a: 104; Grinbergs 1992; Hughes *et al.* 2002; Kamminga 1992; Beth Gott pers. comm.). Interestingly, people with yam digging sticks were frequently observed in the uplands and *murnong* (Daisy yam) tubers have the added advantage of being available all year round (Helms 1895 in Bowdler 1981a: 104). Argue (1995: 32) looked at Aboriginal occupation of the Southern Highlands, testing the hypothesis that highland valleys were exploited on a year round basis. Argue (1995) looked at the resources of the Brindabella Valley. The valley floor is at about 620 to 680 m.a.s.l. while the valley sides rose to 1000 m.a.s.l. (Argue 1995: 32). She found there were sufficient potential resources in the valley available on a seasonal basis to support year round exploitation (Argue 1995: 32). Based on this evidence and the archaeological record from valleys such as the Jindabyne Valley and other similar highland valleys such as the Little Thredbo Valley that such areas were occupied all year round. Sites at higher altitudes on highland plateaux (above 700m), while large, had a greatly reduced tool diversity, comprising almost entirely flakes, flaked pieces, cores and pebbles and site density was much lower overall (Johnson and Jones 1991 cited in Argue 1995: 35). Based on this evidence Argue (1995: 35) suggests that the range of activities in the lower valley floors was much greater than on the higher altitude plateaux. In contrast the sites at higher altitudes were the result of short stay foraging parties (Argue 1995: 35).

The sparse evidence of occupation found in the Victorian alpine/sub-alpine zone doesn't necessarily support the NSW/ACT interpretation of highland use. Like the NSW and the ACT highland areas, sites so far found in Victoria are very small at high altitudes but larger at lower altitudes. However, it is possible that site size may related to lines of movement through the landscape, with larger, denser sites associated with relatively easy routes through the Great Dividing Range, while small sparse sites are located on harder, less utilised routes (Hughes *et al.* 2002). Patterning in the Victorian highlands remains to be explored more thoroughly. As noted earlier, few surveys have been conducted in the Victorian highlands and it is not clear at present how sites such as the large dense sites at Dinner Plain and Horsehair Plain relate to site patterning in the highlands in general.

Resource exploitation and the connections between seasonal abundances, gatherings of people, staples which facilitate rituals, and the presence of the ritual foods themselves don't entirely accommodate the evidence of site patterning from the NSW and ACT highlands. While there was some sparse *early* use of the southern uplands during the Late Pleistocene (before 10,000 BP), evidence for intensive occupation probably only began some time after the introduction of the small tool tradition after 5000 BP (Bowdler 1981a: 103). Changes in climate after 5000 BP may have provided conditions for seasonal abundances of some foods in the highlands and the presence of abundant other staples *as well as moths*, may have facilitated the gathering of large numbers of people (Bowdler 1981a: 108). It is likely that both high altitude and low altitude sites may be associated with ritual and ceremony. Rather than a narrow resource focus, resource exploitation and settlement and occupation patterns are likely to have been complex and wide ranging (Grinbergs 1992: 72). The alpine/Subalpine zone is a relatively harsh and risky environment and theories about the use of the highlands including all year round resource exploitation, gatherings, rituals and ceremonies have generally failed to address this

underlying problem when addressing site location patterning or site contents. Where harsher (or more risky) environments are occupied it is an advantage to maintain social cohesion through ceremony and ritual (Bowdler 1981a: 108). However, use of risky environments may have a marked impact on when, where and how such ceremonies are conducted which will have recognisable outcomes in the archaeological record. Similarly, risk mitigation will have a marked effect on the distribution of raw materials across the landscape and nature and content of sites.

Risk management in unpredictable environments is likely to result in mobile, flexible foraging strategies with a premium placed on swift travel to known or predictable resources and repeated use of those resources (Freslov in prep.). This will result in a low density differentially distributed 'carpet' of artefacts over the landscape. Intermittent low density clusters of artefacts will occur on lines of movement through the highlands leading to dense resource zones, while areas that are away from these lines of movement will have very low densities of artefacts indeed. Standing out against this background noise of low density scatters, very large very dense scatters will occur in environmental ecotones. While 'resource' ecotones¹⁰ may occur relatively frequently in the highlands, ecotones will be selected for repeated use where facilities/advantages are present that will further minimise risk as food resources are exploited. Site patterning will not therefore be a simple matter of association with resource clusters, but may be more complex.

Where risky or unpredictable environments are exploited, tool kits may be critical in survival. Technological efficiency will thus be an advantage in high-risk environments so that new tools may be introduced to facilitate occupation and exploitation strategies in such areas (Torrence 1983).

4.4 Conclusion

The previous three sections have reviewed the known archaeology of the study area in general terms to assist in formulating the survey strategy and in the interpretation of the results. The following sections discuss the survey. Specific information about the known archaeology for each area is provided in each section.

¹⁰ An ecotone is an area where a number of resources cluster together.

Background, Known Archaeology, Sensitivity Zoning Statements and Results for each Survey Unit

5 Project Survey Strategy and Methodology

5.1 Introduction and Survey Strategy

The aims of the survey component of the project were determined in the brief (Appendix 1) and were further refined during meetings with the Steering Committee and the preliminary round of indigenous consultation meetings (see Volume 3). The project committee had identified twelve areas of interest which were subsequently expanded to 14 areas. These are referred to throughout the following sections as the ‘study areas’. These 14 study areas were

- (1) Mount Sarah/Winchester/Dargo High Plains.
- (2) Bundarra River/Glen Valley.
- (3) Gibbo River.
- (4) Tambo River.
- (5) Mount Taylor/Tubbut.
- (6) Yalmy Road/Moonkan Track.
- (7) Nariel/Mount Pinnabar.
- (8) Mitta Mitta/Dartmouth.
- (9) Stanley State Forest.
- (10) Mount Buffalo.
- (11) Mount Selwyn.
- (12) Mount Mittamatite.
- (13) Expanded Dargo High Plains Area.
- (14) Tom Groggin.

Within these 14 study areas the consultant was required to carry out the following specific survey tasks

- To survey in areas of ‘enhanced ground surface visibility conditions’.
- To test current predictive models of Indigenous occupation within the project area.
- To target areas not previously surveyed but of known or predicted occupation.
- To assess and document the nature and extent of damage caused by wildfire and the associated fire suppression activities.
- Identify Indigenous cultural landscapes.

The survey strategy was consequently predicated upon by a number of bodies of evidence including sensitivity zoning statements for each study area, known archaeology, Aboriginal knowledge, and maps of fire severity and suppression activities. A survey strategy was developed for each study area which addressed the requirements of the brief and survey strategy. Based on this information, target areas were selected and also controls—locations where archaeological sensitivity was predicted to be low or the opposite of zoning statements (Table 5). During the latter part of the survey the preliminary results were reviewed and sensitivity zoning statements were refined and a further round of testing took place. For instance, when large dense sites were found on the river valleys in the foothills, and large artefact scatters were found in the upper reaches of the same river valleys, the scope of the research into Indigenous travel routes

Table 5: Survey target areas

REQUIREMENT	SURVEY STRATEGY	TARGET AREAS	CONTROL AREAS
Take advantage of good visibility	Survey in fire affected areas, areas of disturbance	Areas affected by 2003 wildfire. Fire control lines Four wheel drive and walking tracks Timber harvesting coupes	Unburnt areas Undisturbed areas Off-track areas Unharvested areas
Test current sensitivity zoning statements	Preparation of sensitivity zoning statements for each survey area Example: Bundarra/Glen Valley	Areas of high sensitivity as per the zoning statements Ridges and spurs with through access into and through mountains. Flat, well drained surfaces in or adjacent to Snow gum woodlands. Grass dominated vegetation cover. Snow gum, gneissic rock outcrop protected areas. Wide undulating ridges east of the Big River. Wide, gently sloping spur ridges adjacent to the Cobungra, Bundarra, Big/Mitta Mitta rivers. Ridges in the steeply dissected areas of the SA. Rockshelters and gneiss and granite outcrops.	Areas of low sensitivity as per the zoning statements 'Dead-end' ridges and spurs. Slopes, areas of poor drainage, sub-alpine and footslopes zone. Shrub dominated areas, above treeline. Exposed ridgelines. Narrow ridges and creek valleys east of the Big River. Creek and riverbanks, steep spur ridges, narrow ridges adjacent to the Cobungra, Bundarra, Big/Mitta Mitta rivers. Valley-sides, 'v' shaped valley bottoms, narrow headwater valleys. -
Test areas not previously surveyed	Review of known archaeology in each area and extent of previous survey coverage	Survey in archaeologically unknown areas and in areas of predicted occupation (see above)	-
Assess fire impacts	Review fire intensity maps and locations of fire control lines	Areas of high, medium and low intensity burns. Fire control lines, including rake lines, large medium and small firebreaks. Quick fill sites. Fire rehabilitation works.	Unburnt areas. Undisturbed areas. Undisturbed water sources. Unrehabilitated fire control lines

REQUIREMENT	SURVEY STRATEGY	TARGET AREAS	CONTROL AREAS
Aboriginal knowledge	Consultation with Indigenous communities, Indigenous planning for surveys, survey strategies and target areas; oral history; ethnohistory	Indigenous knowledge of site location in the landscape. Known Aboriginal travelling routes. Indigenous predicted lines of movement. Resource zones. Indigenous predicted campsites. Historical locations. Potential contact locations e.g. mining areas, early settlement locations	- - - - - - -

was widened to specifically survey river valleys as potential routes into the highlands including the headwaters of steeply dissected 'V' shaped valleys in the sub-alpine zone.

Initially the survey instructions were prescriptive, with a predetermined daily list of survey locations. This was found to be unhelpful as the fire severity maps were insufficiently fine-grained and areas thought to be heavily burnt were frequently found on arrival to be unburnt, while areas on surrounding landforms were heavily burnt. Subsequently, broader areas which usually had not been previously surveyed were selected prior to the survey and suitable target areas within these areas were selected on the day. Areas chosen by Indigenous representatives were usually made on a daily basis during consultation with Indigenous representatives.

Opportunistic surveys were conducted when special conditions presented themselves, particularly special resource zones such as Bogong moth habitats, other resource zones, sheltered locations, river crossings etc.

Lastly, a small number of sites were resurveyed to compare results between pre- and post-wildfire conditions.

5.1.1 Survey Teams

Survey was conducted in teams in several study areas simultaneously due to time constraints. Up to four teams were out at any one time. Each survey team was made up of two archaeologists, representatives of all Indigenous stakeholder groups for that area (sometimes including an elder) and an Indigenous consultant/advisor. Teams either split in two to survey in different areas, or worked as one team and surveyed larger areas. The decision to separate into two teams in each area was based on advice from the Indigenous team. Survey was conducted from a base and in more or less continuous blocks of time.

5.2 Methodology

A thorough foot survey for Aboriginal sites was carried out in each pre-determined location. All survey units were either transects (long straight survey units such as tracks) or quadrats (larger more even-sided units). Both survey unit shapes have advantages and disadvantages. In this project survey unit shape was generally adapted to circumstances, so that transects were more common on narrow ridgelines and river terraces, while quadrats were more common in logging coupes and broader flatter areas such as river flats.

A number of problems are associated with the selection of size and shape of sampling units which will influence or bias the results of the survey. Small square or oblong quadrats can more accurately produce information from a single landform type (e.g. a quadrat on a peak or crest), while transects may produce information or conflate information from a number of landforms (e.g. a transect on a ridgeline may conflate information from a ridgeline, upper slope, crest saddle, middle slope and lower slope) unless very accurate records are maintained. Survey in quadrat shaped survey units is more likely to reveal the internal and external relationships within and between artefact and site clusters. In site focussed rather artefact focussed surveys, sites may be found on the edge of a quadrat and recording such sites tend to over-emphasise the proportion of sites in the area surveyed, particularly in smaller quadrats (Schiffer *et al.* 1978: 11; Plog *et al.* 1978: 398). If the focus of the survey is the total distribution of artefacts rather than the clusters themselves then small quadrats are useful despite the difficulties with edge effects.

Both quadrats and transects were generally surveyed with each survey team member walking three metres apart. However this procedure did not always fit with Indigenous survey requirements and frequently survey was more exploratory with Indigenous team members testing their understanding and expectations of the landscape and in the process

recording excellent results. The survey tally process was adjusted to accommodate this less formal approach (see below).

The survey team members inspected all visible ground surface exposures, rocky outcrops, gravel exposures and mature trees. A record was maintained of the area surveyed, ground surface visibility, conditions and any cultural sites located. Survey coverage was therefore estimated for each person (three to six metres per person—depending on conditions—by estimated length of area walked). During each survey the tally was reviewed regularly to ensure target areas were being surveyed adequately, but no effort was made to give equal representation to the control areas. For instance there has been little survey of steep slopes. Previous surveys have consistently found that few sites were located on steep slopes. The time and energy which would have been expended to further confirm this result was not considered worth the effort and time involved, particularly as less impact occurred in the study areas in these locations. Therefore there was no attempt to provide a representative survey sample but the resulting bias has been analysed to put all results in an appropriate context.

All Aboriginal sites which were located were thoroughly recorded within reasonable time constraints. Many sites were unexpectedly large and fully recording such sites could conceivably have taken the entire time allocated for surveying the unit, so that in such situations a small sample only was inspected. All artefacts were visually inspected under 4-x magnification with a hand lens. Dimensions of artefacts were measured using a vernier caliper. Site location coordinates were recorded using a hand held GPS (accuracy ± 10 metres) and checked against 1:25,000 or 1: 50,000 topographic maps. Several GPS coordinates were taken for larger sites. All newly located sites have been placed on the AAV Aboriginal Sites Register. All site types were recognised using criteria defined in the AAV *Guidelines for Conducting and Reporting upon Archaeological Surveys in Victoria* (1997). Scarred trees were identified and recorded as per the AAV scarred tree recording manual (Long 2003).

Some previously recorded sites were re-inspected and if necessary information on the AAV site record card was updated. The updated site cards were submitted to AAV.

The management of each site was discussed with the Aboriginal community representatives on-site, as was the management of areas where potential archaeological deposits may occur.

5.2.1 Visibility

Although, as noted above, an estimate of each person's survey coverage was recorded, effective observation of the ground surface in the study areas was hampered by a number of factors including vegetation, leaf fall, fallen timber and occasionally poor light. Effective survey coverage was calculated by determining the actual area surveyed by each person given the visibility within the areas surveyed. One person surveying in forested areas with poor surface visibility can only adequately scan an area three metres wide, while in open areas with good visibility the area scanned can be up to 6 metres. Effective survey coverage is therefore calculated in the following way:

EFFECTIVE SURVEY AREA (ESA) = ACTUAL SURVEY AREA (ASA) x VISIBILITY of GROUND SURFACE (V)

$$ESA = ASA \times V$$

For example:

If $ASA = 600m^2$, and $V = 30\%$, then $ESA = 180m^2$ ($600m^2 \times 30\%$)

The survey coverage is listed in Volume 4 and discussed in the following sections.

5.2.2 Survey Coverage Recording

All Information in the field was recorded by teams in a predetermined standard way on survey forms provided to each team. Two teams did not record this information on standard forms and environmental information was reconstructed from maps provided by DSE and PV, while survey information was estimated from the information provided by the survey teams and standardised to the survey proforma. Survey data attributes include:

- Study area.
- Transect/quadrat name.
- Transect/quadrat number.
- Vegetation.
- Geology.
- Sediments.
- Landform.
- Area actually surveyed (m²).
- Visibility.
- Site located.
- GPS coordinates of survey unit.
- Comment e.g. burnt, unburnt etc.

All survey data from the standard forms was transferred to a Microsoft Access database for analysis.

5.2.3 Aboriginal and Non-Aboriginal Site Recording

Site data was recorded in field notebooks and later transferred to AAV site recording forms. Training was provided in site recording to all teams and all team members participated in the site recording process.

All artefacts were examined under a hand lens. Artefact data was recorded for artefact samples and included the attributes listed below. The approach taken was to record a sample of artefacts only so that while fewer artefacts were recorded, those that were recorded were recorded more thoroughly. It is unlikely that many of these sites will be revisited for further study, so that it is important to gather as much high quality data as possible to have a good record of the site contents. The aim is to reproduce the quality of recording in the field that normally occurs in the laboratory, without the need for collecting or transporting artefacts. One artefact only was collected with the permission of the traditional owners relevant Aboriginal community representatives to be examined under a high powered microscope. The artefact has been returned to the relevant Aboriginal community for replacement in the site.

Attributes recorded on artefacts were:

- Site name.
- Artefact number.
- Manufacture type.
- Raw material.
- % of cortex.
- Cortex type.
- Platform type.
- Termination type.
- Core scars.
- Retouch/use.
- Retouch shape.
- Basic measurements including length, width, thickness, largest diameter

All data generated by the survey was put into a Microsoft Access database for analysis. The background review of the known archaeology, sensitivity zoning statements, and survey results for each study area and an overall review of the results are presented in the following sections.

Both the site survey Access database and the artefact Access databases will be forwarded to the relevant organisations when required to assist in formulating a comprehensive and accurate monitoring program.

5.2.4 Photographic Record

A digital and non-digital photographic record was maintained of all site locations, survey conditions, site contexts, general plates of artefacts and more detailed plates of unusual artefacts. These records will be held by AAV, with copies held by other organisations as required. Copies have been provided to some Aboriginal organisations and individuals as requested.

6 Area 1: Mount Sarah/Winchester/Dargo High Plains

The survey results are divided into 15 sections. The individual units are discussed in the following sections and the overall results at the end of the first 14 sections.

6.1 The Survey Team

Joanna Freslov and Wilfred Shawcross (Archaeologists).
 Tim Farnham and Colon Mullett (Gippsland East Gippsland Aboriginal Co-operative).
 Troy Melville (Taunurong Clans).
 Russell Mullet Indigenous Consultant.

6.2 Introduction

The field survey commenced on February 17 and was completed on the February 26 2004. The survey team was very experienced and did not wish to participate in the training program offered (see Volume 3). They did, however, take the opportunity to update each other's skills and all team members benefited from the experience.

6.3 The Study Unit

The study unit is a roughly diamond-shaped area located south and west of Hotham between the Dargo High Plains and Upper Dargo River valley in the east, Mount Sarah and the Wonnangatta River valley in the west, and the township of Dargo in the south (Figure 4). It is about 45 kilometres along its north-south axis at the widest point and 40 kilometres along its widest east-west axis, approximately 1800 km² in area.

6.4 Environmental Setting

6.4.1 Geology and topography

In the northeast the highest part of this landscape there are extensive areas of Tertiary basalt, most of which caps parts of the broad, undulating ridge along which the Dargo High Plains Road runs. The southern, lower part of this ridge is similarly wide and undulating, the former basalt cover having been eroded away only relatively recently geologically. This ridge extends to and crosses the Great Dividing Range.

Several other major ridges further to the west have similarly undulating crests but are narrower (seldom more than a few hundred metres wide). These ridges are cut off from the Great Dividing Range by the deep valleys of the headwater tributaries of the Wongungarra and Wonnangatta Rivers.

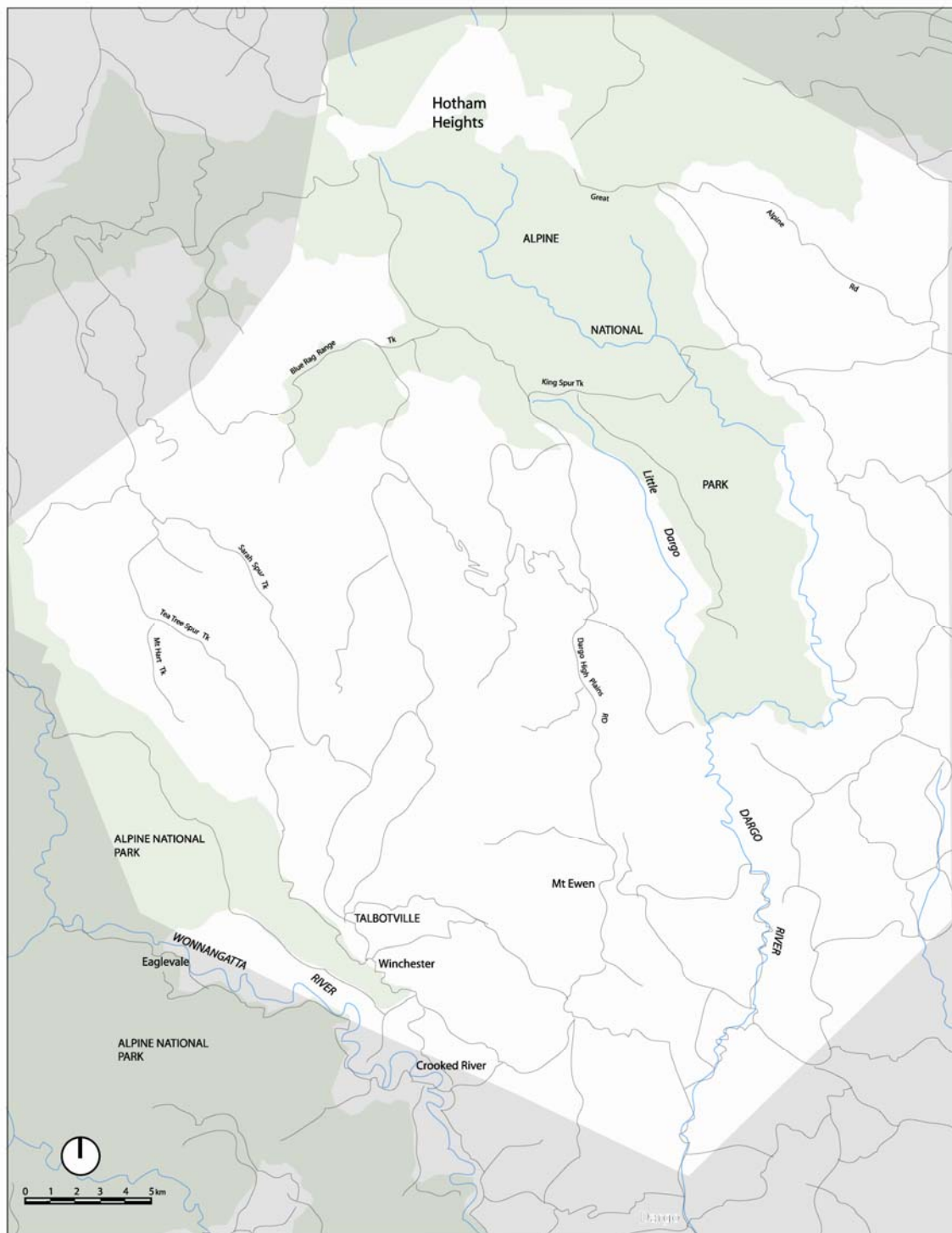


Figure 4: Mount Sarah/Winchester/Dargo High Plains and Expanded Dargo study area

6.4.2 Vegetation

On the highest parts of the ridges, especially on the broad ridge in the north corner, Sub-alpine Woodland occurs, with Sub-alpine Grassland on basalt areas. Elsewhere the higher ridge crests support Montane Grassy Woodland and the steeper slopes Montane Damp Forest. On the lower slopes and along the narrow valleys there is a complex mosaic of mainly forest types.

6.5 Known Archaeology

This study area is archaeologically unknown. Few sites have been located in and adjacent to the study area and no systematic surveys have been carried out. Sites have been reported by the general public and through environmental impact assessments. There are 12 sites in and adjacent to the study area including one scarred tree, eight isolated artefact occurrences and three artefact scatters (Table 6). The isolated artefact sites HP 1–4 (AAV 8323-0003–0006) were later found to be subsumed within a very large and dense artefact scatter containing thousands of artefacts located during an impact assessment for the Hotham Airport on Dinner Plain (Shawcross *et al.* 1998b). This site and the large scatter DP1 (AAV 8323-0007) are located just outside the study area. An axe was found under two feet of alluvium in the Upper Dargo River (AAV 8323-0001). Location details are poor, but it is highly likely that the axe was found in the Mayford area. The scarred tree at Mount Sarah (AAV 8223-0047) was located during the 2003 post bushfire preliminary assessment (Kelly 2004).

No Aboriginal places are recorded in the study area on the Aboriginal Affairs Historic Places Database. Four known places are the Wonnangatta River Travelling Route, the route now known as the Australian Alps Walking Track and the Wongungarra River which was called *Gwannam-o-rook*, the Aboriginal word for Eaglehawk, and Grant which was called *Poork-poork-gill-yarn*. (Howitt in Smyth 1878: 189–190, Russell Mullett in Goulding and Freslov 2002: 38). The Aboriginal name for the Wonnangatta River is *Wontwun*. (Howitt cited in Wesson 2000: 55).

Table 6: Known Aboriginal sites in and adjacent to study area 1

AAV SITE No.	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8223-0001	Wonnangatta 001	Isolated artefact	Upper Wonnangatta near Zeka Creek	Floodplain
8223-0047	Mount Sarah 1	Scarred Tree	Mount Sarah	Ridge
8323-0001	Upper Dargo River	Isolated artefact	Upper Dargo River, most likely Mayford	River terrace
8323-0002	Black Snake 1	Artefact Scatter	Lower Wonnangatta River valley	Saddle
8323-0003	HP 1	Isolated artefact	Horsehair Plain	Highland plain
8323-0004	HP 2	Isolated artefact	Horsehair Plain	Highland plain
8323-0005	HP 3	Isolated artefact	Horsehair Plain	Highland plain
8323-0006	HP 4	Isolated artefact	Horsehair Plain	Highland plain
8323-0007	DP 1	Artefact Scatter	Dinner Plain	Highland plain
8323-0008	HP 5	Artefact Scatter	Horsehair Plain	Highland plain
8323-0009	Budwoid Creek 2	Isolated artefact	Dargo River valley, near Dargo	Creek corridor
8323-0010	Budwoid Creek 1	Isolated artefact	Dargo River valley, near Dargo	Creek corridor

6.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. The broad undulating ridge along which the Dargo High Plains Road runs would have been a major access route between the lowland valleys to the east

and the alpine country along the Great Dividing Range (and from there to areas on the western side of the mountain, including the Ovens River valley and the inland plains). Artefact scatters will occur along the ridge, especially in sheltered, well drained spots. Some sites will contain rich and diverse artefact assemblages, reflecting their repeated use as campsites by groups (often large) moving back and forth along the ridge.

2. Artefact scatters will also occur along other major ridges which provided internal access (by generally smaller groups) within this mountainous area, but less frequently and generally of smaller size than in 1.
3. Artefact scatters will also occur along other more steep-sided ridges in the dissected ranges, but these will tend to be even less common and smaller than 1 and 2 above.
4. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

6.6.1 Predicted Sensitivity Ratings

Based on the methodology described in Section 3, the sensitivity ratings in the study area are:

- Overall archaeological sensitivity rating: **MEDIUM.**
- Dargo High Plains Road ridge: **MEDIUM TO HIGH.**
- Major access ridges through the mountains: **MEDIUM TO LOW.**
- Steep hilly terrain and narrow valleys: **VERY LOW.**

6.7 Survey Strategy and Conditions

The Mount Sarah/Winchester/ Dargo Plains Survey Area (SA 1) is an irregular but roughly diamond shape about 45 kilometres across its north-south axis and 40 kilometres across its east-west axis, i.e. about 1800 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on ridges. Large areas of this study unit had been intensively burnt, though the grassy plains were unburnt. The survey focussed on the burnt areas, opportunistically surveying in areas of good visibility, though areas of high archaeological potential were inspected even if regrowth was strongly present.

All major north to south ridges and many of the minor ridges were inspected. Valley floors in the steeply 'V' shaped valleys were inspected where access opportunities arose. Steeper, upper ridge-sides, particularly on the narrow ridges were also inspected to improve the sample of upper slopes. Time constraints meant that middle and lower slopes were poorly sampled in this unit as the time spent gaining access to these areas in this landscape would have severely affected the overall sampling within the unit.

In total the team intensively surveyed 61 small areas in the Mount Sarah/Winchester/Dargo High Plains study unit (Volume 4). The small survey areas were a combination of transects and quadrats (small block areas).

Quartz was very common and found in most survey transects as either gravel or occasionally as outcrops or exposed as veins in other rocks. The background quartz was generally of very poor quality, while modified quartz (artefacts) were generally made on better quality quartz. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

6.8 Results

6.8.1 Survey Coverage

The total area intensively surveyed was 29.82 ha. This was about 0.01% of the total area of the Mount Sarah/Winchester Dargo Study Unit. Of the 29.82 ha intensively surveyed, average visibility was 55.9% and it is estimated that the effectively surveyed area (ESA) was 15.4 ha. The general location of each of the 61 survey transects, their altitudes and environmental settings, the conditions of 'archaeological visibility', areas surveyed and archaeological sites located, and GPS locations for the transects is described in Volume 4.

6.8.2 Archaeological Sites and Materials

A total of 58 Aboriginal sites were located during the survey and two non-Aboriginal historic sites in 45 of the survey units. A large proportion (73.7%) of units surveyed had cultural material present. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV and HV.

The Aboriginal sites were made up of 15 isolated artefact scatters, 33 artefact scatters, one artefact scatter/quarry and nine possible scarred trees.¹¹ While many of the sites comprised small artefact scatters of less than five artefacts, most were larger than five artefacts, with five sites having more than 50 artefacts. Small sites were generally located on the minor narrow ridges and occurred frequently, while large sites were located on the broader ridges and plains and on the lower river terraces and were less frequent.

A large site at Guys Hut on Mount Sarah, Mount Sarah 1 (AAV 8223-0050), is typical of larger sites in this SA. It is located in a sheltered area below a narrow ridge in area region where flat, sheltered areas are at a premium. A small spring is located close by. The location is at a convenient location to access a wide range of routes through the alpine region from this point via long spur ridges. The site is also located close to access via spur ridges to large sheltered river valleys including the Wonnangatta River valley (via the Water Spur Track ridge and the Humffray River valley. Mount Selwyn immediately north of Mount Sarah is a border marker between the Gunai Kurnai and neighbouring groups (Russell Mullet pers. comm.).

A similar site on the Dargo High Plains, Mac's Hut 1 (AAV 8323-0061), is located on the edge of the snow gum/grassy understorey woodland overlooking a small plain and a large wet gully/ephemeral stream course. The site is in a sheltered location with views toward Hotham Heights, Dinner Plain and Mount Tabletop. There is good access from this point to lower sheltered river valleys (via Kings Spur to the Upper Dargo River) and to potential Bogong moth habitats on Mount Tabletop.

There was an average density of 0.002 artefacts/m² (i.e. about one artefact every 500m²), with artefact densities within sites ranging from 0.1 per m² to 20 per m².

Sites were common within the survey units and many were large so that not all artefacts found within sites were recorded. In many instances only a sample was recorded. A total of 377 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 7) and comprised 55.7% of the total assemblage. Quartzite (18.6%) was the next most common raw material, occurring primarily on the Dargo High Plains, while Rhyolite and fine-grained volcanics were more common in the lower river valleys (10.6%). No source for the quartzite was identified on the Dargo high Plains.

¹¹ See glossary for definitions of terminology.

Small amounts of basalt, chert, crystal quartz and what appeared to be porcellanite, were found throughout the unit. Two glass artefacts were found in sites Dargo Road 1 and 10 (AAV 8323-0082, -0024). One artefact was a very fine core made on a thick 19th century bottle bottom. The core had been systematically flaked around the entire perimeter (Plate 1). Only one axe was found in SA 1 in site Dargo Road 8 (AAV 8323-0022). This was a narrow ground-edge axe made on rhyolite, found partially exposed in a parking area at the side of the road (Plate 2).



**Plate 1: Glass
core found in site
Dargo Road 10
(AAV 8323-0024)**



**Plate 2: Rhyolite
axe found in
Dargo Road 8
(AAV 8323-
00222)**

Table 7: Numbers of stone artefacts and their raw materials in study area 1

RAW MATERIAL	NO.	%	SITE IT OCCURS IN
Quartz	210	55.7	Most sites
Quartzite	70	18.6	Crooked River 2, 4, 5, 7, Dargo Road 7, 8, 10, Mt Sarah 1, Sam Jamieson Track 2, Saw Mill Track 1,
Chert	32	8.5	Crooked River 1, 2, 4, 6, 9, Mount Sarah 1, Sam Sam Track 2
Rhyolite	20	5.3	Crooked River 2, 3, 4, 5, 7, Dargo Road 1, 6, 8
Volcanic	20	5.3	Crooked River 2, 6, 7, Dargo Road 10, Red Rose Spur Track 1
Basalt	8	2.1	Crooked River 2, Dargo Road 10
Crystal quartz	8	2.1	Crooked River 1, 5, Mt Sarah 1

RAW MATERIAL	NO.	%	SITE IT OCCURS IN
Silcrete	4	1.1	Crooked River 2, Mount Sarah 1
Glass	2	0.5	Dargo Road 1, 10
Porcellanite	1	0.3	Mt Sarah 1
Semi-metamorphosed sandstone	1	0.3	Dargo Road 9
Hornfels	1	0.3	Upper Dargo River Rd 1
Total	377	100	

Table 8: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 1

SITE	NO. OF ARTE-FACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Mt Sarah 1	50	>100	6	1,800	0.06	Narrow flat spur line below Mt Sarah, high sheltered location at nexus of ridgelines (1497m)
Macs Hut 1	50	>100	5	700	0.14	Edge of Snow gum plain, overlooking stream gully, sheltered location overlooking upper Dargo River valley (1565 m)
Crooked River 2	25	>100	7	640	0.16	Flat river terrace in narrow valley adjacent to Crooked River (294m)
Mt Sarah Track 5	20	>50	4	7560	0.01	River terrace in very steep 'V' shaped valley in the upper Wongungarra River valley (405m)
Sam Sam Spur Track 1	16	>100	1	3200	0.03	Gentle slope below Dargo High Plains on the Sam Jamieson Spur, sheltered location (1271m)
Wonnangatta River 1	16	>50	1	3200	0.03	Gentle spur leading down to Lower Wonnangatta River (257)

6.9 Discussion

6.9.1 The Sensitivity Zoning Model

While the sample size of both survey transects and archaeological sites is relatively small, the landscape has been sufficiently sampled to make some comments about the

proposed sensitivity zoning model for this study unit. The results provide strong preliminary support for the sensitivity zoning statements.

Statement 1—the broad undulating ridge along which the Dargo High Plains Road runs would have been a major access route between the lowland valleys to the east and the alpine country along the Great Dividing Range (and from there to areas on the western side of the mountain, including the Ovens River valley and the inland plains). Artefact scatters will occur along the ridge, especially in sheltered, well drained spots. Some sites will contain rich and diverse artefact assemblages, reflecting their repeated use as campsites by groups (often large) moving back and forth along the ridge.

In general the results of the survey support this statement, though zoning is likely to be more complex than the statement provided.

The sensitivity zoning statement argues that the Dargo High Plains would have been a major access route between the lowlands valleys and the alpine region. Sites were consistently found in a large proportion of the survey units (c. 74%). Most sites were small with larger sites placed in optimal environmental zones. One larger site on the plain (AAV 8323-0061) was in a location similar to the large site on the Horsehair Plain AAV 8323-0003–0006 (DP1–4) (Wilfred Shawcross pers. comm.). This is consistent with McConnell *et al.*'s (2002, Vol. 3) prediction of increased potential to find sites at the interface between the snow gum woodland/grassy understorey zone and the open plain. Water is available in the headwaters of creeks but more widely distributed in small bogs and soaks. The width of the plain and the availability of water suggests that there are many good potential camping locations so that larger sites could be widely distributed throughout the plain. However, many good potential locations were surveyed on the Dargo High Plains with relatively little found. Either sites were small sparse scatters or no artefacts were located. Therefore, given the results from the survey and later results from SA 13, it is likely that optimal site location is more complex than a simple association between shelter and water and the interface between the snow gum woodland and the open plain.

The narrow ridge leading onto the plain from Mount St Bernard was thoroughly sampled where there was some potential for artefact concentration and again artefact densities were low. The ridge is narrow and exposed with no obvious good locations for campsites until the broader plain is reached.

There will be a low density scatter of artefacts throughout the Dargo High plain with larger, denser scatters as peaks in occupation density located in optimal locations. These locations are discussed in the summary section at the end of the SA sections.

Statement 2 and 3—artefact scatters will also occur along the major ridges which provided internal access (by generally smaller groups) within this mountainous area, but less frequently and generally of smaller size than in 1. Artefact scatters will also occur along other more steep-sided ridges in the dissected ranges, but these will tend to be even less common and smaller than 1 and 2 above.

Major ridgelines in the study unit were sampled quite well as most are narrow, well burnt and have tracks and fire containment lines providing good ground surface visibility. Again, sites were found in most survey transects and quadrats indicating that while the sensitivity zoning is largely correct in that these ridgelines were utilised for travel through the region, the presence of larger sites (e.g. Mount Sarah 1, AAV 8223-0050) on these ridgelines suggests that they may have been equally as important for travel through the study area as the larger broader high altitude plains. The major north-south ridgelines provide access at their southern ends from different areas, so that it is entirely possible that different groups used different routes to meet in the higher alpine areas. The restricted distribution of quartzite artefacts to the Dargo High Plains and the Crooked River valley, which drains the Dargo High Plains, suggests less movement

between ridgelines. No obvious source of quartzite was found during the survey, including the river gravel beds.

Statement 4—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

The sensitivity zoning predicted that fewer sites would occur on the steeper slopes or in the narrow headwater valleys. Although the sample size of steep slopes was small, no artefacts were found on any steep slopes. However, the presence of a large site in the very narrow and steep upper Wongungarra River valley, suggests that these upper river valleys may also have been used as travel routes. This proposition was tested in units subsequently surveyed (see Study Unit 13, the expanded Dargo Unit).

6.9.2 Amended sensitivity ratings

Based on the Richards (1998) methodology described in Section 3, the sensitivity ratings in the study area have been amended to:

- Overall archaeological sensitivity rating: **HIGH.**
- Dargo High Plains Road ridge: **HIGH.**
- Major access ridges through the mountains: **HIGH.**
- Steep hilly terrain and narrow valleys: **VERY LOW.**

7 Area 2: Bundarra River/Glen Valley

7.1 The Survey Team

Joanna Freslov and David Wines (Archaeologists).
 Russell Mullett (Indigenous Consultant).
 Albert Mullett (Gunai Kurnai Elder).
 Malcolm Sealy (GEGAC).
 Tom Martin (Moogji Aboriginal Council).

7.2 Introduction

The survey commenced on 29 January 2004 and was carried out over seven days finishing on 4 February 2004. The training program was carried out over the seven days (40 hours) with two members of the Indigenous team (Mr Sealy and Mr Tom Martin). The archaeologists, Indigenous consultant and Mr Mullett the Gunai Kurnai Elder all assisted with the training program. Assessment was carried out over the final two days.

7.3 The Study Unit

The study unit is roughly crescent-shaped including the Bundarra River west of its junction with the Mitta Mitta at Anglers Rest and the Big River valley as far north as Mount Cooper (Figure 5). The study area is bordered on its southern edge by Mount Battery, the Victoria Falls and the Great Alpine Road; on its western edge by Dinner Plain and the upper Cobungra River valley; on its lower northern edge by the Shannonvale Valley and the Bogong High Plains Road; at its far northern end by the Razorback and Wombat Creek Track; and along its eastern edge by the Mitta Mitta River and the Omeo Valley Road. It is about 30 kilometres from east to west at its widest, and about 40 kilometres along its north-south axis. Overall it is about c. 800 km².

7.4 Environmental Setting

7.4.1 Geology and topography

The western two thirds of the area are underlain by Ordovician granite-like gneiss. This sub-zone is cut by the deep and in places wide valley of the Bundarra River. South of the Bundarra River is Young Spur, a major, wide, undulating ridge separating the Bundarra River catchment from the Cobungra River catchment to the south. The northern boundary is formed by a similar major undulating ridge along which the Bogong High Plains Road passes. The high, steep valley sides are highly dissected and rugged. The southeast corner of the area is formed on Devonian granite and the northeast corner on Ordovician sedimentary rocks, especially sandstone. Both of these sub-zones consist of steep sided, deeply dissected ranges. Some of the larger, higher ridges are relatively wide and undulating.



Figure 5: Bundarra River/Glen Valley Study Unit

7.4.2 Vegetation

There is a very complex mosaic of vegetation types (mainly forest and woodland), with Heathy Dry Forest dominating in the lower altitude eastern half. Small areas of Sub-alpine Woodland and Treeless Sub-alpine Mosaic occur on summit ridges adjacent to the Bogong High Plain.

7.5 Known Archaeology

The sub-alpine component of this study unit is relatively archaeologically well known. In the course of the Bogong High Plains survey (Hughes and Clarkson 2002) areas were surveyed along the ridge followed by the Bogong High Plains Road and along Young Spur. Numerous sites were found and the results confirmed that these were major access routes connecting the lowland valleys to the south and east with the High Plains, probably in the summer season. Existing site records and reports of extensive and diverse archaeological materials along the Cobungra and Bundarra Rivers provide tentative support for the proposition that these valleys would have been occupied for most of the year, if not permanently, and were used as base camps for summer forays into the mountains. Sites recorded in the study area are listed in Table 9.

No Aboriginal places are recorded in the study area on the Aboriginal Affairs Historic Places Database, though one place is known in the study area and three places are recorded in adjacent areas: Mount Cope border marker, Mount Hotham Gathering Place and the Mount Bogong/Gunundery Gathering Place and the Innisfail Massacre site. Mount Cope is described as a northern border marker for the Gunai-Kurnai (Russell Mullett pers. comm.). Mount Hotham was described as an important gathering place for the Gunai-Kurnai People (Russell Mullett in Freslov and Goulding 2002). Helms (1895) notes that Mount Bogong was called *Gunundery* and that there are a number of reports of people travelling to Mount Bogong. A massacre is also said to have occurred on the Cobungra River at Innisfail, and the valley where the massacre occurred was known as the 'Valley of the Dead' or 'Slaughterhouse Gully'. Large numbers of bones were said to have been found there in the nineteenth century, with a number of skulls once displayed in the chemist shop at Omeo (Gardner 1997: 7). There are few details, but the massacre may have occurred shortly after settlement in 1836–39 (Gardner 1997: 7).

Table 9: Known Aboriginal sites in and adjacent to the study area in study area 2

AAV SITE No	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8324-0081	BHP 16	Isolated artefact	Mount Cope	Highland plain
8324-0082	BHP 17	Isolated artefact	Mount Cope	Highland plain
8324-0083	BHP 18	Isolated artefact	Mount Cope	Hill slope
8324-0084	BHP 19	Isolated artefact	Mount Cope	Knoll
8324-0085	BHP 20	Raw material cache	Mount Cope	Hill top
8324-0086	BHP 21	Artefact scatter	Strawberry saddle	Spur ridge
8324-0087	BHP 22	Isolated artefact	Strawberry saddle	Hill slope
8324-0088	BHP 23	Artefact scatter	Strawberry saddle	Ridge saddle
8324-0090	BHP 25	Artefact scatter/quartz source	Raspberry Hill	Highland plain
8324-0093	BHP 28	Isolated artefact	Raspberry Hill	Rocky knoll
8324-0094	BHP 29	Isolated artefact	Raspberry Hill	Highland plain
8324-0095	BHP 30	Artefact scatter	McNamara Hut	Low rise
8324-0096	BHP 31	Isolated artefact	McNamara Hut	Ridge saddle
8324-0097	BHP 32	Artefact scatter/quartz source	Bogong High Plains Rd	Hill top
8324-0098	BHP-33	Isolated artefact	Bogong High Plains Rd	Ridge saddle
8324-0105	BHP 40	Isolated artefact	Young Spur	Hill slope
8324-0106	BHP 41	Artefact scatter	Young Spur	Hill top

AAV SITE No	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8324-0107	BHP 42	Isolated artefact	Young Spur	Ridge side
8324-0108	BHP 43	Isolated artefact	Young Spur	Ridge crest
8324-0109	BHP 44	Artefact scatter/quartz source	Young Spur	Ridge saddle
8324-0110	CR1	Artefact scatter	Anglers Rest	Ridge crest
8324-0111	BR1	Rock shelter	Anglers Rest	Hill slope

7.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Surface artefact scatters will occur in the sub-alpine zone at localities which have combinations of the following characteristics:
 - Along ridges and spurs which provided access into and through the mountains.
 - On relatively flat, well drained surfaces in or adjacent to open snow gum woodland.
 - Where the ground surface vegetation cover was dominated by grasses rather than shrubs.
 - In relatively protected situations where the snow gums and/or gneissic rock outcrops would have provided additional protection.
2. Artefact scatters will occur relatively frequently along the wider, undulating major ridges east of the Big River which provided access between these hilly areas and the major river valleys.
3. Artefact scatters will occur preferentially on spur ridges immediately adjacent to the major rivers (Cobungra, Bundarra and Big and Mitta Mitta), especially where such ridges are wide and gently sloping. Some of these may have been used as 'base camps' (c.f. AAV Site No. 8342-0110 at Anglers Reach on the Cobungra River).
4. Artefact scatters will also occur along other ridges in the steeply dissected ranges throughout the SA, but these will tend to be less common and smaller than in 2 and 3.
5. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.
6. There is a possibility that shelter sites with occupation and (less likely) art will occur in areas with gneiss and granite.

7.6.1 Predicted Sensitivity Ratings

- Overall archaeological sensitivity rating: **MEDIUM**.
- Ridges in the sub-alpine zone: **MEDIUM TO HIGH**.
- Major access ridges east of the Big River spur ridges overlooking the major rivers: **MEDIUM TO LOW**.
- Steep hilly terrain and narrow valleys: **VERY LOW**.
- Granite rock shelters with occupation and/or art: **MEDIUM TO HIGH** (if such shelters are found to exist).

7.7 Survey Strategy and Conditions

As noted above, the Bundarra River Survey Area (Area 2) is an irregular roughly crescent shaped unit about 800 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on possible travel routes through the dissected areas, river valleys, heavily burnt areas, gentle spurs above the rivers and rocky granite outcrops. Of all the study units, this unit appeared to have been most intensively burnt. Regrowth in many areas was minimal so that good visibility was obtained in areas where ground surface visibility is normally very bad, such as riparian corridors. The lack of vegetation combined with the granite geology and gravelly soils contributed to excessive redeposition of sediments following rain and erosion of sloping surfaces. At higher altitudes the grassy plains were less affected, with snow gums and some shrubs preferentially burnt providing small patches of visibility.

A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes. Mr Russell Mullett, the Indigenous Consultant, was a local resident and provided information about sites in a number of locations within this unit which were investigated. Areas nominated by the Indigenous team were also surveyed and one site AAV 8324-0110 was revisited to determine the effect of the fire on the site.

In total the team intensively surveyed 23 large and small areas in the Bundarra Glen Valley unit (Vol. 4). The small survey areas were a combination of transects and quadrats. Fewer survey units were achieved than planned as sites were commonly found on each unit and were frequently large dense sites. Recording the sites in this SA was quite time consuming.

Quartz was very common and found in many survey transects, occasionally outcropping in some survey areas. Although the background quartz was generally of very poor quality, some quartz outcrops were of moderate quality, but the modified quartz (artefacts) were generally made on much better quality quartz, even within the same area as the quartz outcrops. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

7.8 Results

7.8.1 Survey Coverage

The total area intensively surveyed was 22.08 ha. (This was about 0.027% of the total area of the Bundarra River Glen Willis Study Unit). Of the 22.08 ha intensively surveyed, it is estimated that the ESA was 13 ha with an average ground surface visibility of about 63.8 %. Volume 4 lists the general location of each of the 23 survey transects, their altitudes and environmental settings, ground surface visibility, areas surveyed, archaeological sites located, and GPS locations for the transects.

7.8.2 Archaeological Sites and Materials

A total of 22 new Aboriginal sites were located during the survey of this SA, one known site was inspected (AAV 8324-0110) and two new non-Aboriginal historic sites were found in 17 of the survey units. A large proportion (73%) of the 23 SAs surveyed had cultural material present. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV and HV.

The Aboriginal sites in this study unit were quite diverse and were made up of six isolated artefact scatters, 11 artefact scatters, one artefact scatter/stone source, one stone source, two shelter sites, and two grinding grooves. While many of the artefact scatter sites comprised small artefact scatters of less than five artefacts, most were larger than

five artefacts, with five sites having more than 100 artefacts. As in Study Unit 1, small sites were generally located on the minor narrow ridges while large sites were located on broad, gently sloping spur ridges above the Big River valley and on lower spur ridges and terraces associated with the Cobungra and Big Rivers. Sites were commonly located in areas which were readily accessible through routes in the steeply dissected areas, and sheltered locations relatively close to water.

Both shelter sites on Mount Cope—Mount Cope 3 and 6 (AAV 8324-0154, -0155)—had some evidence of occupation and some potential to have retained *in situ* deposits.

There was some local information that art sites may be present on the west face of Mount Meg in the granite overhangs. The area was thoroughly searched and all suitable overhangs were inspected. No occupation sites, artefacts, art or cultural material of any kind was located.

In the study unit there was an average density of 0.001 artefacts/m² (i.e. one artefact every 1000m²), with artefact densities within sites ranging from 0.1 per m² to 20 per m².

Sites were common within the survey units and many were large so that not all artefacts found within sites were recorded. In many instances a sample was recorded only. A total of 160 stone artefacts were recorded in detail. Quartz was the most common raw material in all sites (Table 10) and comprised 56.3% of the total assemblage. Quartzite (13.8%) was the next most common raw material, occurring throughout the SA, while Rhyolite and fine-grained volcanics were more common in the lower river valleys (10.6%).

Small amounts of basalt, chert, porcellanite, and crystal quartz were found throughout the unit. A relatively large number of axes (N=15) were found in the Big River sites (sites Omeo Road 1–7) in all stages of manufacture (Plate 3 and 4). The axes were made on river cobbles selected for their flatter cross section (Plate 4). A similar example of a chisel-shaped axe to the one found in the Dargo High Plains was also found in a site on the Omeo Road (Omeo Rd 5).

Plate 3: Ground-edge axe, site AAV 8324-0110



Plate 4: Ground-edge axe site, AAV 8324-0110

**Table 10: Numbers of stone artefacts and their raw materials in study area 2**

RAW MATERIAL	COUNT	%	SITES WHERE RAW MATERIAL OCCURS
Quartz	90	56.3	All
Quartzite	22	13.8	Burnside 2, Knocker Tr. 3, Omeo Rd 1, 2, 5, Cobungra R. 1
Silcrete	16	10.0	Burnside 2, Mt Cope 7, Omeo Rd 1, 4, 5, 6, 7, Shannonsvale 1, Cobungra 1
Volcanic	12	7.5	Various
Rhyolite	5	3.1	Burnside 1, Burnside 2, Omeo Rd 1, Omeo Rd 2, Omeo Rd 5,
Crystal quartz	4	2.5	Mount Cope 6, 7, Omeo Rd 5,
Granite	3	1.9	Omeo Rd 1, 2
Basalt	2	1.3	Omeo Rd 2,
Cherty Hornfels	2	1.3	Knocker Track 3
Gneiss	2	1.3	Burnside 2
Unknown	2	1.3	Various
Totals	160	100	

Table 11: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 2

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Omeo Road 1	34	>100	11	1,800	0.06	Low spur overlooking Omeo Rd and the Mitta Mitta River (826m)
CR1	19	>100	9	700	0.14	Low spur overlooking the Cobungra River at Anglers Rest (700 m)
Cobungra River 1	17	>100	5	640	0.16	Long gentle slope leading down to the Cobungra River at

						the foot of Mount Ned (800m)
Omeo Road 5	30	>100	8	756	0.01	River terrace adjacent to the Big River (720m)
Burnside Road 2	15	>100	7	3200	0.03	Higher river terrace above the big River (730 m)

7.9 Discussion

7.9.1 The Sensitivity Zoning Model

While the sample sizes of both survey transects and archaeological sites are relatively small, the results from the survey suggest that further statements should be added to the model.

Statement 1—surface artefact scatters will occur in the sub-alpine zone at localities which have combinations of the following characteristics:

- *Along ridges and spurs which provided access into and through the mountains.*
- *On relatively flat, well drained surfaces in or adjacent to open snow gum woodland.*
- *Where the ground surface vegetation cover was dominated by grasses rather than shrubs.*
- *In relatively protected situations where the snow gums and/or gneissic rock outcrops would have provided additional protection.*

The survey data supports this statement. Sites occur preferentially on ridges providing access into the higher alpine zones. The statement should also be amended to predict that small sites may cluster around rocky features (e.g. Mount Cope) in the alpine and sub-alpine zones

Statement 2—artefact scatters will occur relatively frequently along the wider, undulating major ridges east of the Big River which provided access between these hilly areas and the major river valleys.

While the survey data supports this statement, the prediction should be amended to predict that smaller sites will occur in this area where there are numerous good locations/foci for campsites. Artefacts/sites will therefore be distributed more widely and sites are likely to be small, single, low-density occupations.

Statement 3—artefact scatters will occur preferentially on spur ridges immediately adjacent to the major rivers (Cobungra, Bundarra and Big and Mitta Mitta), especially where such ridges are wide and gently sloping. Some of these may have been used as 'base camps.

The survey data strongly supports this statement, with many large sites with diverse contents suggesting multiple activities found on the low spurs adjacent to the Big River. The statement should be amended to include the prediction that the Big River in particular is a focus for axe production and axe discard, and grinding stones and grinding grooves will be located in flatter areas beside the river.

Statement 4—artefact scatters will also occur along other ridges in the steeply dissected ranges throughout the SA, but these will tend to be less common and smaller than in 2 and 3.

The survey data supports the sensitivity zoning statement to some extent but the Mitta Mitta valley is steeply dissected and a large site was found in this valley. The statement should be amended to predict that small sites may occur relatively frequently, with occasional large sites occurring at favorable flatter areas along travel routes.

Statement 5—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

While there was insufficient information gained from the survey data to test this statement, several sites occurred on moderate to steep slopes. The active erosion in the areas where sites occurred on steep slopes suggests that some artefacts may have been naturally transported down slope. However, the slopes were long and it is difficult to determine how far down slope a large artefact may travel without some practical experimentation. Artefacts were found on steep slopes in this unit and it would be wise to amend the sensitivity zoning statement to expect isolated artefacts to occur on moderate to steep slopes above the major rivers, particularly in the granite areas.

Statement 6—there is a possibility that shelter sites with occupation and (less likely) art will occur in areas with gneiss and granite

The survey data supports this statement.

7.9.2 Amended sensitivity ratings

- Overall archaeological sensitivity rating: **HIGH.**
- Ridges in the sub-alpine zone: **MEDIUM TO HIGH.**
- Major access ridges east of the Big River spur ridges overlooking the major rivers: **MEDIUM TO HIGH.**
- Steep hilly terrain and narrow valleys: **VERY LOW.**
- Granite rock shelters with occupation and/or art: **MEDIUM TO HIGH** (if such shelters are found to exist).

8 Area 3: Gibbo River

8.1 The Survey Team

Joanna Freslov and David Johnston (Archaeologists).
 Dhudoroa Representatives.¹²
 Malcolm Sealy, Tim Farnham (Indigenous Consultants)
 Paul Harrison, David Eades (Moogji Aboriginal Council)
 John Mongta (Monaro People).

8.2 Introduction

The survey was carried out over five days by two teams, commencing on April 13 2004 and was completed on April 18 January 2004.

8.3 The Study Unit

The study unit is a roughly rectangular area surrounding the Gibbo River, north of Benambra in the northeast alpine region (Figure 6). The area is bordered in the north by the Shire of East Gippsland boundary and the headwaters of the Gibbo River, in the west by the Mitta Mitta River and ranges east of Lake Dartmouth, in the south by the large granite outcrops of the Brothers, MacFarlane's Lookout and Pendergast Lookout, and in the west by the Beloka Range. It is about 13 kilometres from east to west at its widest and about 25 kilometres along its north-south axis at its longest. Overall it is about c. 325 km².

8.4 Environmental Setting

8.4.1 Geology and topography

The geology and topography comprises steeply dissected ranges formed mainly on Ordovician sedimentary rocks (especially sandstone), and a mixture of Silurian volcanic (rhyolite and porphyry) and sedimentary rocks. Some of the ridge crests are relatively wide and undulating.

8.4.2 Vegetation

The vegetation is a mosaic of woodland and forest types dominated by Shrubby Dry Forest.

8.5 Known Archaeology

This study unit is archaeologically unknown except for a fish trap site at its northern end (AAV 8424-0001) (Table 12). The fish trap was reported by a member of the public and

¹² A number of Dhudoroa people assisted with the survey. These included Gary Murray – (Project Manager), Kenny Stewart – (Project Manager), Jida Murray Gulpilil, Nick Stewart, Cain Raudino, Andom Renell, Kevin Melrose, Thomas Kinchela, Lisa Arnold, Neil (Sunny) Newman.

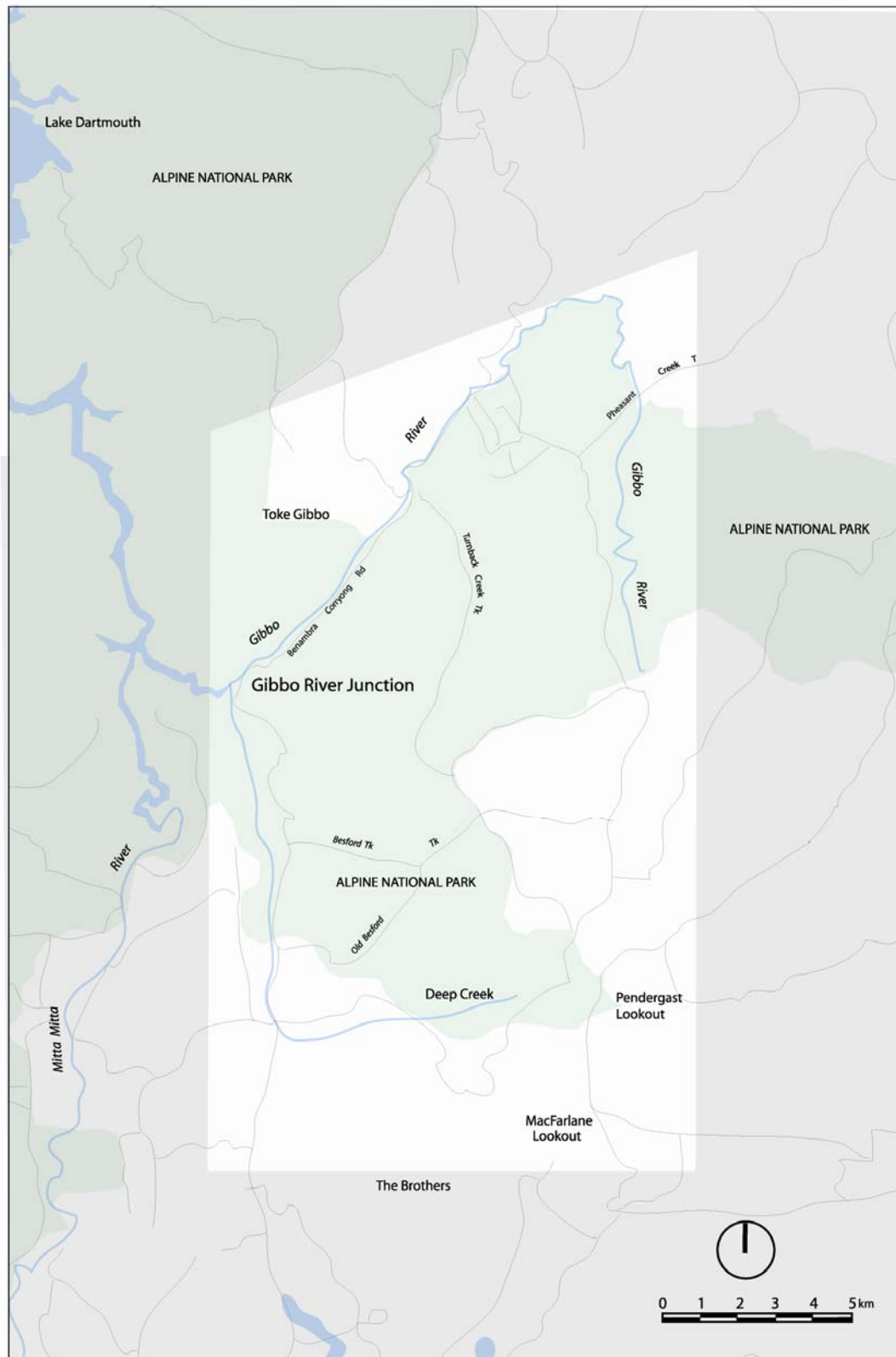


Figure 6: Gibbo River study unit

registered on the AAV Aboriginal sites register. A later inspection of the purported fish trap, found it to be a natural phenomenon (Stewart Simmons pers. comm.).

No Aboriginal places are recorded in the study area on the Aboriginal Affairs Victoria Historic Places database. Three named places are located in the study area. The Aboriginal name for Mount Pendergast is *Garrenmunjie*, the Gibbo River is named *Buumba* and the Mitta Mitta River is named *Jugylmungee* (Wesson 2000: 97).

Table 12: Known Aboriginal sites in and adjacent to study area 3

AAV SITE NO	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8424-0001	Gibbo	Fish trap	Mitta Mitta Gibbo confluence	River terrace

8.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Artefact scatters will occur along the major, relatively broad ridges which provided internal access within this mountainous area.
2. Artefact scatters will also occur along other more steep-sided ridges in the steeply dissected ranges, but less frequently and generally of smaller size than in 1.
3. Artefact scatters will occur preferentially on spur ridges immediately adjacent to the Gibbo River, especially where such ridges are wide and gently sloping.
4. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.
5. Volcanic rocks potentially suitable for artefact manufacture occur (rhyolite and porphyry) and quarries of these or similar materials might occur.

8.6.1 Predicted Sensitivity Ratings

- Major access ridges through the mountains and spur ridges overlooking the Gibbo River—**LOW TO MEDIUM**.
- Steep hilly terrain and narrow valleys—**VERY LOW**.
- Overall archaeological sensitivity rating—**LOW**.

8.7 Survey Strategy and Conditions

The Gibbo survey unit was smaller than many other units, about 325 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement through the dissected areas, the river valleys, heavily burnt areas, rocky granite outcrops and areas nominated by the Aboriginal community participants. While many areas of the study unit had been intensively burnt, regrowth in the area was intermittent with stronger regrowth in the wetter areas, and less in the granitic areas. Strong regrowth of vegetation in the Gibbo River valley hindered ground surface visibility in this area, so that fewer sites were found in the river corridor than expected. Intensive alluvial mining during the 19th century along the river valley had created massive disturbance in many areas which has most probably contributed to site destruction along the river corridor. By contrast, less disturbance and minimal regrowth away from the river corridor has most likely increased the chances of locating sites in the granite and dissected

ridge areas. These conditions should be understood to strongly influence the results of the survey in this unit.

A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes. Mr Malcolm Sealy and Mr Tim Farnham, the Indigenous consultants, while not local residents, had many informants and survey experience in the area and provided information about possible site locations within this unit which were investigated.

In total, the two teams intensively surveyed 56 large and small areas in the Gibbo River unit (Volume 4). The small survey areas were a combination of transects and quadrats. The area was relatively intensively surveyed, as the area was one where there were overlapping claims for heritage responsibility resulting in a comparatively large representation on two separate survey teams.

As in most survey units, quartz was very common and found in many survey transects, particularly in the granite areas. Usually in this study unit the modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

8.8 Results

8.8.1 Survey Coverage

The total area intensively surveyed was 22.5 ha. (This was about 0.06 % of the total area of the Gibbo River Study Unit). It is estimated that the ESA was 14.4 ha, with an average ground surface visibility of 57.05 %. Volume 4 describes the general location of each of the 56 survey transects, their altitudes and environmental settings, the conditions of 'archaeological visibility', areas surveyed and archaeological sites located, and GPS locations for the transects.

8.8.2 Archaeological Sites and Materials

A total of 31 new Aboriginal sites were located during the survey. No attempt was made to relocate the one known site (AAV 8424-0001) following a conversation with Stewart Simmons regarding its authenticity. A lower proportion (48.2%) of the survey units surveyed than other study units had cultural material present. The characteristics of these sites are summarised in (Volume 4). Site cards have been completed and submitted to AAV and HV.

The Aboriginal site types in this study unit were less diverse than other study areas and comprised 14 isolated artefact scatters, 16 artefact scatters, and potential rock shelter site. The majority of the artefact scatters comprised more than five artefacts, but were relatively small. Three sites including Mitta Gibbo Confluence 2 (AAV 8424-0051) had more than 50 artefacts. Small artefact scatters commonly occurred on the major ridges and in the small creek valleys, particularly in sheltered locations. A small area of terrace in the steeply 'v' shaped headwater valley of the Gibbo River was inspected to test the site distribution predictions (see above) and one site AAV 8424-0052 (Upper Gibbo River 1) was located. However, even in this remote area, the river terrace had been grossly disturbed by alluvial mining. A number of granite outcrops occur in the southern end of the study unit which were inspected for potential rock shelter sites and art. The granite appeared to be very unstable and it is unlikely that any art placed on such surfaces would survive. A known (to the local community) rock shelter was inspected immediately south of the study area and found to have no obvious evidence of occupation as the shelter floor was covered in exfoliated granite spalls. The shelter site is very high and difficult to access and the potential for deposit is thus low. Towards the end of the survey information was offered regarding a number of other possible shelter

locations in the study area. The information was relatively vague and there was insufficient time to follow it up.

In the study unit there was an average density of 0.009 artefacts/m² (i.e. about one artefact per 1000m²), with artefact densities within sites ranging from 0.1 per m² to 0.8 per 100m².

Small, low density sites were common within the survey units and all artefacts in most sites were recorded with the exception of the larger sites where only samples were recorded due to time constraints. A total of 125 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 13) and comprised 66.4% of the total assemblage. Raw materials were diverse and included porphyry, silcrete, rhyolite, and basalt from which the axes in the Mitta Mitta Gibbo Confluence 2 (AAV 8424-0051) were composed. Two glass artefacts were found in association with a mining site.

Two ground-edge axes and an axe blank were found in the Mitta Mitta River Gibbo Confluence 2 site (AAV 8424-0051) made of rhyolite and basalt (Plate 6). The presence of the axes and blanks in this location is consistent with results in similar locations on the Big River to the west

Plate 5: Mitta Mitta Gibbo Confluence environment



Plate 6: Rhyolite ground-edge axe at site Mitta Mitta Confluence 2 (AAV 8424-0051)



Plate 7: Rhyolite ground-edge axe at site Mitta Mitta Gibbo Confluence 2 (AAV 8424-0051)



Table 13: Numbers of stone artefacts and their raw materials in study area 3

RAW MATERIAL	COUNT	%	SITE OF OCCURRENCE
Quartz	83	66.4	All
Volcanic	19	15.2	Mitta Mitta Gibbo Confluence
Crystal quartz	4	3.2	Deep Creek 1, Gibbo R. 1, Oakley Track 1
Rhyolite	4	3.2	Benambra Creek 1
Silcrete	4	3.2	Morass Creek 1
Porphyry	3	2.4	Gibbo R. 3
Basalt	2	1.6	Mitta Mitta Gibbo Confluence 2, Oakley Track 1
Glass	2	1.6	Gibbo R. 2
Unknown	2	1.6	Various
Metamorphic	1	0.8	Morass Creek 3
Quartzite	1	0.8	Gibbo R. 3
Totals	125	100.00	

Table 14: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 3

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIAL S	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Mitta Mitta Gibbo Confluence	94	>100	3	4000	0.02	River flats at the Mitta Mitta-Gibbo rivers confluence (500 m)
Deep Creek 2	9	>100	1	1350	0.006	Low spur overlooking Deep Creek (972 m)
Oakley Track 1	7	>100	3	900	0.007	Low spur overlooking unnamed creek, sheltered location

8.9 Discussion

While sites are relatively frequent throughout the area, they are generally small and of very low density. The major river valleys would have provided access routes through the steeply dissected country and large dense sites are more likely to be found adjacent to these rivers. However, poor visibility combined with mining disturbance meant that only one such site was located. It is likely that these larger sites may have been destroyed by mining. The Buenba Creek would have been a focus of activity, but most prime locations for sites in this valley are on private land. Two glass artefacts were found associated with a mining site. This may have possibly been made by Chinese people on the diggings or may be associated with post contact occupation by Aboriginal people, possibly indicating Aboriginal presence in the diggings (see Volume 3 for a discussion of Aboriginal associations with the diggings).

8.9.1 The Sensitivity Zoning Model

While the sample sizes of both survey transects and archaeological sites are relatively small, the results from the survey suggest that further statements should be added to the model.

Statement 1—artefact scatters will occur along the major, relatively broad ridges which provided internal access within this mountainous area.

The survey data supports this statement.

Statement 2—artefact scatters will also occur along other more steep-sided ridges in the steeply dissected ranges, but less frequently and generally of smaller size than in 1.

The survey data supports this statement, but should be amended to include the statement that in this drier country sites are most likely to occur in sheltered locations below ridges adjacent to small creeks.

Statement 3—artefact scatters will occur preferentially on spur ridges immediately adjacent to the Gibbo River, especially where such ridges are wide and gently sloping.

The survey data does not support this prediction. While sites may once have been located in this location, intensive alluvial mining along the river has most likely destroyed the majority of such sites, so that they are now comparatively rare.

Statement 4—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

The sensitivity zoning model should be amended to state that the survey data suggest that like other units, where flat land is available adjacent to rivers in headwater valleys, small lithic scatters may occur.

Statement 5—volcanic rocks potentially suitable for artefact manufacture occur (rhyolite and porphyry) and quarries of these or similar materials might occur.

While volcanic materials suitable for artefact manufacture may occur in this study unit, they are used in relatively small amounts. The most common material was quartz which appears to have been used quite opportunistically. This suggests people were not well 'mapped on' to the stone resources in this unit and this evidence and the site size and

distribution suggest that people were moving through this unit to other areas rather than spending longer periods of time in this environment.

The Mitta Mitta Gibbo Confluence site (AAV 8424-0051) is similar to those sites found in the Big River valley in its location and contents. Predictions for the Mitta Mitta valley (below Lake Dartmouth) should be the same as those for the Big River valley.

8.9.2 Amended sensitivity ratings

The sensitivity ratings are unchanged.

- Major access ridges through the mountains and spur ridges overlooking the Gibbo River—**LOW TO MEDIUM**.
- Steep hilly terrain and narrow valleys—**VERY LOW**.
- Overall archaeological sensitivity rating—**Low**.

9 Area 4: Tambo River

9.1 The Survey Team

Phil Hunt and Oliver Macgregor (Archaeologists).
 Rachael Mullett (Monaro Elder).
 Nigel Beswick (Moogji Aboriginal Council).
 Colin Hood, Johnny Martin (GEGAC).
 Russell Mullet (Indigenous Consultant).

9.2 Introduction

The survey was carried out over seven days between February 21–27 2004. The training program was carried out over the seven days (40 hours) with members of the Indigenous team. The archaeologists, Indigenous Consultant, and Aunty Rachael Mullett all assisted with the training program. Assessment was carried out over the final two days.

9.3 The Study Unit

The study unit is a roughly rectangular area, tilted on its side, surrounding the Tambo River, northeast of Omeo in the northeast alpine region (Figure 7). It is bordered in the north by Mount Pendergast, in the south by the Nunniong Plains, in the west by Mount Shanahan and Blackfellows Flat, and in the east by the headwaters of the Buchan River. It is about 30 kilometres along its longest axis from southwest to northeast, and about 17.5 kilometres along its northwest to southeast axis. Overall it is about c. 525 km².

9.4 Environmental Setting

9.4.1 Geology and topography

Most of the area consists of steeply dissected southwest-northeast trending low ranges formed on a mixture of Silurian sedimentary (mainly sandstone), granitic and metamorphic rocks. In the southwestern corner is a large area of Silurian volcanics. Some of the main ridges have relatively broad (up to 0.5 kilometres) undulating crests.

In the southeast corner is an extensive area of Tertiary basalt, which forms remnant undulating plains (e.g. Emu, Nunniong and Blue Shirt Flat) surrounded by steeper, dissected slopes on the underlying rocks.

The area is drained by the Tambo River, the valley of which is steep sided and narrow.

9.4.2 Vegetation

The vegetation is a mosaic of woodland and forest types dominated at higher altitudes by Montane Wet Forest, Montane Damp Forest and Montane Dry Woodland. At lower altitudes Shrubby Dry Forest dominates.

9.5 Known Archaeology

This study unit is archaeologically unknown, except for the eastern corner encompassing

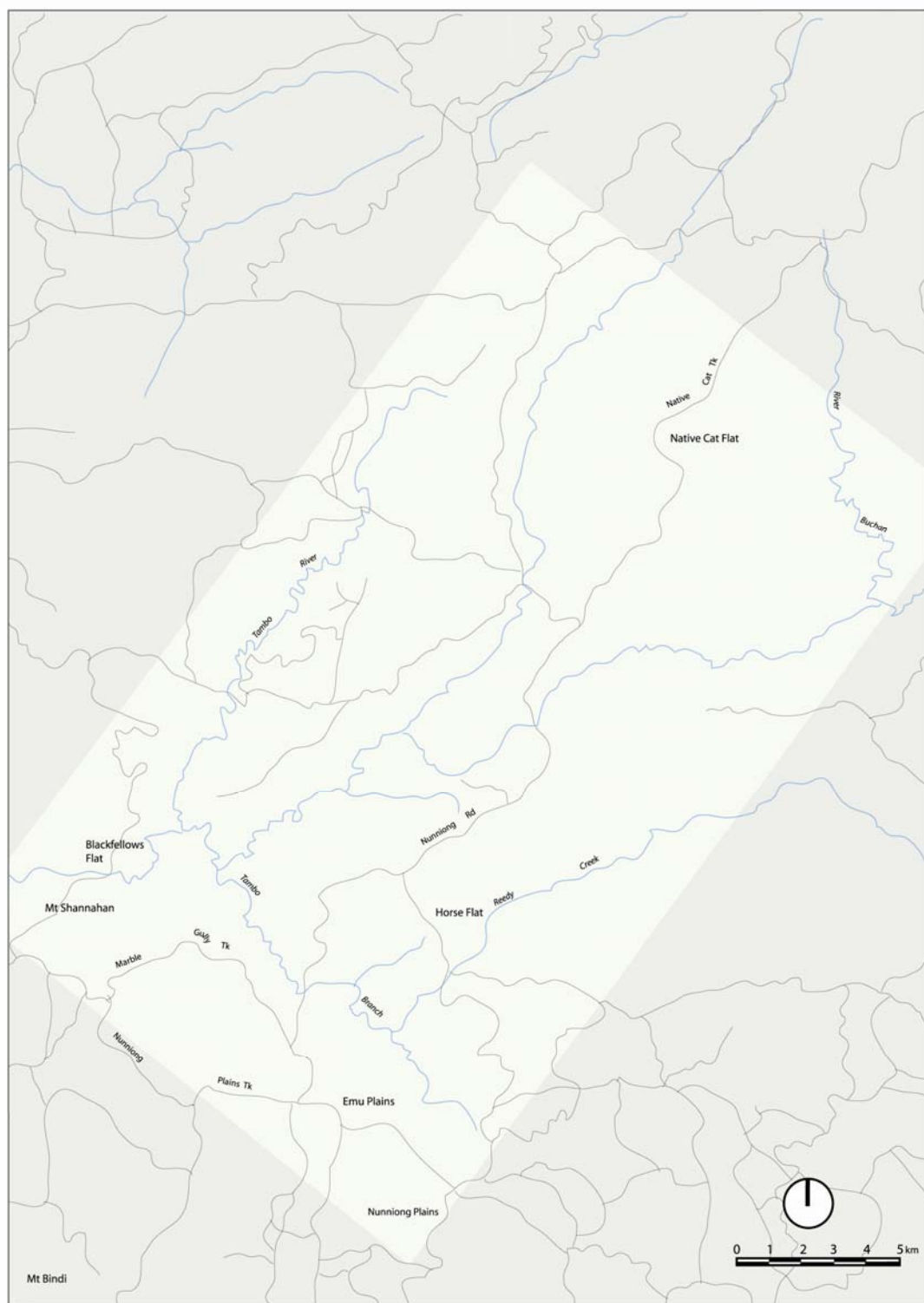


Figure 7: Tambo River study area

the Buchan River, which was surveyed by Hall (1991) and a small survey carried out on the Marble Gully Road by Huys and Johnston (1995).

Table 15: Known Aboriginal sites in and adjacent study area 4

AAV SITE NO	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8424-0002	Tambo River 1	Surface Scatter	Tambo River	Valley bottom
8424-0004	Tambo River 2	Isolated Artefact	Tambo River	Riverbank
8424-0013	McLean Creek	Surface Scatter	McLean Creek	Riverbank
8424-0014	Mt. Pendergast	Isolated Artefact	Mt Pendergast	Hill slope
8423-0016	MGAS1	Artefact scatter	Marble Gully Road	Lower slope

There are no Aboriginal places recorded in the study area, but several in adjacent areas. These include AAV Place 1.2-42, Tongio (Tongeo Munjie) Station, AAV Place 1.2-43, Hoppner's Farm and AAV Place 4.1-14, Black Camp Creek, the Blackfellows Flat Massacre and the Tambo Travelling Route.

Aboriginal named places include *Tongiomungie*, situated at the Limestone Plain at the head of the Tambo River, *Bindi memial*, which is the Tambo River near Bindi, and Bindi which is itself a named place (Dawson 1858; Howitt in Smyth 1878; Wesson 2000: 95–97).

9.5.1 AAV Place 1.2-42, Tongio (Tongeo Munjie) Station

Tongeo Munjie Station is located about 9.5 kilometres north of Ensay and immediately east of Mount Tongio. Tongio (Tongeo Munjie) Station (also Bindi Station) was taken up by Edmund Buckley between 1835 and 1837 (Barraclough *et al.* 1992: 5). There are reports that Aboriginal people worked on the station as shepherds and reapers (AAV Place Historic Places Database, report from Andrew McCrae to Superintendent Parker 1853). One Aboriginal man, Charley Hammond, is certainly reported as working on Tongio station in the mid 19th century. He lived with his family and worked there as a stockman. It is reported that he was a survivor of a massacre and had been bought up by white settlers (Gardner 1983: 105). His children went to the local school until 1883. From this time the fortunes of the family declined. Charley's wife became very ill and it was difficult for Charley to earn enough to support his large family of seven children. A settler contacted the Board for Protection of Aborigines to ask for assistance for the Hammond family but it was only received after his wife's death. At the time he had a small baby and another sick child. As Charley could no longer care for the family on his own he moved back to Lake Tyers with the children (Pepper 1980: 74). However, by 1890 Hammond was known to be living in desperate circumstances at Ramrod Creek near Bruthen and the Board intervened and divided the family (Gardner 1983: 105).

9.5.2 AAV Place 1.2-43, Hoppner's Farm

A number of Aboriginal people were also reported to have been working on Hoppner's Farm in the mid-nineteenth century. The location of Hoppner's Farm is unclear but is said to be situated on the Tambo River (AAV Aboriginal Historic Places Database). The selector Hoppner employed Aboriginal people to clear ferns on his property. He is said to have paid them with alcohol (Pepper *et al.* 1985: 122). *Karn-many* (alias Dargo Willy or Big Joe), an Aboriginal man working on the farm in the 1860s had been involved in an incident at Swan Reach where he was alleged to have attempted to tomahawk Sarah Harding (Gardner 1990: 34). The police caught up with Kam-many at Hoppner's Farm in 1860 and he was arrested and later sentenced to three years gaol (Gardner 1990: 34).

9.5.3 AAV Place 4.1-14, Black Camp Creek.

There is reported to have been a post-contact camping place at Black Camp Creek near Omeo (Dolamore 1966: 46). Little more is known about this place.

Gardner (1997: 7) also suggests that a massacre occurred above Bindi, near Tongio Station, possibly at Blackfellows Flat.

The Tambo Travelling was reputed to lie between Omeo and Bruthen (Gardner 1991: 42).

9.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Artefact scatters will occur along the major, relatively broad ridges which provided internal access (by generally smaller groups) within this hilly to mountainous area. Similarly, they will also occur on the basalt-capped Emu, Nunniong and Blue Shirt Flat Plains.
2. Artefact scatters will occur preferentially on spur ridges immediately adjacent to the Tambo River, especially where such ridges are wide and gently sloping.
3. Artefact scatters will also occur along other more steep-sided ridges in the steeply dissected ranges, but less frequently and generally of smaller size than in 1.
4. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.
5. Volcanic rocks potentially suitable for artefact manufacture occur in the southwest corner and quarries of these materials might occur.

9.6.1 Predicted Sensitivity Ratings

- Major access ridges through the hills/mountains, the basalt plains and spur ridges overlooking the Tambo River—**MEDIUM TO LOW**.
- Steep hilly terrain and narrow valleys—**VERY LOW**.
- Overall archaeological sensitivity rating—**LOW**.

9.7 Survey Strategy and Conditions

The Tambo survey unit was relatively large and a number of areas were selected as priority survey areas. These areas consisted of landscapes highlighted in the sensitivity zoning model for this unit and cross-referenced with fire control line and burn impact information, as well as an attempt to target significant (e.g. river/creek junctions) and representative landforms (e.g. major ridgelines). A smaller than expected sample of this unit was achieved as it was the focus of several official visits which tended to disrupt the schedule.

Like other areas, the survey team used the network of roads and four-wheel drive tracks to access targeted parts of the survey area and areas nominated by the Aboriginal community participants. Many areas of the study unit had been intensively burnt but regrowth was quite strong in some areas.

A broad range of landforms, geological and other interesting vegetation contexts were surveyed in this unit including spurs, slopes, crests, plains, ridgelines, tall open forest, swamps, grassy glades and basalt and granite geologies. Mr Russell Mullett, the Indigenous Consultant, lives nearby and had many contacts in the area and provided information about possible site locations within this unit which were investigated.

In total the team intensively surveyed 22 large and small areas in the Tambo River unit (Volume 4). The small survey areas were a combination of transects and quadrats. The area was relatively less intensively surveyed than other areas due to the reasons outlined above.

As in most survey units quartz was fairly common and found in some survey transects as background gravel, particularly in the shale areas. Usually in this study unit the modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

9.8 Results

9.8.1 Survey Coverage

The total area intensively surveyed was 13.09 ha. (about 0.02 % of the total area of the Tambo River Study Unit). Of the 13.09 ha intensively surveyed, it is estimated that the ESA was 4 ha, with an average visibility of 29.09 %. Volume 4 describes the general location of each of the 22 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects.

9.8.2 Archaeological Sites and Materials

A total of ten new Aboriginal sites were located. Survey was carried out in the vicinity of one known site—AAV 8423-0016 (MGAS1), but it is likely that the artefacts were part of a new site rather than the known site, though it is not entirely clear from the map of the known site. A high proportion (63.6%) of the units surveyed had cultural material present. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV and HV.

The Aboriginal site types in this study unit were less diverse than other study areas and comprised eight artefact scatters and two isolated artefacts. Several very large scatters were located, one with several thousand artefacts (Table 17).



Plate 8: Artefacts in site MGAS 1 (AAV 8423-0016)

In the study unit there was an average density of 0.017 artefacts/m² (i.e. 1.7 artefacts every 1,000m²), with artefact densities within sites ranging from 0.002 per m² to 0.3 per m².

Where small sites were recorded, the entire assemblage was documented, while only a sample was recorded in larger sites due to time constraints. A total of 69 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 16) and comprised 47% of the total assemblage. Quartzite (33%) was the next most common raw material, occurring primarily in the larger sites: Scrubby Creek/Tambo Spur 1 (AAV 8423-0024), MGAS1 (AAV 8423-0016), and Nunniong Road 2 (AAV 8424-0028). Fine-grained volcanics, silcrete and chert make up the remainder.



Plate 9: Distribution of artefacts in the Scrubby Creek/Tambo Spur 1 site (AAV 8423-0024)

Table 16: Numbers of stone artefacts and their raw materials in study area 4

RAW MATERIAL	COUNT	%	SITE WHERE MATERIALS OCCUR
Quartz	33	47.8	Lake Hill Track 1, 2, Marble Gully 1, Nunniong Plain 1, 2, Scrubby Creek
Silcrete	23	33.3	Marble Gully 1, Nunniong Plain 1, 2, Scrubby Creek
Quartzite	5	7.2	Marble Gully 1, Nunniong Rd 2, Scrubby Creek
Volcanic	4	5.8	Lake Hill Tr. 2, Marble Gully 1, Nunniong Plain 1
Chert	3	4.3	Scrubby Creek
Granite	1	1.4	Scrubby Creek
Totals	69	100	

Table 17: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 4

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
MGAS1	20	>10000	4	2300	>0.008	Extends from creek bank and gully up spur slopes (640m)
Scrubby Creek, Tambo Spur	30	>500	5	3240	>0.009	Spur northwest side of Bindi Station (600m)
Nunniong Plains Track 2	7	>50	2	400	>0.07	Sheltered position overlooking plains (1200m)

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Nunniong Road 2	22	>50	2	4160	>0.005	Tall open forest, gently inclined area, on southwest side of a slight depression (1200m)

9.9 Discussion

9.9.1 The Sensitivity Zoning Model

While the sample size of both survey transects and archaeological sites are relatively small, the results from the survey suggest that further statements should be added to the model.

Statement 1—artefact scatters will occur along the major, relatively broad ridges which provided internal access (by generally smaller groups) within this hilly to mountainous area. Similarly, they will also occur on the basalt-capped Emu, Nunniong and Blue Shirt Flat Plains.

The data generally support this predicted distribution.

Statement 2—artefact scatters will occur preferentially on spur ridges immediately adjacent to the Tambo River, especially where such ridges are wide and gently sloping.

There is insufficient data to effectively comment this prediction.

Statement 3—artefact scatters will also occur along other more steep-sided ridges in the steeply dissected ranges, but less frequently and generally of smaller size than in 1.

The data generally supports this prediction

Statement 4—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

The data generally supports this prediction

Statement 5—volcanic rocks potentially suitable for artefact manufacture occur in the southwest corner and quarries of these materials might occur.

While fine silicious materials and some volcanics are present in the sites, no quarries were located during this survey. However there is insufficient survey data to comment on this prediction.

9.9.2 Amended sensitivity ratings

- Major access ridges through the hills/mountains, the basalt plains and spur ridges overlooking the Tambo River—**MEDIUM TO HIGH.**
- Steep hilly terrain and narrow valleys—**VERY LOW.**
- Overall archaeological sensitivity rating—**LOW.**

10 Area 5: Mount Taylor/Tubbut

10.1 The Survey Team

Doug Williams and Phil Hunt (Archaeologists).
Tania Carter (Moogji Aboriginal Council).
John Mongta (Monaro People).
John Hayes (Bidawal People).

10.2 Introduction

The survey was carried out over seven days between February 14–20 2004. The training program was carried out over the seven days (40 hours) with two members of the Indigenous team (Mr Mongta and Ms Carter). One person, Mr Hayes, was forced to return home due to family sickness and was not able to complete his training. The archaeologists provided the training program and assessment was carried out over the final two days.

10.3 The Study Unit

The study unit is a roughly rectangular area, tilted on its side, near the NSW border and northwest of Bonang (Figure 8). The area is bordered in the north by the NSW border, in the west by the Snowy River, in the south by an area north of McKillops Bridge, the Deddick River and Tubbut, and to the east by the Dellicknora Creek. It is about 15 kilometres on its shortest north to south axis and about 30 kilometres along its widest northwest to southeast axis. Overall it is about c. 450 km².

10.4 Environmental Setting

10.4.1 Geology and topography

The environment is made up of steeply dissected hills and low ranges formed on a mixture of Silurian sedimentary rocks and granite. A small area of Tertiary basalt is located in the south.

10.4.2 Vegetation

A mosaic of forest, woodland and grassy woodland types forms the vegetation.

10.5 Known Archaeology

This study area is largely archaeologically unknown. On its western boundary a few isolated artefact find spots have been recorded in the course of surveys centered immediately to the west at Suggan Buggan (undertaken by Alistair Grinbergs) and more recently by John Tunn and AAV (Grinbergs 1992; Tunn 2003).

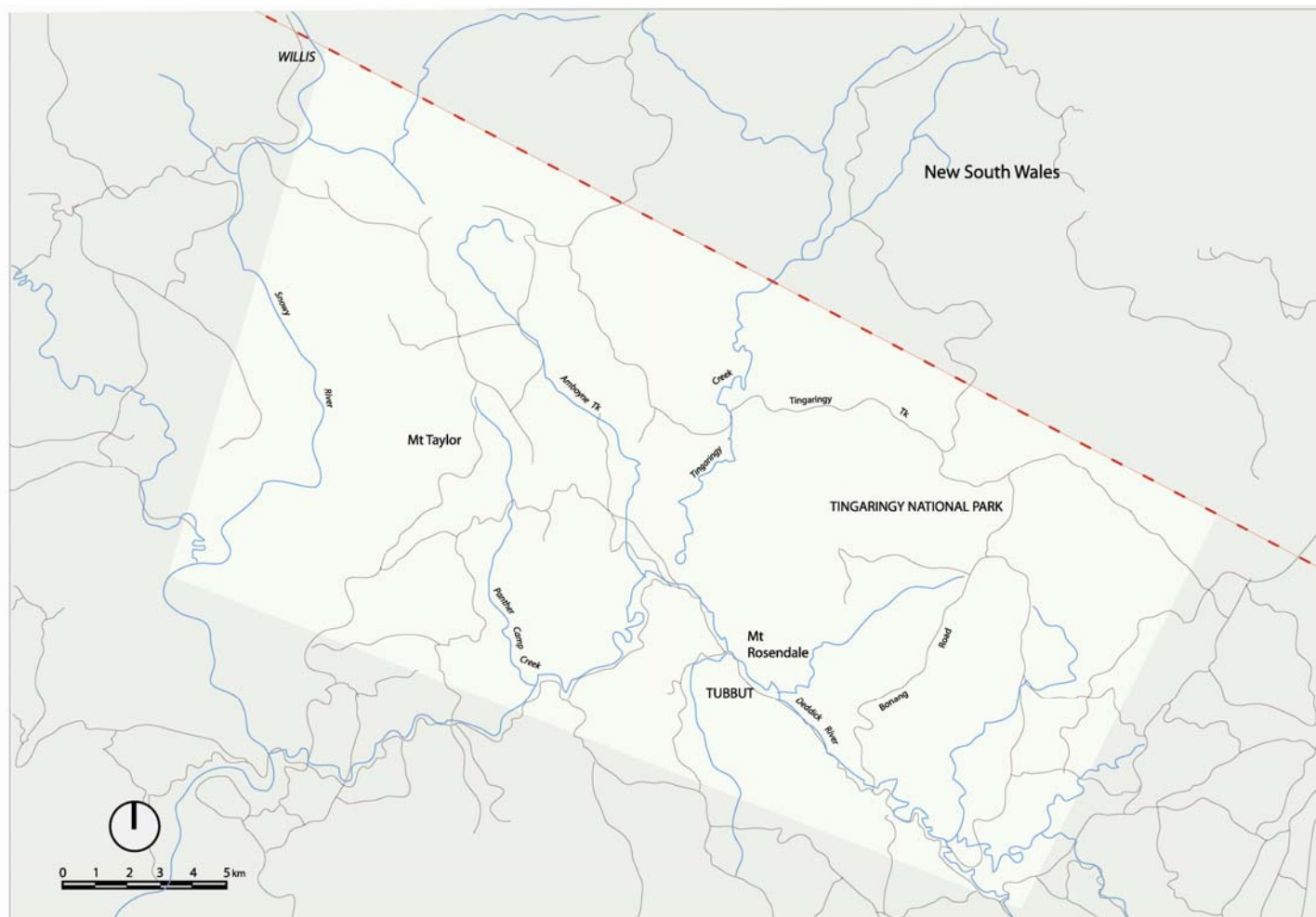


Figure 8: Mount Taylor/Tubbut study area

Table 18: Known Aboriginal sites in and adjacent to study area 5

AAV Site No	Site Name	Site Type	General Area	Landform
8524-0148	SRAS 1	Surface scatter	Snowy River	Hill Rise
8524-0149	SRAS 2	Surface scatter	Snowy River	Valley
8524-0150	SRAS 2.1	Scarred Tree	Snowy River	Hill Slope
8524-0188	Helipad Track 5	Surface Scatter	Snowy River	Ridge

No Aboriginal places are recorded in the study area, but a number have been found in adjacent areas. These include:

- 4.4-10, Cooma to Suggan Buggan Station Cattle Route.
- 4.4-5, Ingeegoodbee Track.
- 1.3-1, Bendock Station.
- 3.1-19, Errinundra Timber Mill.
- 3.1-7, Bendock Timber Mills.
- 4.1-2, Solomon's Camp.
- 9.3-3, Bendock Cemetery.

10.5.1 4.4-10, Cooma to Suggan Buggan Station Cattle Route

This cattle route was reportedly used regularly in the 1840s by a settler, Dillon and Jamby, an Aboriginal man from Lake Tyers, to transport provisions from Cooma to the Dillon's Suggan Buggan/Black Mountain station (Adams 1982).

10.5.2 4.4-5, Ingeegoodbee Track

The Ingeegoodbee Track north was reported to extend from north of Suggan Buggan via the Monaro Gap into NSW and was said to be an important track used by Aboriginal stockmen to move cattle in the Suggan Buggan area (Aboriginal Historic Places Database).

10.5.3 1.3-1, Bendock Station

Thought to be the 'Bidwell' Station where members of the Bidawal people were living in the mid 19th century (Bulmer 1877).

10.5.4 3.1-19, Errinundra Timber Mill

A number of Aboriginal people worked in this timber mill in the 1850s (AAV Aboriginal Historic Places Database).

10.5.5 3.1-7, Bendock Timber Mills

Aboriginal people worked in the timber mills in the twentieth century (AAV Aboriginal Historic Places Database).

10.5.6 4.1-2, Solomon's Camp

The location of a 20th century Aboriginal camping place near Bendoc (AAV Aboriginal Historic Places Database).

10.5.7 9.3-3, Bendock Cemetery

This is the burial location of a well known Aboriginal man, Tongai, who died in the early 1900s after a fall from a tree when he was possum hunting. Tongai is thought to have

been a survivor of the infamous Milly massacre and was said to be still practicing the traditional ways at the time he died (AAV Aboriginal Historic Places Database).

10.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Artefact scatters will occur along ridges crests providing access through this steeply dissected landscape.
2. Artefact scatters will occur preferentially on spur ridges immediately adjacent to the Snowy and Deddick Rivers, especially where such ridges are wide and gently sloping.
3. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

10.6.1 Predicted Sensitivity Ratings

- Major access ridges through the hills/mountains and spur ridges overlooking the Tambo and Deddick Rivers—**LOW TO MEDIUM**.
- Steep hilly terrain and narrow valleys—**VERY LOW**.
- Overall archaeological sensitivity rating—**LOW**.

10.7 Survey Strategy and Conditions

The Mount Taylor/Tubbut survey unit is moderately sized at 450 km² in area. Within this survey unit there is a comparatively large number of private land parcels and poor access, so that there was some difficulty accessing some areas of interest. The survey team stayed with a local resident who was very helpful in providing information about potentially sensitive areas and access. The survey team used the small network of roads and four-wheel drive tracks to access the survey area, focussing mainly on potential lines of movement through the dissected areas, the river and creek valleys, heavily burnt areas, various geologies, areas nominated by the Aboriginal community participants and areas suggested by local informants.

A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes. The survey team also had some access to private land. The team carried out a training exercise on the property they were staying at and had access to the property owner's private collection of artefacts.

In total, the team intensively surveyed 14 large and small areas in the Mount Taylor/Tubbut survey unit (Volume 4). The survey areas were a combination of transects and quadrats.

As in most survey units, quartz was very common and found in many survey transects, particularly in the granite areas. Usually in this study unit the modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

10.8 Results

10.8.1 Survey Coverage

The total area intensively surveyed was 29.75 ha. (This was about 0.06 % of the total area of the Mount Taylor/Tubbut Study Unit). Of the 29.75 ha intensively surveyed, it is estimated that the effectively surveyed area (ESA) was 7.4 ha, with an average ground surface visibility of 39.6%. Volume 4 describes the general location of each of the 14 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects

10.8.2 Archaeological Sites and Materials

The study area was very rich and a total of 18 new Aboriginal sites were located during the survey. Sites were located in 13 survey transects, so sites were found in 92 % of the survey transects. This is a high percentage. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV.

The Aboriginal site types in this study unit were less diverse than other study areas and comprised 17 artefact scatters and one collection. Nine of the artefact scatters comprised more than five artefacts and were large dense sites. Eight sites had more than 50 artefacts. Large and often dense clusters of artefacts commonly occurred on the major ridges and saddles on the ridge crests, as well as on gentle spurs adjoining the larger rivers and creeks. Some of the larger sites adjacent to watercourses exhibit some potential for subsurface deposits.

In the study unit there was an average density of 0.003 artefacts/m² (i.e. 3.2 artefacts every 1,000m²), with artefact densities within sites ranging from 0.003 per m² to 0.17 per m².

Large sites were common within the survey units, with dense clusters spread out over extensive areas. A total of 240 stone artefacts were recorded fully, with many more counted on the sites. Sites had diverse materials with high densities per square metre.

Plate 10: View of the study area



Plate 11: Artefacts in site Armstrong 1 (AAV 8523-0162)



Table 19: Numbers of stone artefacts and their raw materials in study area 5

RAW MATERIAL	COUNT	%	SITE WHERE MATERIALS OCCUR
Quartz	135	59.2	All sites
Silcrete	31	13.6	Armstrong 1, , Willis 1, Amboyne Creek 1, Tingaringy 1, Amboyne Creek 1, Deddick R. 1, Gattamurh
Fine-grained volcanics	29	12.7	Armstrong 1, Willis 1, Amboyne Creek 1, Amboyne Creek 1, Amboyne Creek 2, Deddick R. 1, Gattamurh, Armstrong 4
Quartzite	18	7.9	Armstrong 4, Gattamurh, Deddick R. 1, Amboyne Creek 1, Willis 1, Armstrong 1
Chert	7	3.1	Willis 1, Amboyne Creek 1, Amboyne Creek 1, Deddick R. 1
Rhyolite	4	1.8	Armstrong 1, Armstrong 4
Metamorphic	2	0.9	Armstrong 4
Sandstone	1	0.4	Willis 1
Tuff	1	0.4	Armstrong 4
Totals	228	100	

Table 20: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 5

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Armstrong 1	105	>105	8	1000	>0.1	Extends along a large saddle on a ridgeline (650m)
Armstrong 4	55	>200	9	1500	>0.01	Extends along a high ridge crest (1100m)
Gattamurh Creek 1	20	>174	4	1000	>0.05	Spur crest beside the confluence of the Gattamurh Creek and

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Deddick R. 1	22	>50	6	800	>0.006	the Snowy River (400m) Gentle slope (800m)
Willis 1	23	>155	7	1500	>0.1	Extends across a wide gentle spur on the western side of the Snowy River (240m)

Quartz was the most common raw material (59.2%). Formal tool types found in the Mount Taylor/Tubbut survey unit include Bondi points, and grindstones, and edge-ground axes (Springfields Collection).

10.9 Discussion

Both site density and artefact density are higher in this unit than most other areas, and it is likely that richer and denser sites will occur along the broader valleys currently occupied by the agricultural properties along the Deddick, Bonang and Jingalala rivers. The larger creeks are also likely to have more substantial sites.

Fire control activities have impacted upon sites in this area. Access into the area is difficult, so that fire suppression activities have followed access routes which in turn were probably major routes through the area before contact. In view of the likely rich site density in the river valleys in this unit, the development of pine plantations in these areas is likely to have a marked impact on sites in this area in the future.

10.10 The Sensitivity Zoning Model

While the sample sizes of both survey transects and archaeological sites are relatively small, the results from the survey suggest that further statements should be added to the model.

Statement 1—artefact scatters will occur along ridges crests providing access through this steeply dissected landscape.

This statement is strongly supported by the survey data.

Statement 2—artefact scatters will occur preferentially on spur ridges immediately adjacent to the Snowy and Deddick Rivers, especially where such ridges are wide and gently sloping.

.This statement is strongly supported by the survey data.

Statement 3—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

There is insufficient data obtained from the survey to comment on this proposition.

10.10.1 Amended sensitivity ratings

- The overall sensitivity of the study unit should be amended to **HIGH**.
- Major access ridges through the hills/mountains and spur ridges overlooking the Tambo and Deddick Rivers—**MEDIUM TO HIGH**.

- Steep hilly terrain and narrow valleys—**VERY LOW**.

11 Area 6: Yalmy Road/Moonkan Track

11.1 The Survey Team

Joanna Freslov and Doug Williams (Archaeologists).
Paula Martin, Nigel Beswick (Moogji Aboriginal Council).
Margaret Terrick, Edith Terrick (Bidawal People).
Mr Russell Mullett (Indigenous Consultant).

11.2 Introduction

The survey was carried out over seven days between February 6–12 2004. Mrs Eadie Terrick, Bidawal Elder, participated in the survey on some days. The training program was carried out over the seven days (40 hours) with three very enthusiastic members of the Indigenous team—Margaret Terrick, Nigel Beswick and Paula Martin. The archaeologists, Indigenous consultant and Mrs Terrick, the Bidawal Elder all assisted with the training program. Assessment was carried out over the final two days.

11.3 The Study Unit

The study unit is a rectangular area lying to the east of Buchan and the Snowy River, and north of Orbost in East Gippsland (Figure 9). The area is bordered in the west by the Snowy River and the New Guinea area, in the south by a line between Hicks campsite in the west and Malinns, the Bonang Highway, and the Yalmy River to the east and in the north by Rich Knob. It is about 25 kilometres along its longest axis from west to east, and about 18 kilometres along its north to south axis. Overall it is about c. 450 km², about the same size as the Mount Taylor/Tubbut study unit.

11.4 Environmental Setting

11.4.1 Geology and topography

This area has three distinct sub-zones.

Sub-Zone 1: East of Yalmy River is an area of dissected low hills and ridges formed on Ordovician sedimentary rocks.

Sub-Zone 2: Between the Yalmy and Rodger River is a dissected, elevated, undulating plateau formed on Devonian volcanic rocks. Along its eastern side this falls steeply down to the Yalmy River.

Sub-Zone 3: The northwest part of the area consists of highly dissected steep sided ridges formed on Silurian sedimentary rocks.

11.4.2 Vegetation

A complex mosaic of forest and woodland types.

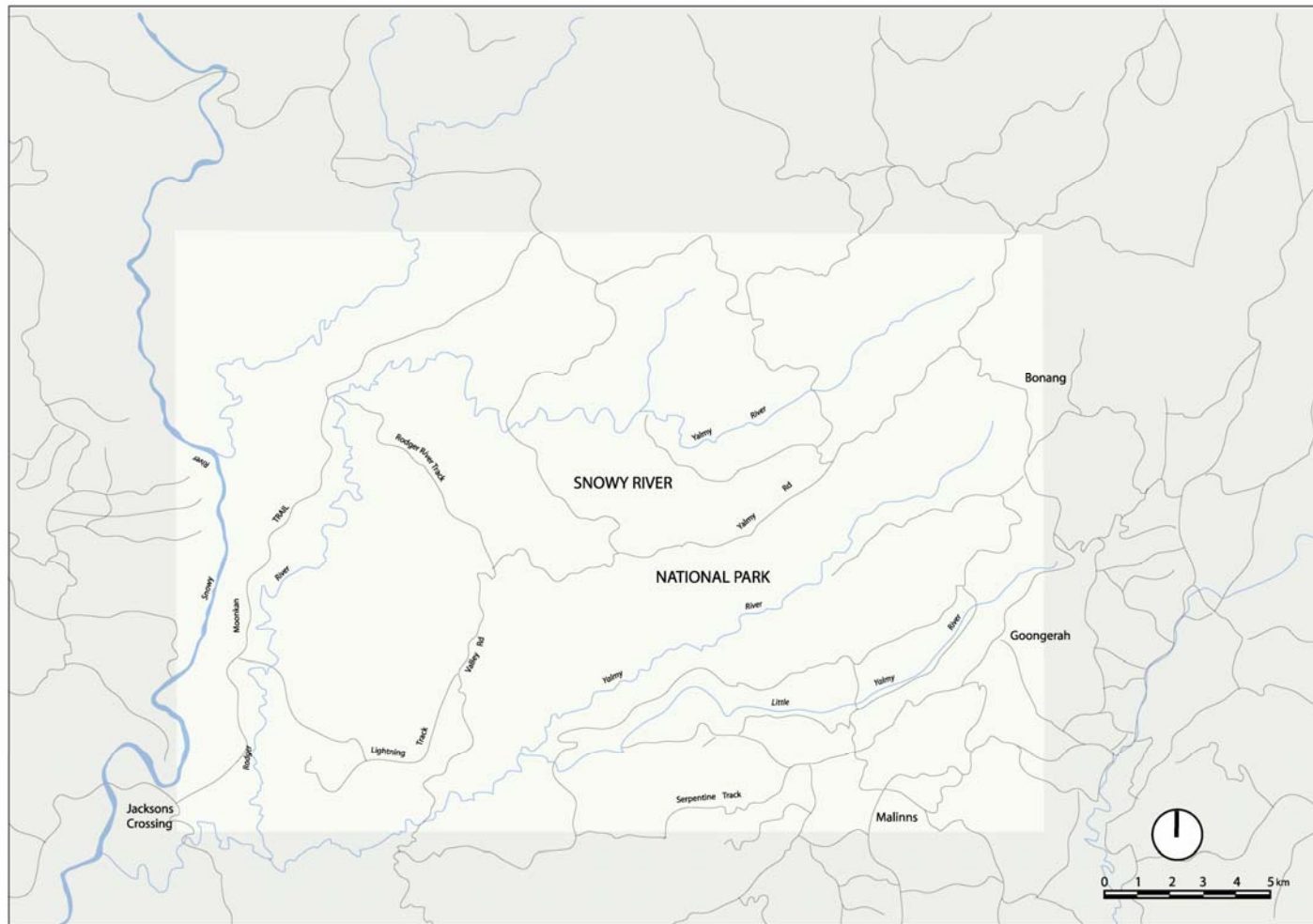


Figure 9: Yalmy Road/Moonkan Track study area

11.5 Known Archaeology

About 16 isolated artefacts, 11 artefact scatters and one scarred tree have been recorded. The northwestern half overlaps with one of Hall's (1990) survey areas (Table 22). Some survey has also been carried out in the southeastern corner of the study area (Knight 1998).

No Aboriginal places are recorded in the study area. Table 21 lists places in the AAV Aboriginal Historic Places Database that are located in adjacent areas. There is a range of place types including places where Aboriginal people lived worked and camped in the 19th and 20th centuries.

Table 21: Known Aboriginal historic places in and adjacent to study area 6

INVENTORY NO.	NAME
1.1-1	Buchan Station
1.1-2	Snowy River Station
1.2-10	Glen St Ruey Property
1.2-2	Gellingal Station
1.3-5	Woolgoolmarang (Woolgoramarang, Wulgulmerang) Station
12.2-1	Snowy River Station Camp Site
12.2-2	The Pyramids Camp
12.3-12	Dulagar Attack, Gelantipy
12.3-3	'Nyol' Caves, Murrindal
12.7-5	Snowy River Valley Travelling Route
12.8-1	Snowy River Internment Site
3.1-21	Buchan Timber Mill
3.1-3	Gelantipy Ringbarking
3.2-2	Harrison's Mill Hut, Buchan
4.1-5	Royals Camp
4.4-6	Deddick River Aboriginal Route
8.1-3	The Pyramids (Slaughter Gully/Murrindal) Massacre
8.1-4	Woolgoolmarang (Wulgulmerang, Woolgoramarang) Deaths
8.1-5	Butcher's Ridge Massacre

(Source AAV Aboriginal Historic Places Database)

Table 22: Known Aboriginal sites in and adjacent to study area 6

AAV SITE NO	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8523-0060	Moonkan 3	Isolated artefact	Moonkan Track	Ridge
8523-0061	Deddick Trail South	Isolated artefact	Deddick Trail	Ridge
8523-0062	Deddick Trail South 2	Isolated artefact	Deddick Trail	Ridge
8523-0063	Deddick Trail South 3	Isolated artefact	Deddick Trail	Ridge
8523-0064	Deddick Trail South 4	Isolated artefact	Deddick Trail	Ridge
8523-0065	Deddick Trail South 5	Isolated artefact	Deddick Trail	Ridge
8523-0067	Deddick Trail South 7	Isolated artefact	Deddick Trail	Ridge
8523-0068	Deddick Trail South 8	Isolated artefact	Deddick Trail	Ridge
8523-0069	Deddick Trail South 9	Isolated artefacts	Deddick trail	Ridge
8523-0071	Deddick Trail South 12	Isolated artefact	Deddick Trail	Ridge
8523-0070	Deddick Trail South 13	Isolated artefact	Deddick Trail	Ridge
8523-0072	Lightning Track 3	Isolated artefact	Lightning Track	Ridge
8523-0073	Lightning Track 1	Isolated artefact	Lightning Track	Ridge
8523-0074	Lightning Track 2	Isolated artefact	Lightning Track	Ridge
8523-0075	Lightning Track 4	Isolated artefact	Lightning Track	Ridge
8523-0091	Hicks 13	Artefact scatter	Varneys Track	Ridge
8523-0092	Moonkan 1	Artefact scatter	Moonkan Track	Ridge
8523-0093	Moonkan 2	Artefact scatter	Moonkan Track	Ridge
8523-0094	Hicks 20	Artefact scatter	Varneys Track	Gentle spur
8523-0095	Hicks 21	Artefact scatter	Varneys Track	Gentle spur
8523-0096	Hicks 22	Artefact scatter	Varneys Track	Gentle spur
8523-0097	Hicks 23	Artefact scatter	Varneys Track	Gentle spur
8523-0098	Hicks 24	Artefact scatter	Varneys Track	Gentle spur
8523-0099	Hicks 25	Artefact scatter	Varneys Track	Gentle spur

AAV SITE NO	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8523-0100	Hicks 26	Artefact scatter	Varneys Track	Gentle spur
8523-0101	Hicks 17	Artefact scatter	Varneys Track	Gentle spur
8523-0129	RR1	Isolated artefact	Yalmy Road	Ridgeline

11.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

Each of the three sub-zones are predicted to have differences as well as commonality in their site nature and distribution patterns.

1. Artefact scatters will occur along the major, relatively broad ridges which provided internal access within the low hilly terrain of Sub-Zone 1. Similarly, they will also occur on the broader undulating plateau surface which comprises much of Sub-Zone 2.
2. Artefact scatters will also occur along other more steep-sided ridges in the steeply dissected country, but less frequently and generally of smaller size than in 1. A high proportion of Sub-Zone 3 consists of this kind of terrain.
3. Artefact scatters will occur preferentially on spur ridges immediately adjacent to the Little Yalmy, Yalmy, Roger and Snowy Rivers, especially where such ridges are wide and gently sloping.
4. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys (especially common in Sub-Zone 3).
5. Volcanic rocks potentially suitable for artefact manufacture occur across Sub-Zone 2 and quarries of these materials might occur.

11.6.1 Predicted Sensitivity Ratings

- Sub-Zone 2 undulating plateau—**MEDIUM TO LOW**.
- Sub-Zone 1 broader ridges—**LOW**.
- Steep hilly terrain and narrow valleys (predominantly in Sub-Zone 3)—**VERY LOW**.
- Overall archaeological sensitivity rating—**MEDIUM TO LOW**.

11.7 Survey Strategy and Conditions

The Yalmy Road/Moonkan study unit was moderate in size but extremely dissected and rugged, about 450 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement through the dissected areas, particularly ridgelines, river and creek valleys, fire control lines, some areas where small spot fires had occurred and areas nominated by the Aboriginal community participants.

The study area had only been burnt in the northwest corner, though some spot fires had occurred in the central part of the study area. The study area (unburnt) had been previously surveyed by Tom Knight (1998) and Roger Hall (1990), mainly focussing on tracks. Their finds included a relatively large number of small artefact scatters. After a reconnaissance drive through some of the study area, the decision was made to focus most of the survey effort on areas of visibility opened up off track by the fire suppression

activities. There had been strong regrowth of vegetation in most fire suppression activity zones, and some areas had been rehabilitated. These conditions should be understood to strongly influence the results of the survey in this unit.

Despite the bias of fire suppression activities to ridgelines, in the end a reasonable range of landforms, geological and other contexts were surveyed in this unit including steeper slopes and both Crown land and National Parks management zones. Mr Russell Mullett, the Indigenous Consultant, assisted with this survey, using his knowledge of similar landscapes elsewhere to highlight resource zones, and to indicate areas of potential interest in the landscape.

In total, the team intensively survey 19 survey units in the Yalmy Road/Moonkan River unit (Volume 4). The small survey areas were a combination of transects and quadrats.

Unlike other survey units, background quartz gravel was relatively rare in the survey quadrats and transects. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

11.8 Results

11.8.1 Survey Coverage

The total area intensively surveyed was 11.86 ha. (This was about 0.02 % of the total area of the Yalmy Road/Moonkan Study Unit). Of the 11.86 ha intensively surveyed, it is estimated that the ESA was 7.7 ha, with an average ground surface visibility of 71.3%. Volume 4 describes the general location of each of the 19 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed



and archaeological sites located, and GPS locations for the transects.

Plate 12: Typical ground surface visibility, Waratah Flats

11.8.2 Archaeological Sites and Materials

Ten new Aboriginal sites were found in this study unit. As well as the ten new sites, the team relocated and inspected six previously recorded sites (AAV 8523-0092, -0094–0098) which had been exposed by a fire control line on Moonkan and Varneys tracks. The low number of new sites located is most likely a reflection of the very poor visibility in the study unit and is in stark contrast to some of the intensively burnt study units in other SAs (Plate 12). Although the six known sites were relocated the five sites, they were re-recorded as fire suppression activities disturbed a wide area exposing many more artefacts. The resulting ground surface visibility demonstrated that rather than a series of small artefact scatters, they were all part of one very large site.

A lower proportion (N=6, 31%) of the survey units surveyed than other study units had cultural material present. The Yalmy Road fire control line cuts a broad swathe through

Crown land on the eastern edge of the Snowy River National Park (Plate 13). This F.C.L. was intensively surveyed. Despite the extensive ground surface exposure, few sites were found. The Yalmy Road F.C.L. was one of the few F.C.L.s on a ridgeline surveyed in this project which had had little impact on cultural heritage. The characteristics of these sites are summarised in Volume 4. Site cards have been

completed and submitted to AAV.



Plate 13: Yalmy Road F.C.L. visibility

There was a low diversity of site types found by the survey in this unit, comprising nine artefact scatters and one isolated artefact. Most artefact scatters had more than five artefacts, but were relatively small and were of low density. Four artefact scatters had more than 50 artefacts, with one site (AAV 8325-0092, 0093) extending for more than two kilometres along the Moonkan Track exposed in a rehabilitated fire containment line. The larger sites occurred on the gentle broad spurs sloping down to the Snowy River at the Moonkan and Varneys tracks. Away from the Snowy River sites are less common and are usually small and of low density.

In the study unit there was an average density of 0.001 artefacts/m² (i.e. 1.5 artefacts every 1000m²), with artefact densities within sites ranging from 0.0001 per m² to 0.1 per m².

Small sites were infrequent within the survey units and all artefacts in most sites were recorded with the exception of the larger sites where a sample only was recorded due to time constraints.

A total of 113 stone artefacts were recorded. Silcrete (possibly ignimbrite) was by far the most common raw material in all sites and comprised 41.6% of the total assemblage. Quartz (24.8%) was the next most common raw material. A relatively wide variety of other materials occurred in the sites including chert, cherty hornfels, fine volcanics, rhyolite and hornfels. Hall (1990) notes that the stone ignimbrite is commonly found in the sites in the Snowy River area and is mistaken for silcrete. The source for this material is outside the study area. The silcrete in the sites, particularly the Snowy River sites is quite distinctive and may well be ignimbrite rather than silcrete. There are thousands of pieces in the Moonkan and Varneys Track sites, so that a large amount has been potentially transported over time.

Elsewhere, away from the Snowy River, raw materials are used very conservatively and the survey team found a number of extremely small formal tools. Several geometric microliths made of quartz were unusually small, smaller than 12 mm in length (Plate 14). One microlith was only 7 mm and could not be adequately inspected under the 4-x magnification of a hand lens. The artefact was collected with the permission of the traditional owners and Aboriginal representatives. The microlith was inspected under 20

x magnification at La Trobe University and a drawing made of its features. The artefact has been returned to MAC.

Plate 14:
Artefacts in
site Yalmy
Road F.C.L.
(AAV 8623-
0076) showing
small microlith
(3rd from left)



Table 23: Raw materials in sites in study unit 6

RAW MATERIAL	COUNT	%	SITES WHERE MATERIALS OCCUR
Silcrete	47	41.6	Various
Quartz	28	24.8	Various
Chert	14	12.4	Moonkan FCL 1, Varneys intersection, Varneys FCL west, Yalmy FCL 2, 3
Quartzite	7	6.2	Moonkan FCL 1, Varneys FCL 2 West, Yalmy Road FCL 1, Yalmy Road FCL 2
Rhyolite	6	5.3	Moonkan FCL 1, Varneys FCL 1, Varneys FCL 2 West, Yalmy Road FCL 1, 2, 4
Volcanic	5	4.4	Martins Road 1, Moonkan FCL 1, Moonkan Varneys Intersection
Hornfels	2	1.8	Yalmy FCL 1, 2
Unknown	1	0.9	Varneys Intersection
Cherty Hornfels	1	0.9	Yalmy FCL 1
Igneous	1	0.9	Varneys FCL 2 West
Silcrete/Igneous	1	0.9	Varneys FCL 2 West
Totals	113	100	

Table 24: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 6

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Moonkan FCL 1	20	>500	6	7000	>0.01	Wide gentle spur above the Snowy River (260m)
Varneys FCL 1	21	>100	7	3200	>0.001	Wide gentle spur above the Snowy River (260m)

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSIT Y PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Yalmy Road FCL 2	19	>50	6	1425	>0.01	Saddle on long ridgeline (830m)

11.9 Discussion

There was a lower density of sites in the study area than other areas. The poor ground surface visibility in the absence of burning may have contributed to these apparent results. However the Yalmy Road Fire Control Line provided very good visibility through a range of good prospective areas and the overall density in the FCL was low. This suggests that the apparent site distribution may have some reality, with sites mainly focused around the Snowy River and with much lower densities away from the river. The area is very rugged and the wetter ash forests may have fewer resources, while the narrow creek and smaller river valleys are wet and relatively unattractive for camping. The large sites found during the survey were situated on broad gentle spurs on possible lines of access through this dissected area associated with well-drained, drier, north-south ridgelines, river crossing points and access to the Snowy River riparian zone. There is some evidence of transport of raw materials from outside the study area in relatively large quantities. Away from these main travel routes, sites are small and there is evidence of careful conservation of raw materials.

11.9.1 The Sensitivity Zoning Model

While the sample size of both survey transects and archaeological sites are relatively small, the results from the survey suggest that further statements should be added to the model.

Statement 1—artefact scatters will occur along the major, relatively broad ridges which provided internal access within the low hilly terrain of Sub-Zone 1. Similarly, they will also occur on the broader undulating plateau surface which comprises much of Sub-Zone 2.

The survey data generally supports this prediction.

Statement 2—artefact scatters will also occur along other more steep-sided ridges in the steeply dissected country, but less frequently and generally of smaller size than in 1. A high proportion of Sub-Zone 3 consists of this kind of terrain.

The survey data generally supports this prediction.

Statement 3—artefact scatters will occur preferentially on spur ridges immediately adjacent to the Little Yalmy, Yalmy, Roger and Snowy Rivers, especially where such ridges are wide and gently sloping.

While there is insufficient data to review this statement definitively, the survey data suggest that sites are most likely to be associated with broad spurs adjacent to the Snowy River rather than the other watercourses. The Yalmy and Little Yalmy rivers traverse narrow dissected valleys and flatter areas may be less frequent in these areas. It is also likely that good drainage and drier vegetation complexes may influence site distribution in river corridors.

Statement 4—few sites will occur on the steep valley side slopes or along the narrow headwater valleys (especially common in Sub-Zone 3).

Survey in the steeper areas of the Yalmy Road F.C.L. supports this statement.

Statement 5—volcanic rocks potentially suitable for artefact manufacture occur across Sub-Zone 2 and quarries of these materials might occur.

Site contents in the larger sites tend to support this statement.

11.9.2 Amended sensitivity ratings

The ratings are unchanged.

- Sub-Zone 2 undulating plateau—**MEDIUM TO LOW**.
- Sub-Zone 1 broader ridges—**LOW**.
- Steep hilly terrain and narrow valleys (predominantly in Sub-Zone 3)—**VERY LOW**.
- Overall archaeological sensitivity rating—**MEDIUM TO LOW**.

12 Area 7: Nariel/Mount Pinnibar

12.1 The Survey Team

Terry Kelly and Chris Price (Archaeologists).
 Alan Murray (Mungabareena Aboriginal Corporation).
 Colon Mullett (Monaro People).
 Kelvin Atkinson (Bangerang Cultural Centre).

12.2 Introduction

The survey was carried out over eight days between March 6–13 2004. While training had been carried out with two members of the Indigenous team in a previous study unit, further training was carried out to build on this previous knowledge with Mr Alan Murray and Mr Kelvin Atkinson.

The Study Unit

The study unit is an irregular but roughly rectangular area, south of Corryong in northeast Victoria (Figure 10). The area is bordered in the north by a line running through Crawford Crossing, in the south by the edge of the Pinnibar Pendergast State Forest, in the west by the Omeo to Corryong Road and in the east by the NSW border. It is about 33 kilometres along its longest axis from west to east, and about 25 kilometres along its north to south axis. Overall it is about c. 825 km².

12.3 Environmental Setting

12.3.1 Geology and topography

The area comprises mainly Ordovician sediments with substantial areas of Ordovician/Silurian granodiorites in the centre and smaller areas of Ordovician metamorphics in the east. There are steeply dissected ranges with generally narrow ridge crests, steep valley sides and narrow valleys.

Three small areas of sub-alpine terrain (i.e. above about 1,200 m) are centered on Mounts Sassafras, Gibbo and Pinnibar. They are characterised by sinuous, relative narrow ridge crests rather than undulating plateaux.

12.3.2 Vegetation

Sub-alpine Woodland occurs around Mounts Pinnabar, Gibbo and Sassafras. The steep upper slopes around the sub-alpine zone are covered with Montane Dry Woodland, with

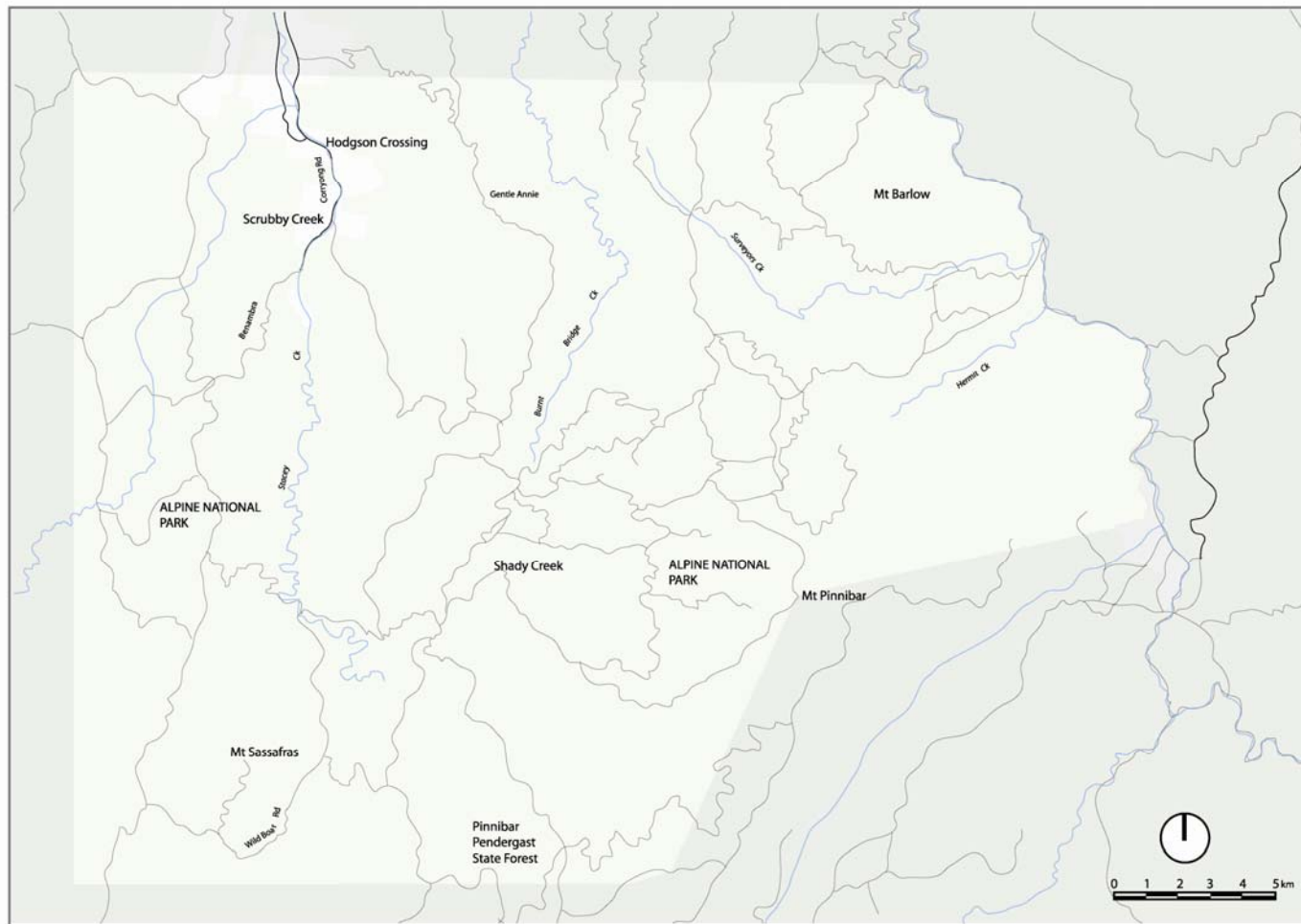


Figure 10: Nariel/Pinnibar study area

Montane Damp Forest and Damp Forest at progressively lower altitudes. Elsewhere, the higher ridges and slopes have Shrubby Dry Forest, giving way downslope to a mixture of Heathy Woodland and Herb-rich Foothill Forest. The forests and woodlands have had limited disturbance from grazing, timber harvesting and previous fire, and there are large patches which are undisturbed (apart from by fire).

12.4 Known Archaeology

The study unit is archaeologically unknown though two sites were recorded in the study area during a scoping exercise prior to the present study (Kelly 2004) (Table 25). No Aboriginal places are recorded in the study area.

Table 25: Known Aboriginal sites in and adjacent to study area 7

AAV SITE NO	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8424-0022	Corryong 2	Surface scatter	Shady Creek	River Bank
8424-0023	Zulu Creek	Surface Scatter	Zulu Creek	River Bank

12.5 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Surface artefact scatters will occur in the small area of sub-alpine zone at localities which have combinations of the following characteristics:
 - Along ridges and spurs which provided access into and through the mountains.
 - On relatively flat, well drained surfaces in or adjacent to open snow gum woodland.
 - Where the ground surface vegetation cover was dominated by grasses rather than shrubs.
 - In relatively protected situations where the snow gums would have provided additional protection.

Such archaeological sites will be uncommon compared with the Mount Buller, Bogong Mountains and Buffalo Mountains alpine and sub-alpine zones because of the relatively small area of these zones and the lack of suitable Bogong moth aestivation sites.

2. Artefact scatters will occur relatively frequently along the major ridges which provided access between the mountains and the valleys.
3. Artefact scatters will also occur along other ridges in the steeply dissected ranges, but these will tend to be less common and smaller.
4. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

12.5.1 Predicted Sensitivity Ratings

- Ridges in the sub-alpine zone—**MEDIUM TO LOW**.
- Major access ridges between mountains and valleys—**MEDIUM TO LOW**.

- Other ridges providing internal access—**LOW**.
- Steep hilly terrain and narrow valleys—**VERY LOW**.
- Overall archaeological sensitivity rating—**MEDIUM TO LOW**.

12.6 Survey Strategy and Conditions

The Nariel survey unit was larger than many other units, about 825 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement through the dissected areas, the river valleys, heavily burnt areas, fire suppression activity areas, timber harvesting areas, rocky outcrops and areas nominated by the Aboriginal community participants. Access through the area was hindered by the poor condition of the roads in some areas (dust). While many areas of the study unit had been intensively burnt, regrowth in the area was very strong, hindering ground surface visibility in most areas, so that fewer sites were found in the study unit than expected. These conditions

should be understood to strongly influence the results of the survey in this unit.



Plate 15: General view across the study area

A broad range of landforms, geological and other contexts were surveyed in this unit. In total the team intensively surveyed 56 large and small areas in the Nariel/Mount Pinnibar unit (Volume 4). The survey areas were a combination of

transects and quadrats.

As in most survey units, quartz was common and found in many survey transects, particularly in the granite areas. Usually in this study unit the modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

12.7 Results

12.7.1 Survey Coverage

The total area intensively surveyed was 86.4 ha. (This was about 0.01 % of the total area of the Nariel/Mount Pinnibar Study Unit). Of the 86.4 ha intensively surveyed, it is estimated that the ESA was 14.1 ha, and average ground surface visibility was 16.5 %. Volume 4 describes the general location of each of the 56 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects.

12.7.2 Archaeological Sites and Materials

A total of 16 new Aboriginal sites were located during the survey. Sites occurred in only six of the survey units. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV.

The Aboriginal site types in this study unit were less diverse than other study areas and comprised four artefact scatters, 11 isolated artefacts and one scarred tree. The majority of the artefact scatters comprised less than five artefacts, and were very small. Five sites had more artefacts and are described in Table 27. A total of 138 artefacts were recorded in detail.

In the study unit there was an average density of 0.0009 artefacts/m² (i.e. one artefact every 1000m²).



Plate 16: Quartz artefacts in site Shady Creek 2 (AAV 8424-0043)



Plate 17: Scarred tree Dunstons Track 2 (AAV 8424-0033)

Table 26: Numbers of stone artefacts and their raw materials in study area 7

RAW MATERIAL	ARTEFACT COUNT.	%	SITE IT OCCURS IN
Quartz	136	98.6	Most sites
Meta-sediments	2	1.4	Paddys Joy 1
Total	138	100	

Table 27: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 7

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Cattlemans Creek 1	13	>40	1	0.1	Terrace, Cattlemans Creek (800m)
Cattlemans Creek 2	27	>27	1	0.1	Terrace, Cattlemans Creek (800m)
Paddys Joy 1	51	>51	2	0.052	Terrace (750m)
Shady Creek 2	14	>14	1	0.004	Terrace (1100m)
Shady Creek 4	13	>13	1	0.004	Terrace (1150m)

12.8 Discussion

Sites in the Nariel/Mount Pinnibar study unit are generally small and located on the higher ridges or on contained creek terraces and flats below ridges and density decreases rapidly away from the valley margins. Quartz is the dominant material. Access routes through the area are restricted and tend to be located on natural lines of movement through this region. As a result roads, tracks, and campsites severely affect on cultural sites and material. Fire containment lines have had a severe impact on sites in this unit because of this restricted access, and salvage logging in intensively burnt areas has occurred frequently in what would normally have been considered archaeologically sensitive areas.

12.8.1 The Sensitivity Zoning Model

While the sample size of both survey transects and archaeological sites is relatively small, the results from the survey suggest that further statements should be added to the model.

Statement 1—surface artefact scatters will occur in the small area of sub-alpine zone at localities with combinations of attributes including good access etc.

The survey data generally supports this prediction.

Statement 2—artefact scatters will occur relatively frequently along the major ridges which provided access between the mountains and the valleys.

The survey data generally supports this prediction.

Statement 3—artefact scatters will also occur along other ridges in the steeply dissected ranges, but these will tend to be less common and smaller.

The survey data generally supports this prediction.

Statement 4—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

The survey data generally supports this prediction, but it should be qualified to include the statement site density will decrease with distance from the valley margins.

12.8.2 Amended sensitivity ratings

The sensitivity ratings are unchanged.

- Ridges in the sub-alpine zone—**MEDIUM TO LOW.**
- Major access ridges between mountains and valleys—**MEDIUM TO LOW.**
- Other ridges providing internal access—**LOW.**
- Steep hilly terrain and narrow valleys—**VERY LOW.**
- Overall archaeological sensitivity rating—**MEDIUM TO LOW.**

13 Area 8: Mitta

Mitta/Dartmouth

13.1 The Survey Team

Joanna Freslov and Dave Johnston (Archaeologists).
 Dhudoroa People.
 Alan Murray (Mungabareena Aboriginal Co-operative).
 Kelvin Atkinson (Bangerang Cultural Centre).

13.2 Introduction

The survey was carried out over seven days between 29 March and 4 April 2004. No training program was carried out during this field survey as Mr Atkinson and Mr Murray had completed their training with Mr Kelly in previous surveys and the Dhudoroa people did not wish to participate in the training program (Ken Stewart pers. comm.).

The Study Unit

The study unit is rectangular, surrounding Lake Dartmouth, south of Mitta Mitta in northeast Victoria (Figure 11). The area is bordered in the north by the northern edge of Lake Dartmouth and the Mitta Mitta River, in the west by the Dorchap Range, in the east roughly by the Alpine National Park boundary and in the south by a line through the southern end of Lake Dartmouth. It is about 40 kilometres along its longest axis from west to east, and about 17 kilometres along its north to south axis. Overall it is about c.680 km².

13.3 Environmental Setting

13.3.1 Geology and topography

The area consists of steeply dissected ranges and hills formed on a mixture of Silurian and Ordovician sedimentary and metamorphic rocks, Silurian acid volcanics and Ordovician granodiorite. The only major river valley – the Mitta Mitta River – has been inundated by the Dartmouth Dam.

13.3.2 Vegetation

The higher ridges and slopes have Shrubby Dry Forest, giving way downslope to a mixture of Heathy Woodland and Herb-rich Foothill Forest. The forests and woodland have had limited disturbance from grazing, timber harvesting and previous fire, but generally are amongst the least disturbed in the North East region.

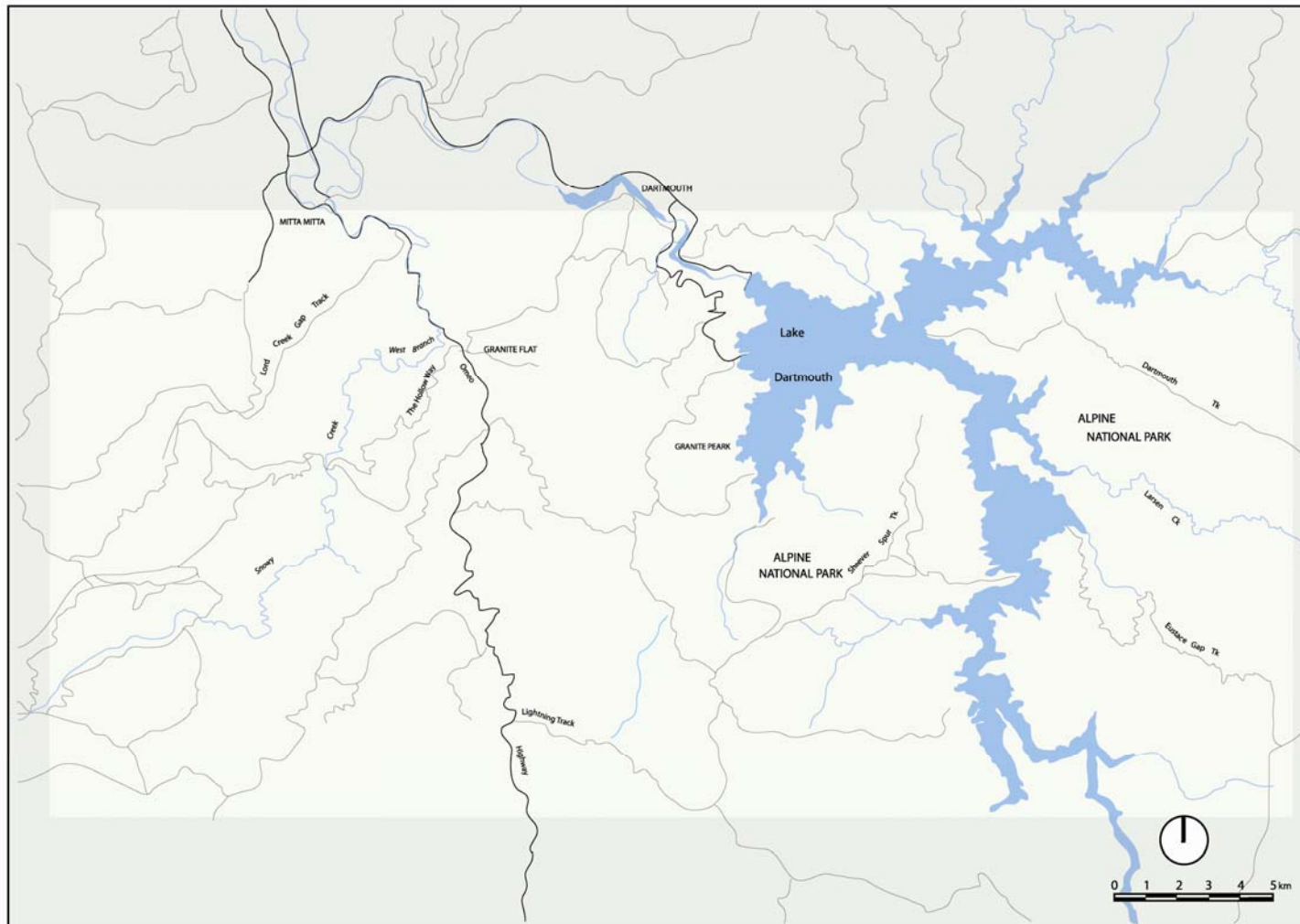


Figure 11: Mitta Mitta/Dartmouth study area

13.4 Known Archaeology

Apart from one artefact scatter on its northern boundary and two scatters recorded during the wildfire reconnaissance survey, this study unit is archaeologically unknown (Shawcross and Hughes 2002; Kelly 2004).

No Aboriginal places are recorded in the study area.

Table 28: Known Aboriginal sites in and adjacent to study area 8

AAV SITE No	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8324-0024	DRP Site 1	Artefact scatter	Mitta Mitta River/Lake Banimboola	River terrace
8324-0112	Fire Survey Mitta Mitta 1	Artefact scatter	Dartmouth Ck	Gully
8324-0113	Fire Survey Lords Creek 1	Artefact scatter	Lords creek	Creek Flat

13.5 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Artefact scatters will occur along the major ridges which provided internal access through this area of steeply dissected ranges
2. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.
3. Volcanic rocks potentially suitable for artefact manufacture occur in a wide band through the eastern part of the SA (see Landforms GIS map) and quarries of these materials might occur.

13.5.1 Predicted Sensitivity Ratings

- Major access ridges through this area—**Low**.
- Steep hilly terrain and narrow valleys—**VERY LOW**.
- Overall archaeological sensitivity rating—**Low**.

13.6 Survey Strategy and Conditions

The Mitta Mitta/Dartmouth survey study area is a moderately sized region of about 680 km² in area. Access was quite difficult and many four-wheel drive tracks shown on maps were in a poor condition and unusable. Others had been severely fire affected and were dangerous with fallen trees lying across the roads or leaning precariously across the track. The lake posed a large and impassable barrier which restricted access. Lake Dartmouth extends (drowns) what would have been the major river valley of the Mitta Mitta River. The area now submerged would have been a highly sensitive area. The Lake Dartmouth shoreline is outside the Alpine National Park boundaries. Despite these difficulties, the survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement through the dissected areas, the river valleys, heavily burnt areas, rocky granite outcrops and areas nominated by the Aboriginal community participants. Access was very slow in many instances, partly because of the length and condition of tracks and frequent stops to cut up fallen trees. The area had been very intensively burnt and while some regrowth had occurred, generally ground surface visibility was very good. Intensive alluvial

mining during the 19th century along some minor creek valleys had created massive disturbance in many areas which has almost certainly contributed to site destruction along the creek corridors. In the western part of the study area, mining and timber harvesting had also severely disturbed the study area. These conditions should be understood to strongly influence the results of the survey in this unit.

A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes, ridges, saddles, creek corridors, dry sclerophyll, wet sclerophyll, ash and riparian vegetation units.

In total, the team intensively surveyed 68 large and small areas in the Mitta Mitta/Dartmouth unit (Volume 4). The small survey areas were a combination of transects and quadrats. The area was relatively intensively surveyed as the area was one where there were overlapping claims for heritage responsibility resulting in a comparatively large representation from two separate survey teams.

As in most survey units, quartz was very common and found in many survey transects, particularly in the granite areas and alluvial mining areas. Usually in this study unit the modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

13.7 Results

13.7.1 Survey Coverage

The total area intensively surveyed was 17.07 ha. (This was about 0.02 % of the total area of the Mitta Mitta Dartmouth River Study Unit). Of the 17.07 ha intensively surveyed, it is estimated that the ESA was 8.6 ha, with an average visibility of 35.07%. Volume 4 describes the general location of each of the 68 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects

13.7.2 Archaeological Sites and Materials

A total of 28 new archaeological sites were located during the survey, 27 Aboriginal sites and one non-Aboriginal site. The 28 sites were found in 26 of the survey transects (38.8%). The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV and HV.

There was little diversity in the Aboriginal site types in this study, with the 28 sites made up of 11 artefact scatters, 11 isolated artefacts and four scarred trees, one artefact scatter/scarred tree complex and one non-Aboriginal site. The majority of the artefact scatters were small, low-density scatters made up of fewer than ten artefacts. Four sites—Mitta Gap 1 (AAV 8324-0149), and Lake Dartmouth 1 and 2 (AAV 8424-0049, 0050) and Willis Creek 1 were slightly larger. Small artefact scatters and isolated artefact scatters occurred infrequently on the major ridges, with low densities on east to west ridges and slightly higher densities on those ridges providing an access route to Mount Bogong. Sites were rare in the major creek valleys due to gross disturbance from mining. Sites along the major creek—the Snowy Creek—were infrequent until the creek passed through the granite bedrock when they became more common, probably due to the lack of alluvial mining in this geological unit. Two sites (AAV 8424-0049, 0050) were discovered outside the Alpine Park boundary on the Lake Dartmouth shoreline, during a lunch break at the lake. Both sites were located on what would have been gentle spurs overlooking the old course of the Mitta Mitta River. Mitta Gap 1 (AAV 8324-0149) was also in a good location located in a saddle between two peaks, with water close by in two creeks and good line of sight views along the major ridgeline access to

Mount Bogong to the southwest and back (northeast) toward what would have been the Mitta Mitta River valley. A ground-edge axe was found in a site close by.



Plate 18: Typical site environment on the Lake Dartmouth Track ridgeline

In the study unit there was an average density of 0.0014 artefacts/m² (i.e. 1.4 artefacts in every 1,000m²), with artefact densities within sites ranging from 0.001 per m² to 0.2 per m².

All artefacts in most sites were recorded with the exception of the larger sites where a sample only was recorded due to time constraints. A total of 123 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 29) and comprised 87.8 % of the total assemblage. Small numbers of other materials including

rhyolite and silcrete were present in some sites.



Plate 19: Site environment in a logging coupe, Hollow Way



Plate 20: Quartz artefacts and hammerstones, site Mitta Gap 1 (AAV 8324-0149)

Table 29: Numbers of stone artefacts and their raw materials in study area 8

RAW MATERIAL	COUNT	%	SITES WHERE MATERIALS OCCUR
Quartz	108	87.8	Various
Unknown	4	3.3	Various
Rhyolite	3	2.4	Lake Dartmouth 2, Snowy Creek 4 (DJ)
Crystal quartz	2	1.6	Lightning Creek 1, 2
Granite	2	1.6	Mitta Gap 1
Basalt	1	0.8	Bee Creek
Sandstone	1	0.8	Wills Creek
Silcrete	1	0.8	Murphys Creek 1
Volcanic	1	0.8	Wills Creek 1
Totals	123	100.0	

Table 30: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 8

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Lake Dartmouth 1	10	>500	3	38880	>0.001	Low gentle spur above original course of Mitta Mitta R. and confluence of creek (482)
Mitta Gap 1	17	>200	3	2160	0.007	Saddle/gap on ridgeline with views toward Bogong and Mitta Mitta R. valley (574m)
Wills Creek 1	28	>28	3	54	0.51	Flat terrace west of Bogong Saddle (604m)

13.8 Discussion

Low density, small lithic scatters will occur away from the major river valley. Sites associated with major creeks will have been destroyed by mining except in some granite areas. Large sites may occur on gently sloping spurs above the old course of the Mitta Mitta River and will be exposed during low water in Lake Dartmouth. East-west ridges have low site densities, as do north-south ridges. Lines of access were most probably associated with travel through the Mitta Mitta River valley and spur lines up to the Bogong high plains and Mount Bogong. Low artefact and site densities can be anticipated in wetter forests except where these occur on major lines of movement.

13.8.1 The Sensitivity Zoning Model

Statement 1—artefact scatters will occur along the major ridges which provided internal access through this area of steeply dissected ranges.

The survey data does not support this prediction.

Statement 2—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

The survey data supports this prediction.

Statement 3—volcanic rocks potentially suitable for artefact manufacture occur in a wide band through the eastern part of the study area (see Landforms GIS map) and quarries of these materials might occur.

The survey data does not support this prediction through the survey sample was very small. Quartz remained the dominant material in the eastern part of the study area and site density and artefact density was very low (three isolated artefact sites only).

13.8.2 Amended sensitivity ratings

The sensitivity ratings should be amended to the following:

- Most major access ridges through this area—**LOW.**
- Major access ridges leading to Mount Bogong and the Bogong High Plains—**MODERATE TO HIGH.**
- Gentle spurs and terraces overlooking the original course of the Mitta Mitta River—**VERY HIGH.**
- Undisturbed major creek terraces and associated landforms—**MODERATE TO HIGH.**
- Steep hilly terrain and narrow valleys—**VERY LOW.**
- Overall archaeological sensitivity rating west of Lake Dartmouth—**MODERATE.**
- Overall archaeological sensitivity rating east of Lake Dartmouth—**LOW.**

14 Area 9: Stanley State Forest

14.1 The Survey Team

Terry Kelly and Claudia Zipfel (Archaeologists).
 Alan Murray (Mungabareena Aboriginal Corporation)
 Kelvin Atkinson (Bangerang Cultural Centre).
 Troy Melville and Mick Harding (Taunurong Clans)

14.2 Introduction

The survey was carried out over five days between January 26–30 2004. The training program was carried out over the five days (40 hours) with two members of the Indigenous team (Mr Harding and Mr Melville). The archaeologists supervised the program and assessment was carried out over the final two days.

14.3 The Study Unit

The study area is a small rectangular unit, between Beechworth and Myrtleford in northeast Victoria (Figure 12). The area is bordered in the north by Twist Creek, in the south by Wallys Creek, in the west by the township of Beechworth and in the east by the township of Yackandandah. It is about 25 kilometres along its longest axis from south to north, and about 15 kilometres along its west to east axis. Overall it is about c. 375 km².

14.4 Environmental Setting

14.4.1 Geology and topography

The unit is made up of dissected foothills formed mainly on Ordovician sediments with one higher area, Mount Stanley, formed on Devonian granite. Extensive areas of alluvium are found along the valleys of the network of creeks draining the northern part of the study unit.

14.4.2 Vegetation

Vegetation is mostly under exotic plantations. The original native vegetation was dominated by Shrubby Dry Forest and Herb-rich Foothill Forest, with Grassy Dry Forest on the granite hills.

14.5 Known Archaeology

This study unit is archaeologically unknown. There are no known Aboriginal archaeological sites recorded in the study area

No Aboriginal places are recorded in the study area. The AAV Aboriginal Historic Places Database lists one place in an area adjacent to the study area: AAV Place No. 5.4-

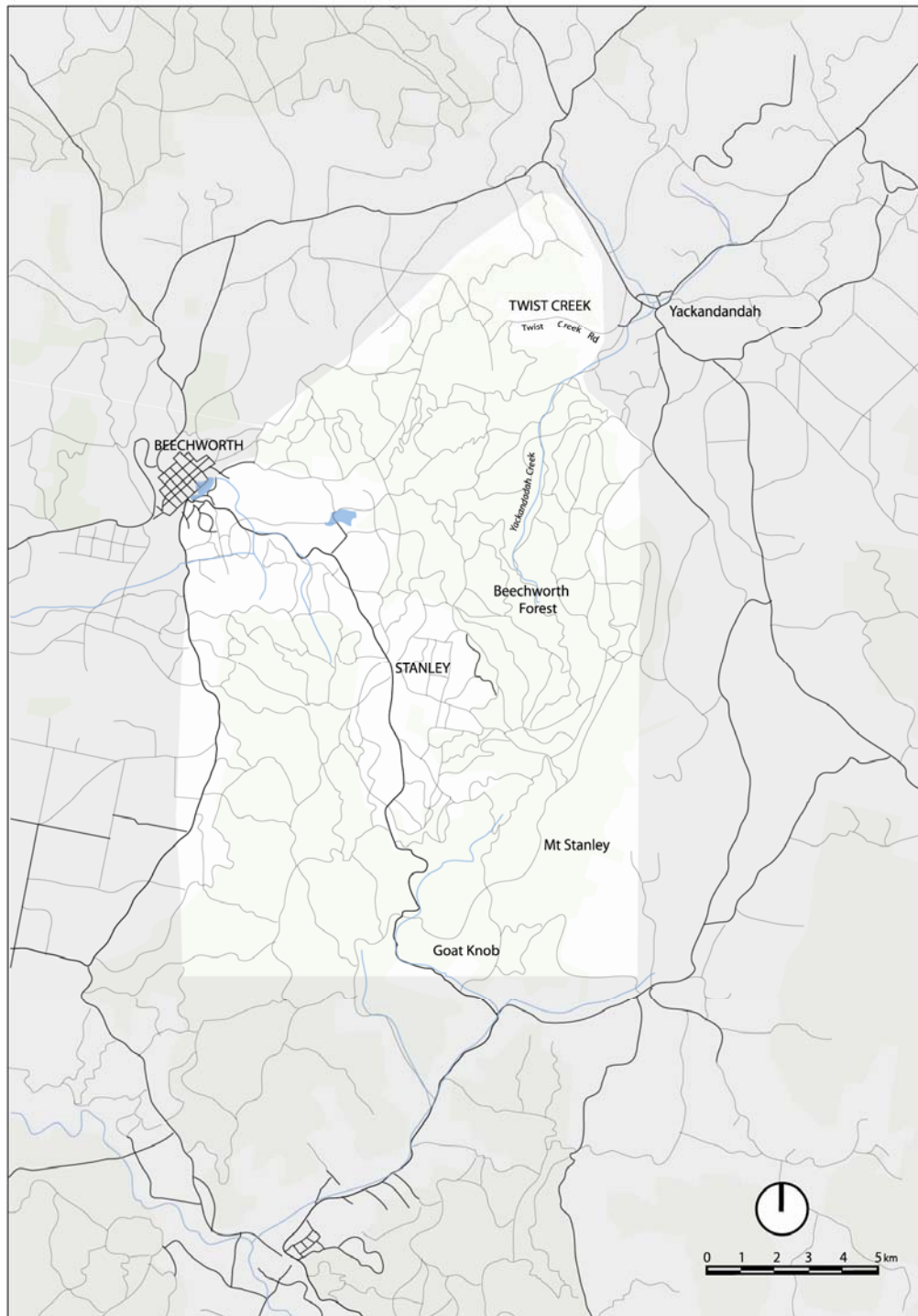


Figure 12: Stanley State Forest study area

92, Yackandandah (H. Lane) Honorary Correspondent Depot. Mr Lane was the Central Board for the Protection of Aborigines Honorary Correspondent at Yackandandah between 1861 to 1863 (CBPA Reports 1861, 1862, 1863). Mr. Lane was a Police Magistrate at Yackandandah (1859-60 Select Committee: 25). Honorary Correspondent depots provided food, utensils, clothing and blankets to the local Aboriginal people (Christie 1979:163).

No Aboriginal places are recorded in the study area. The AAV Aboriginal Historic Places Database lists one place in an area adjacent to the study area: AAV Place No. 5.4-92, Yackandandah (H. Lane) Honorary Correspondent Depot. Mr Lane was the Central Board for the Protection of Aborigines Honorary Correspondent at Yackandandah between 1861 to 1863 (CBPA Reports 1861, 1862, 1863). Mr. Lane was a Police Magistrate at Yackandandah (1859-60 Select Committee: 25). Honorary Correspondent depots provided food, utensils, clothing and blankets to the local Aboriginal people (Christie 1979:163).

14.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Artefact scatters will occur along the major ridges.
2. Artefact scatters will occur on the gentle foot slopes and spurs overlooking the larger alluvial valleys (which are mainly at the northern end) and on higher areas of alluvial flats themselves.
3. Few sites will occur on the steep valley sides or along the narrow headwater valleys.
4. Sites with archaeology and/or art may occur in granite overhangs in the Mount Stanley area. The probability that previously undetected shelter sites exists is low.

14.6.1 Predicted Sensitivity Ratings

- Major ridges—**Low**.
- Alluvial valleys and adjacent slopes/spurs—**Low**.
- Steeper dissected terrain—**VERY Low**.
- Overall archaeological sensitivity rating—**Low**.

14.7 Survey Strategy and Conditions

The Stanley State Forest survey unit is relatively small compared to other units (375m²). The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement through the dissected areas, the creek valleys, heavily burnt areas, rocky outcrops and areas nominated by the Aboriginal community participants. While many areas of the study unit had been intensively burnt, regrowth in the area was strong and visibility was poor. Intensive alluvial mining during the 19th century along creek areas and shafts and pits on ridges had created massive disturbance in many areas which has most probably contributed to major site destruction. These conditions should be understood to strongly influence the results of the survey in this unit.

A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes, ridges, saddles, creek corridors, terraces and differing vegetation units. In total, the team intensively surveyed 26 large and small areas in the

Stanley State Forest study unit (Volume 4). The small survey areas were a combination of transects and quadrats (small block areas).

As in most survey units, quartz was very common and found in many survey transects, though usually modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.



Plate 21: Strong vegetation regrowth in the survey areas (Troy Melville Taunaurong Clans)

14.8 Results

14.8.1 Survey Coverage

The total area intensively surveyed was 28.5 ha. (This was about 0.07 % of the total area of the Stanley State Forest Study Unit). Of the 28.5 ha intensively surveyed, it is estimated that the ESA was 5.7 ha, with an average visibility of 20%. Volume 4 describes the general location of each of the 26 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects

14.8.2 Archaeological Sites and Materials

Only two new Aboriginal sites were located during the survey in two survey transects. A much lower proportion (7.7%) of the survey units surveyed had cultural material present than other study areas. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV.

The Aboriginal site type diversity in this unit is therefore restricted. Site types included an artefact scatter and an artefact scatter/scarred tree complex. The dense lithic scatter at Sheppards Creek 1 (AAV 8225-0178) was unusual in the SA. Other smaller scatters of quartz in the park may be debris from mining activities. The small artefact scatters occurred mainly on mid-level spurs and dissecting creeks.

In the study unit there was an average density of >0.0013 artefacts/m² (i.e. 1.3 artefacts every 1000).

Sites are rare and all artefacts in sites were recorded. A total of 78 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 31) and comprised 93.6% (N=73) of the total assemblage. The remaining artefacts were made on meta-sediment (N=4, 5.2%) and crystal quartz (N=1, 1.3%).



Plate 22: Meta-sediment artefact, site Sheppards Creek 1 (AAV 8225-0178)

Table 31: Numbers of stone artefacts and their raw materials in study area 9

RAW MATERIAL	COUNT	%	SITES WHERE MATERIAL OCCURS
Quartz	73	93.6	All sites
Meta-sediment	4	5.1	Sheppards Creek Complex
Crystal quartz	1	1.3	Sheppards Creek Complex
Totals	78	100.0	

Table 32: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 9

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Sheppards Creek 1	73	73	3	480	>0.015	Low gentle spur above Shepherds Creek (790m)

14.9 Discussion

It is likely that Aboriginal sites would have once been more widespread in the study unit, but impacts from gold mining in the nineteenth century has most probably destroyed most sites in creek corridors. Significant disturbance has also resulted from timber harvesting in the SU. All creek areas observed within the study area have been substantially sluice mined while shaft (deep lead) and pit mining has occurred on the higher slopes and ridges. In addition to surface disturbance, mining activity has introduced large amounts of fractured quartz into areas of potential archaeological deposit such as creek terraces and ridgelines. This quartz can easily be confused with Aboriginal quartz artefacts. Sites are currently confined to mid-level spurs and dissecting creek lines.¹³

¹³ T Kelly, 2004, Field Report.

14.9.1 The Sensitivity Zoning Model

While the sample size of both survey transects and archaeological sites is relatively small, some comments may be made about the zoning statements.

Statement 1—artefact scatters will occur along the major ridges.

The limited survey data does not support this prediction.

Statement 2—artefact scatters will occur on the gentle foot slopes and spurs overlooking the larger alluvial valleys (which are mainly at the northern end) and on higher areas of alluvial flats themselves.

The survey data supports the former but not the latter.

Statement 3—few sites will occur on the steep valley sides or along the narrow headwater valleys.

There is insufficient data to test this proposition.

Statement 4—sites with archaeology and/or art may occur in granite overhangs in the Mount Stanley area. The probability that previously undetected shelter sites exists is low.

There is insufficient data to test this proposition.

14.9.2 Amended sensitivity ratings

- Major ridges—**Low**.
- Alluvial valleys and adjacent slopes/spurs—**Low**.
- Steeper dissected terrain—**VERY Low**.
- Overall archaeological sensitivity rating—**Low**.

15 Area 10: Mount Buffalo National Park

15.1 The Survey Team

Joanna Freslov and Sophie Collins (Archaeologists).
Troy Melville, Damien Melville, and Michelle Monk (Taunurong Clans).

15.2 Introduction

The survey was carried out over ten days between February 27 and March 7 2004. The training program was not carried out during this survey unit as Mr Troy Melville who participated in the entire survey had participated in the training program in previous survey units and Mr Damien Melville and Ms Michelle Monk only surveyed for three days which was insufficient time to complete the training program. However, training was carried out with all participants, though not as part of the recognised training program.

15.3 The Study Unit

The study unit forms a hollowed out rectangle encompassing the foot slopes and areas surrounding the Buffalo National Park, but excluding the upper plateau (Figure 13). It is bordered on its north by the edge of the national park, on its west by the Buffalo River Road, to the east by the Buckland River valley and to the south by a line parallel with the settlement of Abbeyard. It is about 30 kilometres along its shortest axis from west to east, and about 37 kilometres along its north to south axis. Overall it is about c. 960 km².

15.4 Environmental Setting

15.4.1 Geology and topography

The area contains steep hills on Ordovician sediments to the west and a mixture of sedimentary and metamorphic rocks to the east. In the middle is the Mount Buffalo massif on Devonian granite, which forms the dominant landscape feature. The undulating summit of this massif is referred to as the Buffalo Plateau. To the east of the massif is the Buckland River valley and to the west the Buffalo/Rose River valley. The wide, cleared flats along the lower reaches of these rivers are mainly private land. The narrow headwater valleys of these rivers and their tributaries are on public land.

15.4.2 Vegetation

The Mount Buffalo massif supports extensive tracts of Sub-alpine Woodland surrounding small patches of Treeless Sub-alpine Mosaic. The steep upper slopes around the massif are covered with Montane Dry Woodland and Montane Damp Forest. These vegetation classes were relatively undisturbed except for fire damage prior to the January/February 2003 fires. Elsewhere the higher ridges and slopes have Shrubby Dry Forest, giving way downslope to a mixture of Heathy and Grassy Dry Forest and Herb-rich Foothill Forest. About half the forests in this area have been logged in the past.

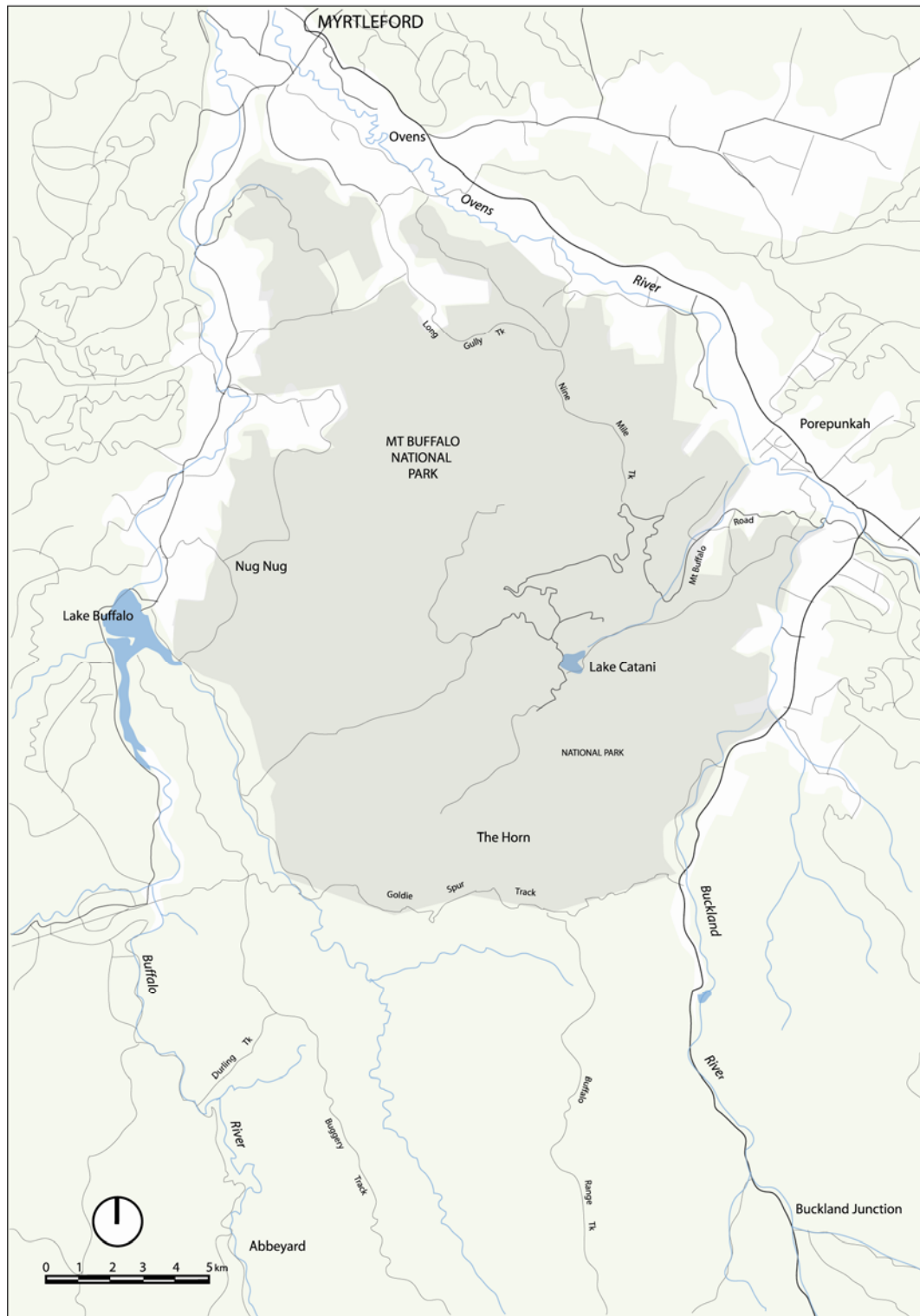


Figure 13: Mount Buffalo National Park study area

15.5 Known Archaeology

Apart from a small number of isolated artefacts along the Ovens Valley and an artefact scatter and five isolated finds on Mount Buffalo, the SU is archaeologically unknown, though there are a large number of known sites on the plateau (Table 33). Some survey has been carried out in the Buckland River valley resulting in a few small finds of isolated artefact scatters (Thompson 1996; Kelly 2004). A post-bushfire scoping study in the Buffalo River valley failed to locate any Aboriginal sites (Kelly 2004).

The local granite on the mountain provided suitable seasonal habitat for Bogong moths. The known sites occur mainly in the sub-alpine zone and are presumed to reflect the regular seasonal (summer) gatherings of large numbers of people to gather Bogong moths and undertake socio-cultural activities.

In this study unit no further survey work was undertaken in the sub-alpine zone on the plateau, but Aboriginal occupation of this area had an important influence on the nature of occupation and use of the rest of this study unit (and therefore its archaeological record). This connection underpinned the survey strategy and subsequent analysis of data.

Little is known or can be inferred with confidence of Aboriginal use of the forested slopes below Mount Buffalo, except that those ridgelines which provided the most convenient access between the lowland valleys and the high mountains would have been used as pathways by people travelling to and from the mountains for the annual Bogong moth harvest.

Two Aboriginal places are recorded in and adjacent to the study area. It was reported to George Augustus Robinson, the Chief Protector of Aborigines, that the Aboriginal name for Mount Buffalo was *Tib-ber-lungen-ner* (Robinson 1840 in Mackaness 1941) (Volume 3). There are a number of historical references to Aboriginal people traveling to Mount Buffalo for gatherings (Freslov and Goulding 2002). The AAV Aboriginal Historic Places Database lists one known historic place in the vicinity at Bright (5.4-92), an Honorary Correspondents depot run by P.C. Crespigny between 1871–1876.

Table 33: Known Aboriginal sites in and adjacent to study area 10

AAV SITE No.	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8224-0002	Mount Buffalo 1	Artefact scatter	Buffalo Plateau	Ridge
8224-0003	Mount Buffalo 2	Artefact scatter	Dingo Dell	Slope
8224-0005	The Horn	Isolated artefact	The Horn	Slope
8224-0006	Bunyip Creek 1	Isolated artefact	Bunyip Creek	Rock face
8224-0007	Bunyip Creek 2	Isolated artefact	Bunyip Creek	Terrace
8224-0008	Bunyip Creek 3	Isolated artefact	Bunyip Creek	Terrace
8224-0009	Bunyip Creek 4	Isolated artefact	Bunyip Creek	Terrace
8224-0013	Clear Creek Flat 1	Isolated artefact	Clear Creek	Riverbank
8224-0014	Clear Creek Flat 2	Isolated artefact	Clear Creek	Riverbank
8224-0015	Lake Catani 1	Artefact scatter	Lake Catani	Plain
8224-0016	Eurobin Creek 1	Scarred Tree	Eurobin Creek	Ridge
8224-0017	Keating Creek 1	Isolated artefact	Keating Creek	Floodplain
8224-0018	Rostrevor 1	Isolated artefact	Ovens Valley	Floodplain
8224-0019	Wobonga Run	Collection	Ovens Valley	Riverbank
8224-0020	Rostrevor 2	Isolated artefact	Ovens Valley	Floodplain
8224-0022	Leviathan 1	Isolated artefact	Leviathan walking track	Slope
8224-0023	Stanley Rocks Track 1	Isolated artefact	Stanley Rocks	Slope
8224-0024	Stanley Rocks Track 2	Isolated artefact	Stanley Rocks	Rock face
8224-0025	Stanley Rocks Track 3	Isolated artefact	Stanley Rocks	Ridge

AAV SITE No.	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8224-0026	RCFT 1	Isolated artefact	Rocky Track Fire Track	Slope
8224-0027	RCFT 2	Isolated artefact	Rocky Creek Fire Track	Slope
8224-0028	RCFT 3	Isolated artefact	Rocky Creek Fire Track	Floodplain
8224-0029	Dickson Falls 1	Isolated artefact	Running Jump Ck	Rock face
8224-0030	The Horn 1	Isolated artefact	The Horn	Rock face
8224-0031	Lake Catani 1	Isolated artefact	Lake Catani	Slope
8224-0032	Lake Catani 2 & 3	Isolated artefact	Lake Catani	Plain
8224-0033	Lake Catani 4	Isolated artefact	Lake Catani	Plain
8224-0034	Wilhelmina Spur 1	Isolated artefact	Wilhelmina Spur	Spur
8224-0035	Eurobin Falls 1	Isolated artefact	Eurobin Falls	Gully
8224-0036	Rollason Falls 1 & 2	Isolated artefact	Rollason Falls	Ridge
8224-0037	Long Plain Track 1	Isolated artefact	Long Plain Walking Track	Ridge
8224-0038	Wirbill Plain 1	Isolated artefact	Wirbill Plain 1	Slope
8224-0039	Wild Dog Plain 2	Isolated artefact	Wild Dog Plain	Slope
8224-0040	Wild Dog Plain 3	Surface Scatter	Wild Dog Plain	Saddle
8224-0041	View Point Track 1	Isolated artefact	Viewpoint Nature Walk	Slope
8224-0042	View Point Track 2	Isolated artefact	Viewpoint Nature Walk	Slope
8224-0043	Hump 1	Isolated artefact	The Hump	Rock face
8224-0044	Hump 2	Scarred Tree	The Hump	Rock face
8224-0045	OGM 1	Scarred Tree		Slope
8224-0046	Leviathan Rockshelter	Rockshelter/cave site	Mt Buffalo Rd	Cave
8224-0049	Lyrebird Plain 1	Isolated Artefact	Lyrebird Plain	Plain
8224-0050	Lyrebird Plain 2	Isolated artefact	Lyrebird plain	Plain
8224-0052	Tea Tree 1	Isolated artefact	Buffalo River	Riverbank

15.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

- Surface artefact scatters will occur relatively commonly in the sub-alpine zone at localities which have combinations of the following characteristics:
 - Along ridges and spurs which provided access into and through the mountains.
 - Near streams or swamp margins, where food animals and plants occurred more commonly.
 - Around large boulder outcrops just above the treeline, where Bogong moths were gathered.
 - On relatively flat, well drained surfaces in or adjacent to open snow gum woodland.
 - Where the ground surface vegetation cover was dominated by grasses rather than shrubs.
 - In relatively protected situations where boulder outcrops and/or the snow gums would have provided additional protection.
- On the Buffalo Plateau, stratified archaeological deposits containing stone artefacts and perhaps charcoal may occur in the lee of boulder outcrops or around the margins of wetlands where there has been accumulation of soil derived from local slope wash and vegetation growth.

3. Artefact scatters will occur relatively frequently along the major ridges which provided access between the upland Buffalo Plateau and the valleys.
4. Artefact scatters will also occur along other ridges in the steeply dissected ranges, but these will tend to be less common and smaller.
5. Few sites will occur on the steep valley side slopes.
6. Artefact scatter sites (surface and stratified) would have once occurred along the broader sections of the river valleys. Most if not all of those on the floodplains will have been destroyed by land use activities but those on spurs or other areas of high ground overlooking the floodplains may have survived, especially in areas which are still forested.

15.6.1 Predicted Sensitivity Ratings

- Ridges and plateau in the sub-alpine zone (not included in the survey)—**MEDIUM TO HIGH.**
- Major access ridges between the upland Buffalo Plateau and the valleys—**MEDIUM.**
- Spur ridges overlooking the three main river valleys—**MEDIUM.**
- Steep hilly terrain and narrow valleys—**LOW TO VERY LOW.**
- Major valleys—**LOW TO MEDIUM.**
- Overall archaeological sensitivity rating—**MEDIUM.**

15.7 Survey Strategy and Conditions

The Buffalo National Park survey unit was a large survey unit which, without the plateau, was about 960 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement up to the plateau, the river and creek valleys, heavily burnt areas, rocky granite outcrops, potential areas with rock shelters and areas nominated by the Aboriginal community participants. An effort was made to search for rock shelters as information was provided to the survey team that shelters with art were present on the western side of the park. The police who had recently conducted a search of the area for a lost child were contacted as it was suggested to us that the Police had searched some shelters. They were able to point out a general area of granite outcropping at Nug Nug. Local landowners were contacted in the area surrounding Nug Nug and the Nug Nug Falls were indicated to be the most likely spot to find shelter sites. This area was subsequently searched without success; though it is quite possible shelter sites may occur in that general area.

The sides of the park had been intensively burnt but less so on the western side. Regrowth in the burnt areas was strong and visibility was generally poor in the burnt areas and very bad in the unburnt areas, with blackberry bushes a hazard on the western slopes. Access tracks on the sides were frequently very steep. Intensive alluvial mining during the 19th century along the Buckland and Buffalo river valleys has created massive disturbance in many areas which has almost certainly contributed to site destruction along the river corridor. By contrast, less disturbance and minimal regrowth away from the river corridor has most likely increased the chances of locating sites in the granite

and dissected ridge areas. These conditions should be understood to strongly influence the results of the survey in this unit.

A broad range of landforms, geological and other contexts were surveyed in this unit including steep, dissected streams, terraces, rock shelters, and various vegetation zones. Survey took place on the plateau on a day of total fire ban for safety reasons.

In total, the team intensively surveyed 42 large and small areas in the Buffalo National Park study unit (Volume 4). The survey areas were a combination of transects and quadrats

As in most survey units, quartz was very common and found in many survey transects, particularly in the granite areas. Usually in this study unit the modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

15.8 Results

15.8.1 Survey Coverage

The total area intensively surveyed was 17.4 ha. (This was about 0.018 % of the total area of the Buffalo Study Unit). Of the 17.4 ha intensively surveyed, it is estimated that the effectively surveyed area (ESA) was 6.4 ha, with an average visibility of 42.02 %. Volume 4 describes the general location of each of the 42 survey transects, their altitudes and environmental settings, the conditions of 'ground surface visibility, areas surveyed and archaeological sites located and GPS locations for the transects

15.8.2 Archaeological Sites and Materials

A total of 26 sites were found during the survey including two previously known sites. The two known sites were inspected at Lake Catani and found to be more extensive than when originally recorded (AAV 8224-0032, -0033). Twenty of the 42 survey transects had cultural material present (59.6%). This is a high percentage suggesting moderate to high site densities. The characteristics of these sites are summarised in (Volume 4). Site



cards have been completed and submitted to AAV.

Plate 23: Heavy regrowth Nine Mile Track ridgeline, Buffalo National Park

The Aboriginal site types in this study unit were low in diversity and were made up of 15 artefact scatters and 11 isolated artefact scatters. The majority of sites comprised five artefacts or less. Five artefact scatters had more than ten artefacts: Nine Mile Track 2 (AAV 8224-0060), SEC Transmission Line 2 (AAV 8224-0074), Nug Nug 3 (AAV 8224-0056), Lake Catani 2 & 3 (AAV 8224-0032) and Lake Catani 4 (AAV 8224-0033).

In the study unit there was an average density of 0.0022 artefacts/m² (i.e. 2.2 artefacts every 1,000m²), with artefact densities within sites ranging from 0.001 per m² to 0.1 per m².

Isolated artefact occurrences were common within the survey units and all artefacts in most sites were recorded with the exception of two of the larger sites where a sample only was recorded due to time constraints. A total of 142 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 34) and comprised 95 % of the total assemblage. Other fine-grained materials including silcrete, basalt and chert were present in very small amounts.



**Plate 24: Typical quartz artefacts
Nine Mile Track 2
(AAV 8224-0060)**

Table 34: Numbers of stone artefacts and their raw materials in study area 10

RAW MATERIAL	COUNT	%	SITES WHERE MATERIAL OCCURS
Quartz	135	95.1	Various
Basalt	3	2.1	Buffalo R. 1, STL 2
Volcanic	1	0.7	Buffalo R. 3
Brecciated chert	1	0.7	STL2
Chert	1	0.7	STL2
Granite	1	0.7	Horn Track 1
Totals	142	100	

Table 35: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 10

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Lake Catani 2 and 3	12	>40	1	1200	0.03	Gentle slope overlooking Lake Catani (1291m)
Lake Catani 4	8	50	1	2450	0.02	Gentle slope overlooking Lake Catani (1290m)
STL2	20	>100	4	900	0.1	Terrace in the Buckland R. valley (345m)

15.9 Discussion

Despite ten days survey, fewer larger sites were found than had been expected given the potentially sensitive locations surveyed. Slopes on the south and east sides are very steep and there are few easy access routes. There are easier access routes on the north and west sides and sites are slightly more frequent in these locations, though generally small in size. The small size of the sites can be attributed to one or several factors:

- Poor ground surface visibility, so that only a small area of the potential ground surface is inspected.
- Few large sites will be located on the slopes as these were transit routes rather than destinations.
- Sites in the area have been heavily collected (unlikely on the slopes).

The survey teams did not locate the pre-contact Aboriginal travel routes up to the plateau.

The Buckland and Buffalo river valleys are potentially highly sensitive archaeological zones. It is expected that in the past the resources associated with the riparian vegetation in the river corridors would have been heavily exploited. Cobbles in the river would have provided a source of raw materials for artefact manufacture including rhyolite (Kelly 2004). The Buckland River valley is sheltered, though often gloomy and damp, but could have provided a potential travel route into the higher montane zones as could the Buffalo River valley. Large sites should have been frequent on river terraces and lower valley slopes. However, these areas have been subject to heavy dredging for gold in the 19th century, gravel extraction, timber harvesting, damming and road and track development, which has grossly affected the landscape. In the Buckland river valley two sites, SEC Transmission 1 and 2 (AAV 8224-0073–0074), were found on surviving terraces, though area was still affected by mining and also a power transmission line easement. In the Buffalo River valley a few small sites were found on high spurs above the river which had been grossly disturbed by timber harvesting and track construction. Areas of very high potential are associated with the Buffalo River and its tributaries around the foot slopes and flat land on the western side of the plateau, particularly at Nug Nug. The Nug Nug area is well watered sheltered and has access spurs to the plateau. It is quite likely that large sites would most likely occur in these areas on what is now private land.

15.9.1 The Sensitivity Zoning Model

While the sample sizes of both survey transects and archaeological sites are relatively small, the results from the survey suggest the following:

Statement 1—surface artefact scatters will occur relatively commonly in the sub-alpine zone at ecotones:

These areas were outside the study unit so that no data was collected to support or refute this prediction.

Statement 2—on the Buffalo Plateau, stratified archaeological deposits containing stone artefacts and perhaps charcoal may occur in the lee of boulder outcrops or around the margins of wetlands where there has been accumulation of soil derived from local slope wash and vegetation growth.

These areas were outside the study unit, so no data was collected to support or refute this prediction.

Statement 3—artefact scatters will occur relatively frequently along the major ridges which provided access between the upland Buffalo Plateau and the valleys.

This prediction should be modified to suggest that sites will be small and infrequent on access ridges on the eastern side of the plateau and more frequent on the western side of the plateau on gently sloping sheltered ridgelines.

Statement 4—artefact scatters will also occur along other ridges in the steeply dissected ranges, but these will tend to be less common and smaller.

The survey data tends to support this prediction, particularly on the ridges to the south of Mount Buffalo.

Statement 5—few sites will occur on the steep valley side slopes.

The survey data tends to support this prediction.

Statement 6—artefact scatter sites (surface and stratified) would have once occurred along the broader sections of the river valleys. Most, if not all of those on the floodplains will have been destroyed by land use activities but those on spurs or other areas of high ground overlooking the floodplains may have survived, especially in areas which are still forested.

The survey data tends to support this prediction.

15.9.2 Amended sensitivity ratings

- Ridges and plateau in the sub-alpine zone (not included in the survey)—**MEDIUM TO HIGH.**
- Major access ridges between the upland Buffalo Plateau on the east side and the valleys—**MEDIUM TO LOW.**
- Major access ridges between the upland Buffalo Plateau on the west side and the valleys—**MEDIUM TO HIGH.**
- Spur ridges overlooking the three main river valleys—**MEDIUM.**
- Steep hilly terrain and narrow valleys—**LOW TO VERY HIGH.**
- Major valleys—**LOW TO MEDIUM.**
- Overall archaeological sensitivity rating—**MEDIUM**

16 Area 11: Mount Selwyn

16.1 The Survey Team

Terry Kelly and Claudia Zipfel (Archaeologists).
 Troy Melville and Mick Harding (Taunurong Clans).
 Alan Murray (Mungabareena Aboriginal Corporation).
 Kelvin Atkinson (Bangerang Cultural Centre)

16.2 Introduction

The survey was carried out over nine days between 6–14 February 2004. The training program was carried out over the nine days (40 hours) with all members of the Indigenous team. The archaeologists supervised the training program. Assessment was carried out over the final two days.

16.3 The Study Unit

The study unit is a roughly rectangular area located to the south of Mount Beauty in northeast Victoria (Figure 14). The area is bordered in the south by The Twins and Mount Selwyn, in the east by Mount Feathertop, and the north by the Buckland River valley. It is about 38 kilometres along its longest axis from west to east, and about 25 kilometres along its north to south axis. Overall it is about c. 950 km².

16.4 Environmental Setting

16.4.1 Geology and topography

The study area is topographically a highly diverse area. Along the southern boundary are small areas of sub-alpine to alpine terrain at Mount Selwyn, Mount Hotham – Mount Loch, along the Razorback Ridge (Mount Feathertop) and the Niggerheads/Mount Fainter ridge (the western edge of the Bogong High Plains). The Mount Feathertop and Mounts Hotham and Loch areas are on Ordovician sediments and the other two on granite-like gneiss. Areas of Tertiary basalt occur in these upland areas.

Most of the area consists of steep sided dissected ranges in the upper catchment of the Buckland River and Ovens Rivers. The rocks forming these dissected ranges are a mixture of sedimentary and metamorphics.

16.4.2 Vegetation

The upland areas support a range of vegetation types from Snow Gum Woodland to Tussock Grassland (especially on basalt). The steep upper slopes adjacent to the sub-alpine zones are covered with Montane Dry Woodland. Elsewhere, the higher ridges and slopes have Shrubby Dry Forest, giving way downslope to a mixture of Heathy Woodland and Herb-rich Foothill Forest. The forests and woodland have had limited disturbance from grazing, timber harvesting and previous fire, but generally are amongst the least disturbed in the North East region.

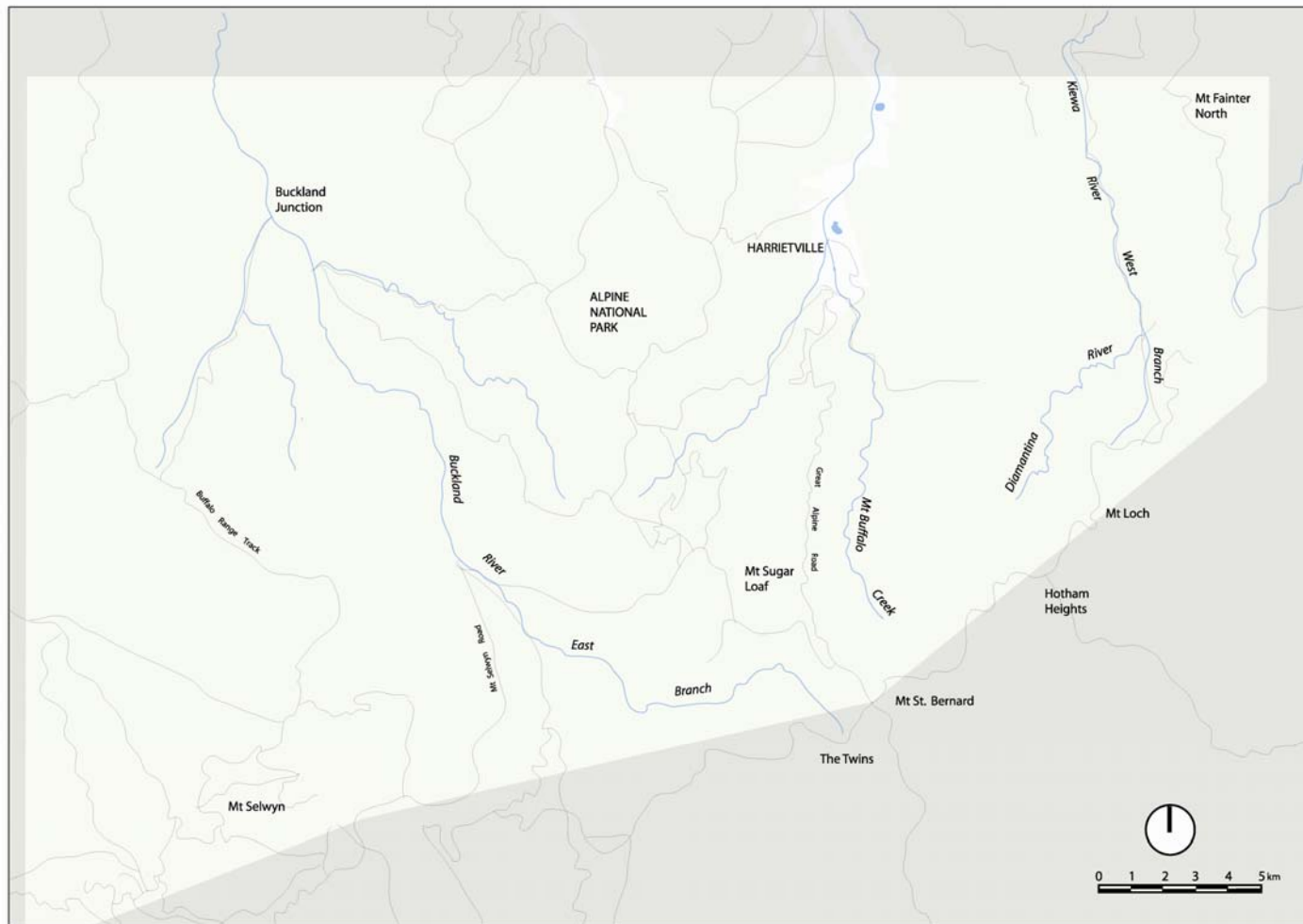


Figure 14: Mount Selwyn study area

16.5 Known Archaeology

Apart from five isolated find spots and one scarred tree this large study unit is archaeologically unknown. Some survey has been carried out in the Buckland River valley (see previous section) (Thompson 1996; Kelly 2004).

Two known Aboriginal places are known in the study area: both Mount Selwyn and Mount St Bernard were known boundary markers between the Gunai Kurnai and other neighboring tribes (Russell Mullett in Freslov and Goulding 2002: 38).

Table 36: Known Aboriginal sites in and adjacent to study area 11

AAV Site No	Site Name	Site Type	General Area	Landform
8224-0014	Clear Creek Flat 2	Isolated artefact	Clear Creek	Riverbank
8224-0013	Clear Creek Flat 1	Isolated artefact	Clear Creek	Riverbank
8224-0011	Beveridge Station 2	Isolated artefact	Dingo Creek	Terrace
8224-0012	Beveridge Station 3	Isolated artefact	Dingo Creek	Terrace
8224-0010	Beveridge Station 1	Isolated artefact	Dingo Creek	Terrace

16.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Surface artefact scatters will occur in the sub-alpine zone at localities which have combinations of the following characteristics:

- Along ridges and spurs which provided access into and through the mountains.
- Near streams or swamp margins, where food animals and plants occurred more commonly.
- On relatively flat, well drained surfaces in or adjacent to open snow gum woodland.
- Where the ground surface vegetation cover was dominated by grasses rather than shrubs.
- In relatively protected situations where the snow gums and/or gneiss of basalt outcrops would have provided additional protection.

2. Artefact scatters will occur relatively frequently along the major ridges which provided access between the mountains and the major valleys of the Ovens and Buckland Rivers.

3. Artefact scatters will also occur along other ridges in the steeply dissected ranges, but these will tend to be less common and smaller.

4. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

5. The wide lower reaches of the Ovens River valley, and to a lesser extent the narrower Buckland River valley, would have been the major focus for occupation and use, however at least the former has been largely cleared for pasture and agriculture, and this will have heavily disturbed or destroyed many of the sites which once would have existed. Major sites are likely to survive in forested gently sloping foot slopes and spur ridges overlooking the valleys.

6. Rock shelter sites may occur in areas with gneiss, but as these are small in area and occur in remote, rugged terrain, this is unlikely.

16.6.1 Predicted Sensitivity Ratings

- Ridges in the sub-alpine zone—**MEDIUM TO LOW**.

- Major access ridges between mountains and valleys—**LOW TO MEDIUM**.
- Steep hilly terrain and narrow valleys—**VERY LOW**.
- Foot slopes and spur ridges adjacent to major valleys—**MEDIUM**.
- Overall archaeological sensitivity rating—**MEDIUM TO LOW**.

16.7 Survey Strategy and Conditions

The Mount Selwyn study unit was larger than many other units, about 950 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement through the dissected areas, the river valleys, heavily burnt areas, rocky granite outcrops and areas nominated by the Aboriginal community participants. While many areas of the study unit had been intensively burnt, regrowth in the area was intermittent with stronger regrowth in the wetter areas, and less in other areas. Strong regrowth of vegetation in the Buckland River valley hindered ground surface visibility in this area, so that fewer sites were found in the river corridor than expected. Intensive alluvial mining during the 19th century along the river valley had created massive disturbance in many areas which has most probably contributed to site destruction along the river corridor. By contrast, less disturbance and minimal regrowth away from the river corridor in the uplands has most likely increased the chances of locating sites in the more steeply dissected ridge areas. These conditions should be understood to strongly influence the results of the survey in this unit. A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes.

In total, the team intensively survey 22 large and small areas in the Mount Selwyn unit (Volume 4). The small survey areas were a combination of transects and quadrats.

As in most survey units, quartz was very common and found in many survey transects, particularly in the granite areas. Usually in this study unit the modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

16.8 Results

16.8.1 Survey Coverage

The total area intensively surveyed was 49.3 ha. (This was about 0.05% of the total area of the Mount Selwyn Study Unit). Of the 49.3 ha intensively surveyed, it is estimated that the effectively surveyed area (ESA) was 12 ha, with an average ground surface visibility of about 23.9%. Volume 4 describes the general location of each of the 22 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects

16.8.2 Archaeological Sites and Materials

A total of 23 new Aboriginal sites were located during the survey in seven of the 22 survey transects. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV.

The Aboriginal site types in this study unit consisted of eight artefact scatters, four scarred trees (recorded in three sites) and twelve isolated artefacts. The majority of the artefact scatters therefore comprised low density scatters of less than five artefacts. Six sites have more than 20 artefacts. Small isolated artefacts occur intermittently on the

high ridges with few sites in the lower river valleys which are very disturbed by mining and other landuse activities. A combination of circumstances contributed to this lower site density which most probably influenced site discovery. While the study unit has been subject to intense burns in many areas, the strong regrowth has hindered the inspection of the ground surface in both the lower river valleys and the uplands. In areas of interest and good visibility (e.g. tracks on The Twins), tracks run in the wrong places. Rather than on the ridgeline, tracks cut into the steeper slopes at the side of the ridgeline and regrowth obscures the flatter ridgeline so that where scatters occur on the major ridges they are obscured by vegetation.

One extremely large site complex occurs at Tawonga Huts, sites WL 1–9 (AAV 8324–0125–138) in a sheltered valley in the alpine–sub-alpine zone. The site was extremely dense and extensive over a large part of the small valley. The area has been surveyed before but was covered in dense ground cover and the extent of the site has only become obvious since the ground cover was burnt. The location is distinctive, situated immediately adjacent to a good Bogong moth habitat, with permanent water, and shelter. The Tawonga Huts area is at the alpine end of a good access route and cattle muster route from the foothills via The Springs Saddle, and Mount Fainter.

In the study unit there was an average density of 0.002 artefacts/m² (i.e. 2.6 artefacts every 1000m²).

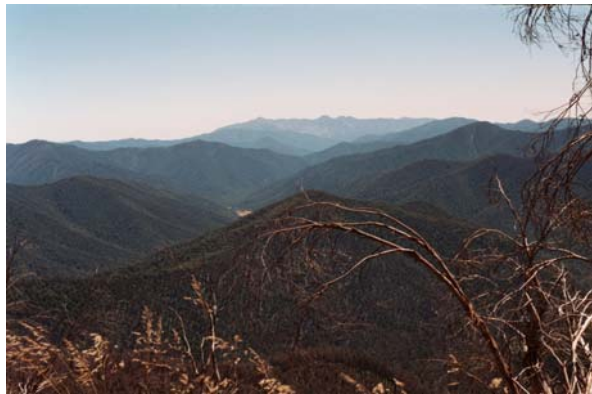


Plate 25: Tracks below the ridgeline on the twins

Small sites are more common in this survey unit and all artefacts in most sites were recorded with the exception of the larger sites where a sample only was recorded due to time constraints. A total of 306 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 37) and comprised 96% of the total assemblage. Small amounts of other materials were found in other sites.



Plate 26: Tawonga Huts environment

Table 37: Numbers of stone artefacts and their raw materials in study area 11

RAW MATERIAL	COUNT	%	SITES WHERE MATERIALS OCCUR
Quartz	298	97.4	All
Meta-sediment	5	1.6	Kiewa Valley West 1, Mt Selwyn 2
Chert	1	0.3	WL 9
Crystal quartz	1	0.3	WL 10
Silcrete	1	0.3	MNS 1
Totals	306	100.0	

Table 38: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 11

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (M2)	DENSITY PER M2	LOCATION AND ALTITUDE (M.A.S.L.)
Kiewa Valley West 3	27	>27	6	2000	0.01	Terrace west side of West Kiewa R. (880m)
MNS 1	12	>12	5	1500	0.01	On slopes of Mount Niggerhead (1760m)
Buffalo Range Dog Trap Site	37	>37	7	6000	0.01	Spur ridge (1040m)
WL1	84	>84	1	5000	0.02	Gentle slope, Tawonga Huts (1660m)
WL3	98	>98	1	2000	0.05	Gentle slope, Tawonga Huts (1625m)
WL7	23	>23	1	200	0.12	Gentle slope, Tawonga Huts (1775m)

16.9 Discussion

Sites in this study area are predominantly small, low density scatters generally found on high ridges. There may be a number of reasons for this patterning. Many of these small sites are located well away from water and with a northerly aspect. It is possible that these areas may be used when snow lay on the ground and people could access water from snow melt or patches of snow (Terry Kelly and Claudia Zipfel pers. comm.). The larger sites are associated with water and lines of movement through this highly dissected landscape. Sites at Tawonga Huts are quite different to others located during this survey and are associated with potential Bogong moth habitats. It is likely that further exploration of such locations on the northern fall may reveal similar sites (see below).

16.9.1 The Sensitivity Zoning Model

While the sample size of both survey transects and archaeological sites are relatively small, the results from the survey suggest the following:

Statement 1—surface artefact scatters will occur in the sub-alpine zone at localities which have combinations with a combination of features.

The survey data suggests that very large scatters are quite likely to occur where lines of movement, shelter, high altitude rocky outcrops (moth habitats) and water occur within the same area.

Statement 2—artefact scatters will occur relatively frequently along the major ridges which provided access between the mountains and the major valleys of the Ovens and Buckland Rivers.

The survey data does not resolve this issue as visibility was too poor overall to test this proposition.

Statement 3—artefact scatters will also occur along other ridges in the steeply dissected ranges, but these will tend to be less common and smaller.

The survey data tends to support this prediction.

Statement 4—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

There is insufficient data to comment on this proposition.

Statement 5—the wide lower reaches of the Oven River valley, and to a lesser extent the narrower Buckland River valley, would have been the major focus for occupation and use, however, the former has been largely cleared for pasture and agriculture, and this will have heavily disturbed or destroyed many of the sites which once would have existed. Major sites are likely to survive in forested gently sloping foot slopes and spur ridges overlooking the valleys.

The survey data from SA 10 and 11 tend to support this prediction.

Statement 6—rock shelter sites may occur in areas with gneiss, but as these are small in area and occur in remote, rugged terrain, this is unlikely.

The Tawonga Huts data supports this prediction. Some potential rock shelters were identified but further investigation may be required to test whether the shelters have occupation deposits.

16.9.2 Amended sensitivity ratings

- Ridges in the sub-alpine zone—**MEDIUM.**
- Small sheltered valleys associated with water and rocky outcrops above 1600 m.a.s.l.—**VERY HIGH.**
- Major access ridges between mountains and valleys—**LOW TO MEDIUM.**
- Large sheltered saddles with water on major access routes—**VERY HIGH.**
- Steep hilly terrain and narrow valleys—**VERY LOW.**
- Foot slopes and spur ridges adjacent to major valleys—**MEDIUM.**
- Overall archaeological sensitivity rating—**MEDIUM TO LOW.**

17 Area 12: Mount Mittamatite

17.1 The Survey Team

Terry Kelly and David Johnston (Archaeologists).
 Alan Murray (Mungabareena Aboriginal Corporation).
 Kelvin Atkinson (Bangerang Cultural Centre).
 Dhudoroa People.

17.2 Introduction

The survey was carried out over seven days between 5–9 April 2004 by two separate teams. The training program was not carried out during this survey as both Mr Murray and Mr Atkinson had been part of the training program in earlier survey units. The Dhudoroa representatives did not wish to participate in the training program (see earlier comments).

17.3 The Study Unit

The study unit is a small oval study area consisting entirely of Mount Mittamatite located immediately north of the town of Corryong in northeast Victoria. The area is about c. 70 km².

17.4 Environmental Setting

17.4.1 Geology and topography

The area contains a prominent range of northeast-southwest oriented granite hills surrounded by the Murray River to the northeast, and the broad valleys of Cudgewa Creek to the north and Corryong Creek to the south (Figure 15). Collectively, these alluvial plains and associated riverine and wetland environments (especially along the Murray River) would have provided an extremely rich and diverse range of resources for local use.

The granite is mainly of Silurian age, but the central and highest part of the range is of Devonian age (the Mittamatite Granite)

The range of hills is steep sided and dissected, but the ridge crests are broad (up to 1 kilometre) and undulating. At its northeast end the range is bisected by the deep, narrow valley of Horse Creek. The highest peak – Mount Mittamatite (or Mount Mitta Mitta)—rises to 1,000 m above sea level and is formed from Devonian granite.

17.4.2 Vegetation

The area is mostly covered with Shrubby Dry Forest and Grassy Dry Forest, as well as a range of woodland types specific to granite.

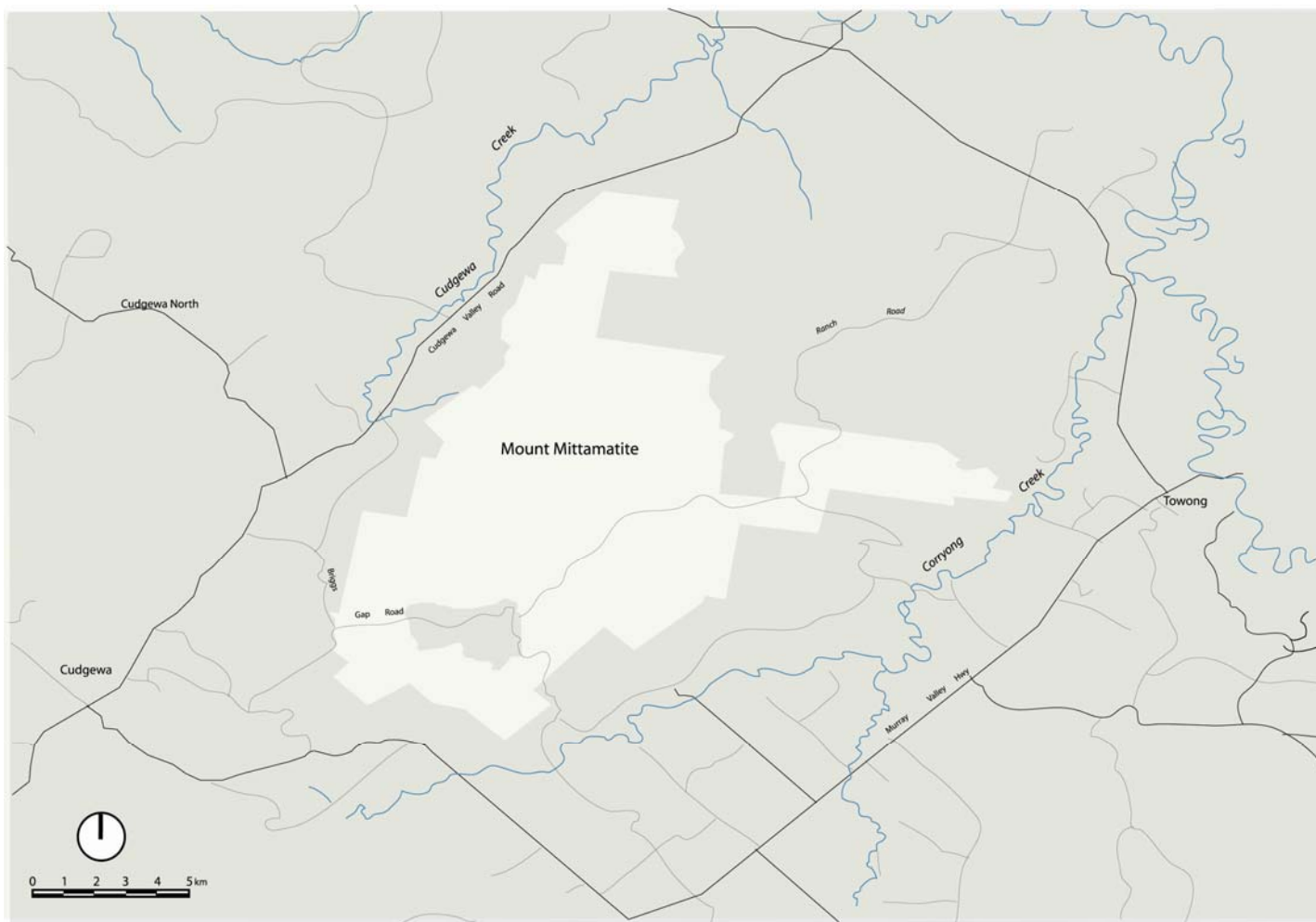


Figure 15: Mount Mittamatite study area

17.5 Known Archaeology

This study area is archaeologically unknown.

No Aboriginal places are recorded in the study area, but one place is listed in an adjacent area: 2.1-69, Black Maggie's Camp.

17.5.1 2.1-69, Black Maggie's Camp

There is a report of an Aboriginal woman named called Black Maggie who was said to have lived in a tree near Corryong. A photo of Maggie in the tree (probably taken in the late 19th to early 20th century) is reported to be held by the local museum.

17.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. Artefact scatters will occur along the major undulating summit ridges.
2. Artefact scatters will occur on the gentle foot slopes and spurs overlooking the larger alluvial valleys and on higher areas of alluvial flats themselves. (This is especially likely for the spurs overlooking the Murray floodplain, but these are all on private land for several kilometers back from the river).
3. Few sites will occur on the steep valley sides or along the narrow headwater valleys.
4. Sites with occupation material and/or art may occur in granite overhangs in the Devonian granite area.

17.6.1 Predicted Sensitivity Ratings

- Major ridges—**MEDIUM.**
- Alluvial valleys and adjacent slopes/spurs—**MEDIUM TO HIGH.**
- Steeper dissected terrain—**VERY LOW.**
- Granite rock shelters with occupation and/or art (if such shelters are found to exist)—**MEDIUM TO HIGH.**
- Overall archaeological sensitivity rating—**MEDIUM TO HIGH.**

17.7 Survey Strategy and Conditions

The Mount Mittamatite survey unit was much smaller than many other units, about 70 km² in area. There is only one access road and both survey teams used this road and then ran transects to areas of interest from the road. The survey focussed mainly on potential lines of movement, small creek valleys, heavily burnt areas, rocky granite outcrops, sheltered areas, footslopes and areas nominated by the Aboriginal community participants. Regrowth following the fire has been quite intense leading to lowered ground surface visibility.

A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes. In total, the team intensively surveyed 15 large and small areas in the Mount Mittamatite unit (Volume 4). The small survey areas were a combination

of transects and quadrats. The area was relatively intensively surveyed as it was one in which there were overlapping claims for heritage responsibility resulting in a comparatively large representation on two separate survey teams.

Quartz was very common and found in many survey transects and was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

17.8 Results

17.8.1 Survey Coverage

The total area intensively surveyed was 24.08 ha. (This was about 0.3 % of the total area of the Mount Mittamatite Study Unit). Of the 24.08 ha intensively surveyed, it is estimated that the effectively surveyed area (ESA) was 14 ha, with an average visibility of 56 %. Volume 4 describes the general location of each of the 15 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects

17.8.2 Archaeological Sites and Materials

A total of 12 new Aboriginal sites were located during the survey in six of the survey transects. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV.

The Aboriginal site types in this study unit are restricted in diversity and consist of five artefact scatters, six isolated artefacts and one quarry site. The majority of the artefact scatters comprised no more than five artefacts. Four sites (AAV 8425-0008, -0012, -0013, -0017) had more than 20 artefacts. Denser, larger sites occurred on the upper saddles and the lower expanding spurs overlooking small creeks. Small scatters occurred intermittently on the lower creek terraces and flats, ridges and in the small creek valleys, particularly in sheltered locations. Local sources of rhyolite have been exposed by a downcutting creek.

In the study unit there was an average density of 0.002 artefacts/m² (i.e. 2.1 artefacts every 1000m²).

Small sites were more common within the survey unit and all artefacts in most sites were recorded with the exception of the larger sites where a sample only was recorded due to time constraints. A total of 304 stone artefacts were recorded. Quartz was the most common raw material in all sites (Table 39) and comprised 97% of the total assemblage.

Table 39: Numbers of stone artefacts and their raw materials in study area 12

RAW MATERIAL	COUNT	%	SITE WHERE MATERIAL OCCURS
Quartz	295	97.0	Various
Rhyolite	7	2.3	Mittamatite 1A, 1B, 4, 8
Chert	1	0.3	Mt Mittamatite (DJ)
Crystal quartz	1	0.3	Mt Mittamatite (DJ)
Totals	304	100.0	

Table 40: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 12

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS COUNTED	NO. OF RAW MATERIALS	ESA (m ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Mittamatite 1	95	95	2	7000	0.014	Slope (860m)
Mittamatite 3	21	21	1	5000	0.004	Terrace (690m)
Mittamatite 4	92	92	2	5000	0.018	Terrace (682m)
Mittamatite 8	73	73	2	4000	0.018	Spur ridge (860)

17.9 Discussion

Several sites on Mount Mittamatite were quite large. These sites were associated with small eroded creek lines on the gentle slopes below the crest of the hill. As the slopes on the side of Mount Mittamatite are relatively steep sided, these may represent optimal zones in relation to exposure/shelter and potable water. Rock exposures near the crest are clearly suitable locations for exploitation of materials such as rhyolite which may occur elsewhere on the hill but is most easily exploited from this location. Large sites may occur on well watered, gentler footslopes, but these are predominantly located in freehold land.

17.10 The Sensitivity Zoning Model

While the sample sizes of both survey transects and archaeological sites are relatively small, the results from the survey suggest the following.

Statement 1—artefact scatters will occur along the major undulating summit ridges.

Evidence from the surveys suggests that artefact scatters occur on the summit ridges and gentler slopes just below the crest.

Statement 2—artefact scatters will occur on the gentle foot slopes and spurs overlooking the larger alluvial valleys and on higher areas of alluvial flats themselves. (This is especially likely for the spurs overlooking the Murray River floodplain, but these are all on private land for several kilometers back from the river).

There is insufficient evidence to confirm this statement.

Statement 3—few sites will occur on the steep valley sides or along the narrow headwater valleys.

The survey data tends to support this prediction.

Statement 4—sites with occupation material and/or art may occur in granite overhangs in the Devonian granite area.

The site survey data does not support this prediction as the granite observed is highly unstable and any art would quickly erode (T. Kelly pers. comm.).

17.10.1 Amended sensitivity ratings

- Major ridges—**HIGH**.
- Alluvial valleys and adjacent slopes/spurs—**MEDIUM TO HIGH**.
- Steeper dissected terrain—**VERY LOW**.
- Granite rock shelters with occupation and/or art (if such shelters are found to exist)—**LOW**.
- Rhyolite outcrops—**HIGH**.
- Overall archaeological sensitivity rating—**MEDIUM TO HIGH**.

18 Area 13: Expanded Dargo Area

18.1 The Survey Team

Joanna Freslov (Archaeologist).

Colin Hood, Tim Farnham, Malcolm Sealy, Alan Green, Ben Pender, Samuel Pender, Grattan Mullett, Norman Hood, Robert Hood (GEGAC).

Russell Mullett (Indigenous Consultant).

18.2 Introduction

The survey was carried out over 12 days between 9–19 March 2004. The training program was carried out over the 12 days (40 hours) with members of the Indigenous team who wished to participate. The archaeologist and the Indigenous consultant Mr Mullett supervised the training program. Assessment was carried out over the final two days.

18.3 The Study Unit

The study unit was an irregular area extending out from Unit 1 (Mount Sarah/Winchester, Dargo High Plains), to the Wonnangatta River in the west, the Dinner Plains in the east, Hotham and Mount Loch in the north and Dargo in the south (Figure 16). It is about 55 kilometres along its longest axis from south to north, and about 57.5 kilometres along its northwest to southeast axis. Overall it is about c. 3162 km².

18.4 Environmental Setting

18.4.1 Geology and topography

Virtually the entire area consists of steeply dissected, mainly north-south trending ranges and ridges formed on Ordovician sedimentary rocks. These ridges are generally narrow and steep sided and fall steeply down to V shaped narrow creek and river valleys.

In the northeast highest part of this landscape there are extensive areas of Tertiary basalt, most of which caps parts of the broad, undulating ridge along which the Dargo High Plains Road runs. The southern, lower part of this ridge is similarly wide and undulating, the former basalt cover having been eroded away only relatively recently geologically. This ridge extends to and crosses the Great Dividing Range.

Several other major ridges further west have similarly undulating crests but are narrower (seldom more than a few hundred metres wide). These ridges are cut off from the Great Dividing Range by deep valleys of the headwater tributaries of the Wongungarra and Wonnangatta Rivers.

18.4.2 Vegetation

On the highest parts of the ridges, especially on the broad ridge in the north corner, Sub-alpine Woodland occurs, with Sub-alpine Grassland on basalt areas. Elsewhere, the

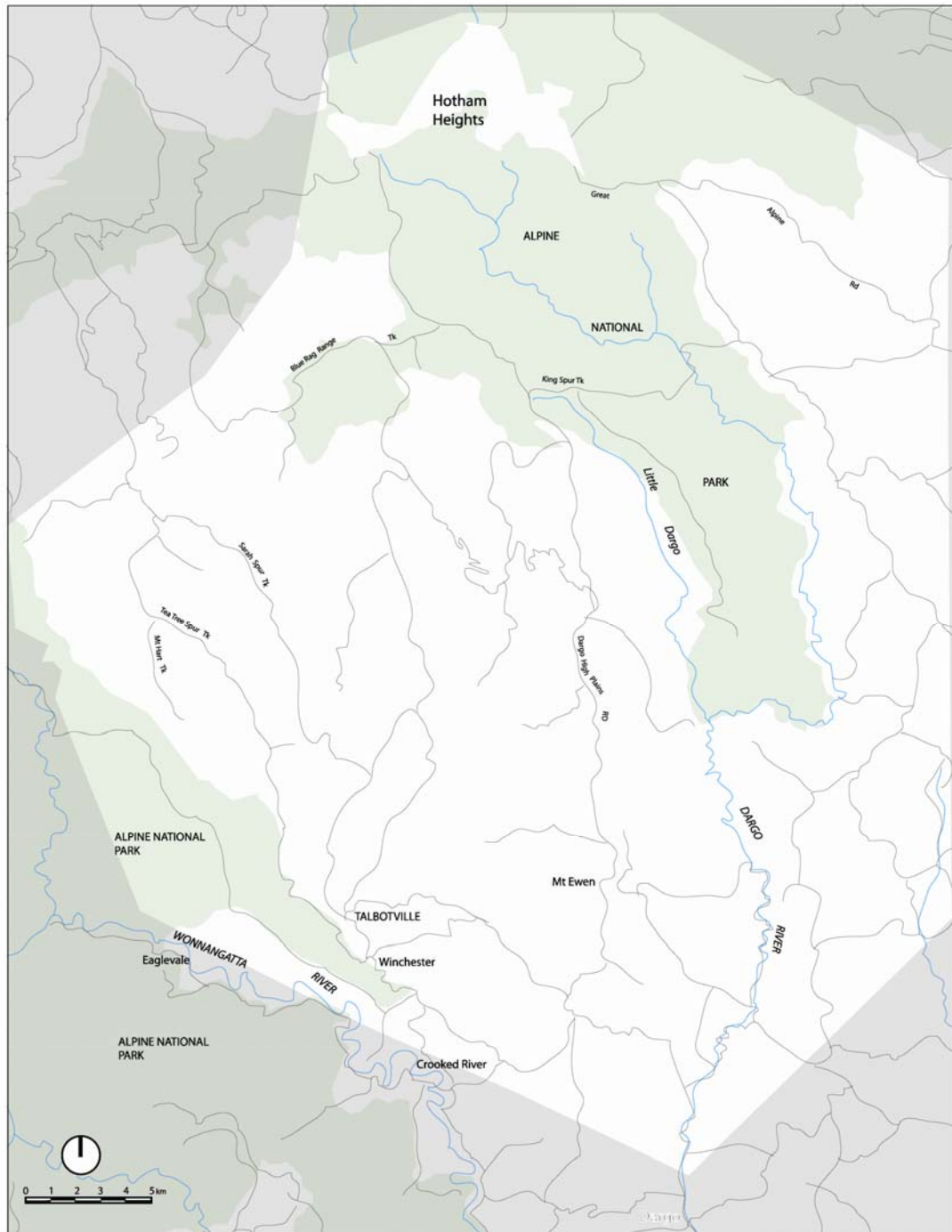


Figure 16: Expanded Dargo study area

higher ridge crests support Montane Grassy Woodland and the steeper slopes Montane Damp Forest. On the lower slopes and along the narrow valleys there is a complex mosaic of mainly forest types.

18.5 Known Archaeology

This study area is relatively archaeologically unknown. Few sites have been located in and adjacent to the study area and no large scale systematic surveys have been carried out. Sites have been reported by the general public and through small scale environmental impact assessments around the ski resorts of Mount Hotham and Dinner Plain (see Table 41). There are 12 known sites in and adjacent to the study area. These have already been discussed in Chapters 4 and 6.

Table 41: Known sites in and adjacent to study area 13

AAV SITE No	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8223-0001	Wonnangatta 001	Isolated artefact	Upper Wonnangatta near Zeka Creek	Floodplain
8223-0047	Mount Sarah 1	Scarred tree	Mount Sarah	Ridge
8323-0001	Upper Dargo River	Isolated artefact	Upper Dargo River, most likely Mayford	River terrace
8323-0002	Black Snake 1	Artefact scatter	Lower Wonnangatta River valley	Saddle
8323-0003	HP 1	Isolated artefact	Horsehair Plain	Highland plain
8323-0004	HP 2	Isolated artefact	Horsehair Plain	Highland plain
8323-0005	HP 3	Isolated artefact	Horsehair Plain	Highland plain
8323-0006	HP 4	Isolated artefact	Horsehair Plain	Highland plain
8323-0007	DP 1	Artefact scatter	Dinner Plain	Highland plain
8323-0008	HP 5	Artefact scatter	Horsehair Plain	Highland plain
8323-0009	Budwoid Creek 2	Isolated artefact	Dargo River valley, near Dargo	Creek corridor
8323-0010	Budwoid Creek 1	Isolated artefact	Dargo River valley, near Dargo	Creek corridor

18.6 Sensitivity Zoning Statements

The sensitivity zoning statements for this SA are as follows:

1. The broad undulating ridge along which the Alpine Way runs would have been a major access route between the lowland valleys to the east and the alpine country along the Great Dividing Range (and from there to areas on the western side of the mountain, including the Ovens River valley and the inland plains). Artefact scatters will occur along the ridge, especially in sheltered, well drained spots. Some sites will contain rich and diverse artefact assemblages, reflecting their repeated use as campsites by groups (often large) moving back and forth along the ridge.
2. Artefact scatters will also occur along other major ridges which provided internal access (by generally smaller groups) within this mountainous area, but less frequently and generally of smaller size than in 1.
3. Artefact scatters will also occur along other more steep-sided ridges in the steeply dissected ranges, but these will tend to be even less common and smaller than 1 and 2 above.
4. Few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

Following earlier surveys additional zoning statements were added (see below) and these were specifically investigated during the fieldwork in this SA.

5. The large river valleys draining the southern fall may be used as access routes into the highlands. Large dense sites with diverse raw materials will occur on river flats and terraces associated with such rivers as the Wonnangatta, Crooked, Wongungarra, Humffray, Dargo, and Little Dargo rivers.
6. Small dense scatters will occur on flat areas in the 'V' shaped valleys associated with the headwaters of the larger rivers.
7. Small sites with diverse materials will be associated with potential Bogong moth habitats above 1600 m.a.s.l. including basalt, granite, and granite gneiss outcrops.
8. Small sites will be located on spur ridges associated with gentle to moderate sloping access from high plains to sheltered valleys several hundred metres below the plain.

18.6.1 Predicted Sensitivity Ratings

- Overall archaeological sensitivity rating: **MEDIUM.**
- Dinner Plain ridge/plateau: **MEDIUM TO HIGH.**
- Major access ridges through the mountains: **MEDIUM TO LOW.**
- Steep hilly terrain and narrow valleys: **VERY LOW.**

18.7 Survey Strategy and Conditions

The Expanded Dargo survey unit was much larger than many other units, about 3162 km² in area. The survey team used the network of roads and four-wheel drive tracks to access most parts of the survey area, focussing mainly on potential lines of movement through the dissected areas, the river valleys, heavily burnt areas, rocky granite outcrops and areas nominated by the Aboriginal community participants. As this was one of the last survey units, every effort was made to test developing theories of site patterning and past Aboriginal occupation. Burning was very intermittent throughout the area. The low altitude river valleys such as the Wonnangatta and Crooked River were not burnt at all, but were sufficiently drought affected in parts to provide excellent visibility. Regrowth was dense in the higher altitude river valleys but variable on the higher alpine and sub-alpine zones. Grasslands had a dense cover of grass while snow gums and small shrubs on the higher plains had burnt leaving small patches of visibility in the grass. These conditions should be understood to strongly influence the results of the survey in this unit.

A broad range of landforms, geological and other contexts were surveyed in this unit including steeper slopes, low, mid, and upper river valleys, highland plains. A special focus in this unit was the exploration of Bogong moth habitats and surrounding areas, grassy plains, lines of movement through the major river valleys, and lines of quick access to shelter.

In total the team intensively surveyed 49 large and small areas in the Expanded Dargo unit (Volume 4). The survey areas were a combination of transects and quadrats, but mainly longer transects.

Quartz gravel was very common in most survey transects, particularly in the Dinner Plain area, with large outcrops of good quality quartz occurring near the Victoria River

Track. The modified quartz was easily distinguished from the background gravel. All potential artefacts were examined under a hand lens enabling diagnostic features to be clearly identified.

18.8 Results

18.8.1 Survey Coverage

The total area intensively surveyed was 72.4 ha. (This was about 0.0002 % of the total area of the Expanded Dargo Study Unit). Of the 72.4 ha intensively surveyed, it is estimated that the effectively surveyed area (ESA) was 31.2 ha with an average visibility of 53.4%. Volume 4 describes the general location of each of the 49 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located, and GPS locations for the transects

18.8.2 Archaeological Sites and Materials

A total of 51 new Aboriginal sites were located during the survey in 38 survey transects. Cultural material occurred in 77.5% of all survey transects, a higher proportion than in most other areas. The large number of sites detected in this survey unit is almost certainly due to the refinement of the zoning statements. The characteristics of these sites are summarised in Volume 4. Site cards have been completed and submitted to AAV.

Despite the larger sample, the Aboriginal site types in this study unit are no more diverse than other study areas. The sites in the study area consisted of 35 artefact scatters, 15 isolated artefacts, and one scarred tree. The majority of the artefact scatters comprised more than five artefacts, with some artefact scatters extremely large indeed consisting of more than 100,000 artefacts. Twelve artefact scatter sites have more than 50 artefacts. Small artefact scatters occurred frequently on the major and minor ridges, high plains, broad spurs, narrow spurs, benched slopes, and low, mid and high altitude river valleys (more or less anywhere where flat land occurred). Multiple small sites were clustered around rocky granite and basalt outcrops supporting Bogong moth populations. Large sites, as noted above, tended to be situated in more sheltered areas at slightly lower altitudes in multiple resource zones or ecotones, close to or within easy lines of movement and with access to water. There were many small sites which were located well away from water. Water was probably present near these sites but not always obvious to the survey members and it is possible potable water was available in small bogs or springs, or from small snow patches during spring (see previous comments by Kelly and Zipfel). Large sites were also located where there was an opportunity to drop down quickly into sheltered mid level river valleys (e.g. sites on the west and east sides

of Dinner Plain with quick access via spur ridges to the Upper Dargo valley and the Cobungra River valley).



**Plate 27: Site environment
Precipice Plain
(view west
toward Mount
Tabletop)**

In the study unit there was an average density of more than 0.5 artefacts/100m² (i.e. five artefacts every 1,000m²), with artefact densities within sites ranging from 0.1/m² to 5/ m².

Small sites were less common within this survey unit and all artefacts in the small sites were recorded, while only a sample of the larger sites was recorded due to time constraints. A total of 194 stone artefacts were recorded, but many more were observed on sites. Raw materials were more diverse than in other areas reflecting the diverse geology of the SA and river gravel; beds. Quartz was the most common raw material in all sites (Table 42) and comprised 65.8% of the total artefacts recorded. Fine quality quartz blows suitable for artefact manufacture were observed adjacent to the Victoria River Track. Small amounts of other fine-grained materials were present on other sites with larger percentages of silicious materials in the lower river valleys.



Plate 28: Diverse raw materials in site Mount Loch 7 (AAV 8324-0118)



Plate 29: Site environment site Mount Loch 7 (AAV 8324-0118), (view southeast)

Table 42: Numbers of stone artefacts and their raw materials in study area 13

RAW MATERIAL	COUNT	%	SITES WHERE MATERIAL OCCURS
Quartz	127	65.5	Various
Volcanic	21	10.8	Various
Crystal quartz	17	8.8	Dargo R. 5, Dinner Plain 1, Mt Loch 6, 8, 10, Precipice Plain 1, Swindler Spur 3, 4
Quartzite	7	3.6	Dargo River Rd 4, Mt Loch 7, 8, Precipice Plain 1, Swindler Spur 3

RAW MATERIAL	COUNT	%	SITES WHERE MATERIAL OCCURS
Rhyolite	6	3.1	Dargo River Rd 3, 5, WR 2
Silcrete	6	3.1	Dargo River Rd 2, 4, Dinner Plain Track 1, Mt Loch 7, Swindler Spur 4, Precipice Plain 1
Chert	6	3.1	Wire Plain 1, W R. 2, 3,
Hornfels	2	1.0	Mt Loch 7
Granite Gneiss	1	0.5	Dinner Plain 2
Sandstone	1	0.5	Precipice Plain 1,
Totals	194	100	

Table 43: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 13

SITE	NO. OF ARTEFACTS RECORDED	NO. OF ARTEFACTS PREDICTED	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY PER M ²	LOCATION AND ALTITUDE (M.A.S.L.)
Dinner Plain 1	22	>100,000	6	16000	>0.1	Highland plain (1298m)
Dinner Plain 2	25	>100,000	5	40000	>0.1	Highland plain (1291 m)
Precipice Plain 1	11	>100,000	4	8000	>0.1	Highland plain (1288m)
Swindler Spur 1-4	9	>500	4	126000	>0.1	Spur ridge to Cobungra Gap (1783)
Tabletop Spur Track 1	10	>500	1	108000	>0.1	Spur ridge to Mount Tabletop (1642)
Victoria Track 1	10	>1000	2	24000	>0.1	Highland plain (1263)
Wire Plain 1	13	>50	1	11200	>0.1	Small sub-alpine plain overlooking upper Dargo valley (1624)
Wonnangatta R 4	10	>100	4	6400	>0.1	Low spur overlooking the Wonnangatta River (270)
Upper Dargo R 1	10	>50	4	2400	>0.1	River flat in the upper Dargo Valley headwaters, below Hotham (797)

18.9 Discussion

The high alpine and sub-alpine plains associated with Hotham Heights and river valleys in the footslopes had the densest evidence of Aboriginal occupation. Small Aboriginal sites appear to cluster around potential Bogong moth aestivation areas such as granite or basalt rocky outcrops and boulder streams in the alpine/sub-alpine zone. These sites frequently had artefacts made on diverse raw materials. Other site contents in these locations include river pebbles and grinding stones. Very large scatters may occur at slightly lower altitudes in sheltered areas associated with more diverse resources (e.g. emus, macropods, berries, tubers, water, bark, wood, stone). These sites were often located on the eastern or western sides of the plateau ridges with access spurs to lower river valleys with sheltered locations and different resources. Moderate sized sites with diverse raw materials also occurred in headwater valleys where flat areas are scarce in the dissected country around the alpine zones. Sites in these valleys indicate that they

may provide low altitude, sheltered access to the high country. Dense scatters of artefacts along some spur ridges could have resulted from movement between major resource zones. The dense scatter along Swindlers Spur may indicate movement between the resource zones on Hotham Heights and Dinner Plain to those of the Bogong High Plains.

18.10 Sensitivity Zoning Statements

The preliminary sensitivity zoning statements for this SA were as follows:

Statement 1—the broad undulating ridge along which the Alpine Way runs would have been a major access route between the lowland valleys to the east and the alpine country along the Great Dividing Range (and from there to areas on the western side of the mountain, including the Ovens River valley and the inland plains). Artefact scatters will occur along the ridge, especially in sheltered, well drained spots. Some sites will contain rich and diverse artefact assemblages, reflecting their repeated use as campsites by groups (often large) moving back and forth along the ridge.

The survey data supports this prediction, though see discussion above.

Statement 2—artefact scatters will also occur along the major ridges which provided internal access (by generally smaller groups) within this mountainous area, but less frequently and generally of smaller size than in 1.

The survey data supports this prediction, though see discussion above

Statement 3—artefact scatters will also occur along other more steep-sided ridges in the steeply dissected ranges, but these will tend to be even less common and smaller than 1 and 2 above.

The survey data supports this prediction, though see discussion above

Statement 4—few sites will occur on the steep valley side slopes or along the narrow headwater valleys.

The survey data also suggests that few sites will occur on steep slopes but see comments below regarding headwater valleys.

Further statements tested during this survey were:

Statement 5—the large river valleys draining the southern fall may be used as access routes into the highlands. Large dense sites with diverse raw materials will occur on river flats and terraces associated with such rivers as the Wonnangatta, Crooked, Wongungarra, Humffray, Dargo, And Little Dargo rivers.

The data suggest that occupation occurred in the river valleys in the foot slopes and the headwater valleys. Insufficient survey was carried out in the middle sections of the valleys to test this proposition though some observations of cultural material in the middle Wonnangatta River valley suggest that there will be occupation throughout the valley up to the headwaters.

Statement 6—small dense scatters will occur on flat areas in the 'V' shaped valleys associated with the headwaters of the larger rivers.

Evidence of occupation was found in all flat areas investigated in headwater valleys supporting this statement.

Statement 7—small sites with diverse materials will be associated with potential Bogong moth habitats above 1600 m.a.s.l. including basalt, granite, and granite gneiss outcrops.

The evidence from the survey supports this statement. Small sites with diverse materials were found in association with high altitude rocky outcrops and boulder streams.

Statement 8—small sites will be located on spur ridges associated with gentle to moderate sloping access from high plains to sheltered valleys several hundred metres below the plain.

The evidence from both the top, middle and bottom of access spurs supports this statement, though some access routes to the plains below were much steeper than predicted.

18.10.1 Amended sensitivity ratings

- Overall archaeological sensitivity rating: **HIGH.**
- Dinner Plain/ridge: **MEDIUM TO HIGH.**
- Major access ridges through the mountains: **MEDIUM TO LOW.**
- Steep hilly terrain and narrow valleys: **VERY LOW.**

Further ratings should include the following:

- Flat areas in narrow headwater valleys for the major rivers: **HIGH.**
- Flat, sheltered, areas surrounding large rocky outcrops above 1600 m.a.s.l.: **HIGH.**
- River flats, banks, terraces and low gentle spurs associated with the large river valleys draining the southern fall: **VERY HIGH.**
- Spur ridges in the alpine/sub-alpine zone providing direct access to lower altitudes: **HIGH.**
- Sheltered areas on the Dinner Plain associated water, snow gum/grassy understorey vegetation, shelter, quartz blows and access to lower altitude valleys: **HIGH.**

19 Area 14: Tom Groggin ¹⁴

19.1 The Survey Team

Philip Hughes and Phil Hunt (Archaeologists).
 Carol Wright and Jenny Dukakis (Moogji Aboriginal Council).
 John Mongta and Paul Harrison (Monaro People).

19.2 Introduction

The field team travelled to Tom Groggin station on March 9 2004 and carried out the field survey over the following four days to March 13. Training was undertaken throughout the survey but most intensively on the final day.

19.3 Environmental Setting

19.3.1 Geology and Geomorphology

The survey area consists of steeply dissected ranges with generally narrow ridge crests, steep valley sides and narrow valleys (Figure 17). The crests of the three main, highest ridges are generally broader (up to one kilometre) and rolling. Local relief ranges from about 500 m along the Snowy River to over 1,750 m along two of the major ridges. About 30% of the area is sub-alpine terrain (i.e. above about 1,200 m) centred on the three major northeast-southwest trending ridge complexes: Mount Anderson – Mount Pinnabar in the west, Mount Hope – The Grassy Knob in the centre and Davies Plain – Davies Plain Ridge in the east. Davies Plain is an area of rolling, moderately dissected sub-alpine terrain about 5 kilometres across in the northeast part of the study area. The rocks are mainly Ordovician sediments in the west and a mixture of Silurian granite and Ordovician gneiss, igneous and sedimentary rocks in the west.

19.3.2 Vegetation

Sub-alpine Woodland (Snow Gums) with areas of grassland occurs extensively, especially above 1,400 m. The steep upper slopes around the sub-alpine zone are covered with a wide range of different forested communities, including Mountain Ash Forest.

19.3.3 Known Archaeology

The area is archaeologically unknown. Hall (1991) found a number of sites in the Cobberas Mountains south of the study area which indicate broadly the expected type of site and locations which would be found in the Tom Groggin area (Table 44).

¹⁴ Extracted from P. Hughes, Field Report

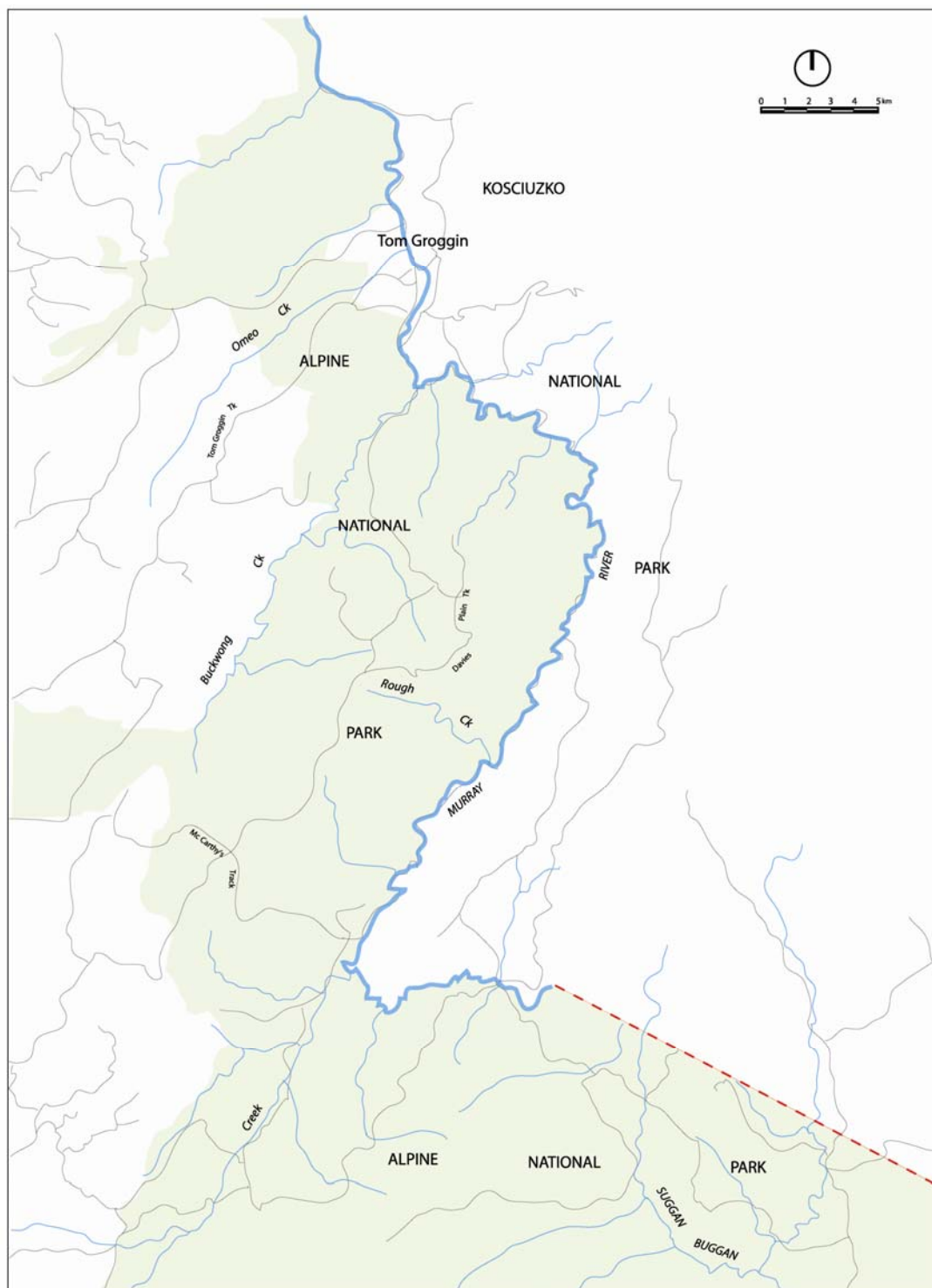


Figure 17: Tom Groggin study area

Table 44: Known sites adjacent to study area 14

AAV SITE NO	SITE NAME	SITE TYPE	GENERAL AREA	LANDFORM
8524-0143	Macfarlane Flat 8	Artefact scatter	Forest Hill, Cobberas Mts	Flat land
8524-0146	Cowombat Flat Track 1	Artefact scatter	NSW Vic border next to Murray	Flat land
8524-0147	Cowombat Flat Track 2	Artefact scatter	NSW Vic border next to Murray	Flat land

19.4 Survey Strategy and Conditions

The Tom Groggin Survey Area is about 30 kilometres across north–south and 25 kilometres across east–west, i.e. about 750 km² in area. The team drove along a network of tracks and roads covering most of the survey area, including those along the three main ridges. Although large parts of the area had been burnt out, often very severely, there had been considerable growth of a ground cover of grasses and shrubs and more than 95% of the burnt area conditions of surface visibility (i.e. the likelihood of being able to detect stone artefacts on the ground surface if present) were very poor. Consequently, the team drove along the tracks, stopping opportunistically in areas where the ground surface was still relatively bare after burning and ground surface visibility was reasonable to good. In addition, several spots deemed to have a high potential to have archaeological materials were also inspected, even though they had not been burnt out.

**Plate 30: Davies Plain**

The valley floors of all of the three major creeks (Omeo, Buckwong and Buenba) were heavily vegetated, so no systematic survey along or adjacent to these was possible. Spot checks were carried out on Buckwong and Buenba Creek and sites were found, but no survey work was possible along Omeo Creek.

In total, the team intensively surveyed 28 small areas, described as T1 to T28 (see gazetteer in Volume 4). The small survey areas are designated transects in Volume 4, but most were small block areas rather than linear transects. Each area was thoroughly criss-crossed by the team. Nearly all the local rocks contain veins and inclusions of quartz which, on weathering out of the rock, forms a scatter of natural quartz of highly variable quality and degree of shattering. The amount of natural quartz on the ground surface varied greatly between transects. As described in the results section, over 85% of the recorded stone artefacts were made on quartz, so the presence of this natural quartz made the already difficult task of recognising quartz artefacts even more difficult. A big effort was put into training those team members not already experienced how to distinguish quartz artefacts and within a day all team members were able to do this. Nevertheless it is likely that on sites where abundant natural quartz occurred (especially if it was good quality and angular), some quartz artefacts will have been missed.

19.5 Results

19.5.1 Survey Coverage

The total area intensively surveyed was 7.45 ha, or 0.075 km². This was about 0.01% of the total area of the Tom Groggin Survey Area. Of the 7.45 ha intensively surveyed, it is estimated that the effectively surveyed area (ESA) was 5.1 ha or 60% of the total area surveyed. Volume 4 describes the general location of each of the 23 survey transects, their altitudes and environmental settings, the conditions of ground surface visibility, areas surveyed and archaeological sites located.

Plate 31: Artefacts in TG 13



Plate 32: TG 13 (Grassy Knob)



19.5.2 Archaeological Sites and Materials

A total of 13 stone artefact scatters was located (Sites TG1 to TG13, AAV 8424-0189,-0193; 8424-0024-0026; 8524-0189-0198). The characteristics of these sites are summarised in the gazetteer in Volume 4. Site cards have been completed and submitted to AAV.

All of these sites were very small in terms of both the total numbers of artefacts and the densities of artefacts in them. The numbers of stone artefacts in the sites varied between two and 24, with an average of nine. The densities ranged from 0.05 artefacts/100m² (i.e. one

artefact every 2,000m²) to 11.7 /100m² (i.e. one artefact every 8.5m²). The average density was 4.4 /100m² (i.e. one artefact every 23m²).

In all sites all of the artefacts observed during the survey were recorded. A total of 118 stone artefacts were recorded. Quartz was the sole or dominant raw material in all sites (Table 45) and comprised 86% of the total assemblage. Hornfels was the next most common, but it occurred in only one site, TG13 (AAV 8524-0198) on the Murray River. Small amounts of chert occurred in three sites and even smaller amounts of silcrete, volcanic, quartzite and fine-grained siliceous rock were found in one or two sites. Some of the quartz was worked using the bipolar technique. Two of the quartz artefacts were amorously retouched flakes.

Table 45: Numbers of stone artefacts and their raw materials in study area 14

RAW MATERIAL	NUMBER	%	SITES IT OCCURS IN
Quartz	101	86	All
Hornfels	6	5	TG13
Chert	4	3	TG2, 4, 9
Silcrete	3	3	TG4, 13
Volcanic	2	2	TG5, 10
Quartzite	1	1	TG10
Fine grained siliceous rock	1	1	TG6
Totals	118	100	

The largest sites in terms of numbers of artefacts were: TG8 (AAV 8424-0026, 24 artefacts), TG12 (AAV 8424-0197, 19 artefacts), TG13 (AAV 8524-0198, 16 artefacts), TG4 (AAV 8424-0192, 14 artefacts) and TG6 (AAV 8424-0024, 11 artefacts) (Table 46). TG8 (AAV 8424-0026) was on a major gently descending ridge and consisted of a very sparse scatter of quartz artefacts spread over a relatively large area with good ground surface visibility, and with half the artefacts coming from a single knapping floor. The other four relatively large sites were all immediately adjacent to permanent creeks or the Snowy River, they all had relatively high densities and three of them had one or more raw materials in addition to quartz. A fifth site, TG5, also had a relatively high density and diversity of artefacts, but the total number of artefacts was lower than the others because of its very low ESA (Table 46). This suggests a relatively 'rich' archaeological site exists in surrounding areas where there is no surface visibility or exposure.

Table 46: Characteristics of sites with the largest numbers and/or highest densities of artefacts in study area 14

SITE NO	NO. OF ARTEFACTS	NO. OF RAW MATERIALS	ESA (M ²)	DENSITY	LOCATION AND ALTITUDE (M.A.S.L.)
TG8	24	1	1,800	1.3	Major ridge (910m)
TG12	19	1	260	7.3	Terrace adjacent to Snowy River (520m)
TG13	16	3	150	10.7	Low spur ridge adjacent to Snowy River (530m)
TG4	14	3	12	11.7	Grassy flats above permanent creek on Davies Plain (1,380m – sub-alpine)
TG6	11	2	125	8.8	Terrace adjacent to Buenba Creek (870m)
TG5	5	2	60	8.3	Grassy flat on Davies Plain surrounded by treed low granite outcrops (1,390m–sub alpine)

19.6 Discussion

The sample size of both survey transects and archaeological sites is too small to provide detailed information against which to test predictive zoning statements. However, the results do provide strong preliminary support for the following statements.

Archaeological sites occurred in the following predicted locations:

1. Adjacent to the Snowy River (TG12 and 13) and other major creeks (TG6 on Buenba Creek). As predicted, these were some of the largest, most dense and diverse of the sites. Small sites (TG1 and 2) were found along Buckwong Creek. Omeo Creek was not surveyed.
2. In sub-alpine areas either on Davies Plain (TG4 and 5 and the smaller TG3) or on ridges which provided major access through the mountains (TG11).
3. Along major ridges which provided access between the valleys and the mountains (TG7, 8, 9 and 10).

Even in these ‘favourable’ areas the amounts of archaeological material were extremely small. At altitudes between 1,690 m and 1,750 m along Davies Plain Ridge (which must have been a major access route through this area) no artefacts were found in three survey transect areas (T9, 10 and 11), despite relatively large areas with good ground surface visibility being examined. Two spots adjacent to high altitude (1,200–1,400 m) permanent creeks (T12 and 13) were also examined but surprisingly no artefacts were found. Finally the ridge at 1,200–1,300 m (T24 and 25) forming the major drainage divide between Omeo and Buenba Creeks and connecting two of the major north-south sub-alpine ridges was expected to be relatively rich in archaeological materials, but none was found despite the generally good ground surface visibility. These results suggest that this was a little used part of the north east Victorian landscape. The main movement across this area was possibly by people moving north and south between the Snowy Mountains and major Victorian lowland valleys such as the Mitta Mitta River catchment north of the Great Dividing Range and the Tambo River catchment to the south.

Areas where archaeological sites might be less expected to occur such as other ridges, steep valley sides and narrow headwater valleys were not included in the survey because of a combination of lack of time, poor access and generally poor ground surface visibility. Given the small amounts of material in the archaeologically most prospective areas, these even more remote areas probably contain even smaller amounts of archaeological material.

The dominance of quartz in the artefacts assemblages reflects that this is the only raw material available in large amounts in this large area. The other raw materials were probably largely, if not entirely, brought in from outside. None of the granitic or gneissic rocks formed outcrops which would have provided suitable habitat for Bogong moth aestivation. Nor would they have provided shelters or overhangs suitable for camping in or using to paint rock art.

20 Results of the Surveys and Interpretation

20.1 Introduction

This section presents the results for the entire survey, and an archaeological interpretation of the results.

20.2 Site Distribution

During the survey 326 sites were located including four non-Aboriginal historic sites and one potential ochre quarry source (Table 47).

Table 47: Sites found in study areas

SURVEY UNIT	STUDY AREA	NO. OF SITES
1	Mt Sarah/Winchester/Dargo	60
2	Bundarra/Glen Wills	25
3	Gibbo	31
4	Tambo	10
5	Mt Taylor/Tubbut	18
6	Yalmy Road/Moonkan	10
7	Nariel/Pinnibar	16
8	Mitta Mitta Dartmouth	28
9	Stanley State Forest	2
10	Buffalo National Park.	26
11	Mount Selwyn	23
12	Mount Mittamatite	12
13	Expanded Dargo Area	51
14	Tom Groggin	13
Total		325

20.3 Areas Surveyed

The survey was conducted between January 26 and April 2004. A total of 548 ‘person days’ were spent surveying. Survey units were a mixture of transects and quadrats, with 504 survey transects completed (Volume 4). Survey units were completed as outlined in the methodology.

A total area of 4,341,535 m² was surveyed (about 434.2 ha). While a large area in terms of an archaeological survey, it represents less than 0.1% of the total area. Given the visibility in the survey units the effective survey total amounted to 1,589,588m² (158.9 ha). Visibility ranged between very poor (1–5%) to very good (80–99%).

Survey coverage in each of the study areas is shown in Table 48.

Table 48: Survey coverage in all study areas

UNIT NO	SURVEY UNIT	AREA SURVEYED (HA)	AVERAGE VISIBILITY (%)	EFFECTIVE COVERAGE (HA)
1	Mt Sarah/Winchester/Dargo	29.8	55.9	15.4
2	Bundarra/Glen Wills	22.1	63.8	13.0
3	Gibbo	22.5	57.1	14.4
4	Tambo	13.1	29.1	4.0
5	Mt Taylor/Tubbut	29.8	39.6	7.4
6	Yalmy Road/Moonkan	11.9	71.4	7.7
7	Nariel/Pinnibar	86.4	16.5	14.1
8	Mitta Mitta Dartmouth	17.1	35.3	8.6
9	Stanley State Forest	28.5	20	5.7
10	Buffalo N.P.	17.4	42	6.4
11	Mount Selwyn	49.4	23.9	12.0
12	Mount Mittamatite	24.1	56	14.0
13	Expanded Dargo Area	72.4	53.4	31.2
14	Tom Groggin	9.8	54.2	5.1
Totals		434.3		159.0

Average visibility was variable with study units 4, 5, 7, 9, and 11 having the poorest average visibility. The visibility in study units 6 and 14, Yalmy Road/Moonkan and Tom Groggin, was high as almost all survey in this study unit was carried out on tracks and fire containment lines where visibility was very good on average. Away from these areas, the units were unburnt and visibility was very poor. Visibility in study unit 7 (Nariel/Pinnibar) was poor due to strong regrowth of vegetation after the fire, so that despite a good coverage, only a small proportion of the ground surface in the study units was effectively surveyed. Higher visibility in the units, particularly unit 2, was high due to the intensity of the burn and poor regrowth.

20.3.1 Survey on Different Landforms

Survey was carried out over a range of landforms. While the survey does not purport to be a representative sample on each landform, every effort was made to spread the survey across a range of landforms as far as possible in each landform zone. Bias was toward burnt areas, but steep slopes were not surveyed very much as there has been sufficient survey in the past in these areas to expect few sites on these landforms. Table 49 shows the extent of survey on landforms.

Table 49: Effective coverage of landforms

LANDFORM	EFFECTIVE COVERAGE (HA)	%
Ridge	38.9	24.46
Gentle slope	28.4	17.88
Spur	22.4	14.11
Terrace	12.2	7.70
Highland plain	11.1	6.96
Saddle	10.4	6.51
Steep slope	8.3	5.19
River flat	8.1	5.10
Lower slope	5.4	3.42
Upper slope	4.1	2.55
Crest	4.0	2.54

LANDFORM	EFFECTIVE COVERAGE (HA)	%
Knoll	3.2	2.04
Riverbank	1.1	0.71
Middle slope	1.0	0.61
Drainage divide	0.3	0.16
Confluence	0.05	0.03
Totals	159.0	99.97

Figure 18: Percentage of total effective survey per landform

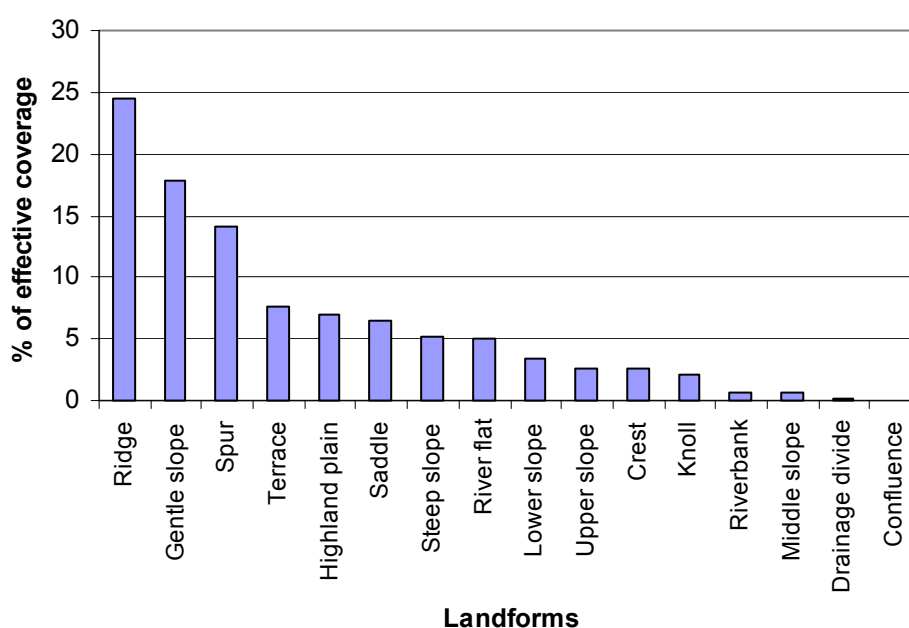


Table 49 and Figure 18 show the bias in the survey toward survey on ridgelines, gentle slopes and spurs. This bias reflects the domination of these landforms in the fire affected areas and access routes. Roads and tracks in the highland areas commonly follow ridgelines, spurs and gentle slopes in the higher alpine areas, or are benched into the slopes. A smaller proportion of surveys were carried out in drainage corridors. In the higher alpine region drainage lines were difficult to get to. River headwaters were frequently located in narrow 'v' shaped valleys which were potentially time consuming to survey. These areas were only surveyed when access was relatively easy. Larger river valleys in lower study areas were easier to access, but river flats, terraces, and gentle spurs suitable for survey were more frequently located on freehold land outside park or crown land management zones. Towards the end of the survey these areas were targeted in unburnt areas to increase the sample size. A reasonable sample of survey was conducted on steeper slopes, generally when walking toward target areas.

20.3.2 Survey in Different Vegetation Zones

Survey was carried out in a range of vegetation zones. These are shown in Table 50. Vegetation is very diverse throughout the survey areas and it is possible that the vegetation zones were not always correctly identified by the archaeologists. However, most survey was conducted in the drier forests, with lesser amounts in snow gum woodlands, riparian corridors and the mixed Mountain Ash forests. As survey was biased towards well burnt areas, it is possible that the survey was therefore biased toward more combustible vegetation zones.

Table 50: Survey in vegetation zones

VEGETATION	EFFECTIVE COVERAGE (HA)	%
Dry Sclerophyll	53.6	33.8
Snow gum	38.0	23.9
Riparian	21.9	13.8
Mountain Ash Mixed	14.0	8.8
Wet Sclerophyll	9.8	6.2
Box/Stringybark	5.1	3.2
Mixed Snowgum, Ash, Peppermint	5.0	3.1
Mountain Ash	4.4	2.8
Eucalypt, grassy understorey	2.9	1.8
Open, dry, mainly White Cypress	0.9	0.6
Subalpine Heath	0.9	0.6
Clearfelled	0.7	0.4
Grassy woodlands	0.4	0.3
Peppermint, Stringybark	0.3	0.2
Grassland	0.3	0.2
Sub-Alpine Grassy Woodland	0.2	0.1
Apple Box, Messmate, Stringybark	0.2	0.1
Regrowth wet - dry	0.1	0.1
Non-indigenous gums	0.04	0.03
Unknown	0.02	0.01
Totals	158.8	100.0

20.3.3 Geology

During the survey attention was paid to the differing geological zones in which survey was conducted. The total effective coverage of different geological zones is shown in Table 51 below. As can be clearly seen, most survey was conducted in Ordovician sedimentary and granite geological zones. These geological zones dominate the highlands in the survey areas.

Table 51: Survey in different geological zones

GEOLOGY	EFFECTIVE COVERAGE (HA)	%
Ordovician sedimentary	54.28	34.15
Granite	49.01	30.83
Quaternary alluvium	24.77	15.58
Basalt	18.29	11.51
Volcanic	7.70	4.84
Granite gneiss	1.63	1.03
Sandstone/shale	1.04	0.66
Sandstone	0.68	0.42
Conglomerate	0.60	0.38
Sandstone/siltstone	0.50	0.31
Metamorphic	0.32	0.20
Quartzite	0.06	0.04
Unknown	0.05	0.03
Limestone	0.02	0.01
Totals	158.96	100.00

20.4 Site Diversity

While sites overall were diverse, most sites discovered were artefact scatters and isolated artefacts, with a small number of scarred trees, quarries, grinding grooves and rockshelters making up the remainder (Table 52). Interestingly, there are more artefact scatters (comprising five or more stone artefacts) than smaller isolated artefact scatters. It is likely that this result is due to the excellent visibility in the burnt areas. Where visibility is poor the full extent of a site may not be seen and the site may be identified as a single artefact or a small group of artefacts. The good visibility combined with erosion has revealed more of sites than usual, so that sites were more frequently identified as artefact scatters. A small number of scarred trees were located. However this result is skewed by the Mount Sarah trees (AAV 8223-0051–0058) which, while recorded as scarred trees, are most likely the result of either natural or more recent scarring. Three rockshelters were recorded; two with evidence of occupation. Several potential shelters were identified at Tawonga Huts, which may need further investigation (see management options), but these were not recorded.

Table 52: Site types found during survey

SITE TYPES	NO OF SITES	%
Artefact scatter	163	50.2
Isolated artefact	127	39.1
Scarred tree	18	5.5
Historic site	5	1.5
Rock shelter	3	0.9
Artefact scatter/Quarry	2	0.6
Grinding groove	2	0.6
Artefact scatter/stone source	1	0.3
Collection	1	0.3
Grinding/sharpening stone	1	0.3
Scarred tree/artefact scatter	1	0.3
Stone source	1	0.3
Totals	325	100.0

Sites were widely distributed over the landforms surveyed with some clustering in certain environments (Table 53).

Table 53: Distribution of sites on landforms and site density

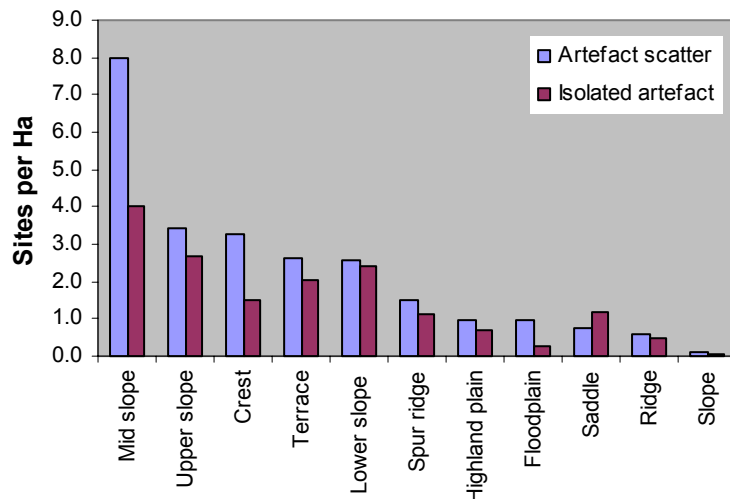
LANDFORM	NO. SITES	EFFECTIVE COVERAGE (Ha)	DENSITY PER Ha
Mid slope	14	1.0	14.0
Upper slope	25	4.1	6.1
Lower slope	31	5.4	5.7
Crest	21	4.0	5.3
Terrace	60	12.2	4.9
Spur ridge	59	22.4	2.6
Highland plain	23	11.1	2.1
Saddle	20	10.4	1.9
Floodplain	12	8.15	1.5
Ridge	54	38.9	1.4
Simple slope	5	28.4	0.2
Riverbank	0	1.1	0.0
Knoll	0	3.2	0.0
Steep slope	0	8.3	0.0

LANDFORM	NO. SITES	EFFECTIVE COVERAGE (Ha)	DENSITY PER Ha
Drainage divide	0	0.3	0.0
Mixed	1	0*	
Totals	325	158.95	

*Site was large and extended over a range of landforms

Site density is highest on lower, mid and upper slopes, crests and terraces (Table 53). With the exception of upper slopes and crests, these landforms are associated with valleys and rivers and predominantly in sheltered locations and with more densely located resources. They are also locations where camps can be sited to avoid cold air drainage (where cold air pools in valley bottoms) and to take advantage of aspect and solar radiation. Such locations are expected to be utilised when every effort is made to take advantage of natural warmth and shelter. Despite the frequency with which sites were found on ridges in the study areas, when the site density is examined, they are slightly lower on these landforms than was expected. When the density of larger sites (more than 5 artefacts) per hectare is examined, the distribution is very similar to that of smaller sites (1–5 artefacts), with the exception of crests and mid slopes where larger sites occur much more frequently than smaller sites (Figure 19). Again, as noted above, mid-slopes are more favourable locations for campsites than valley bottoms, when seeking warmth of shelter. It seems less logical to locate campsites on crests which are frequently very exposed locations. The largest sites associated with crests are those found in SA 6 (Mount Taylor/Tubbut) and are generally at lower altitudes than those sites on crests at higher altitudes in the alpine/sub-alpine zones. Sites on crests above 1400 metres are generally quite small (6–10 artefacts) and it is not clear what function such sites serve. They may be associated with social or ceremonial activities.

Figure 19: Site size on landforms

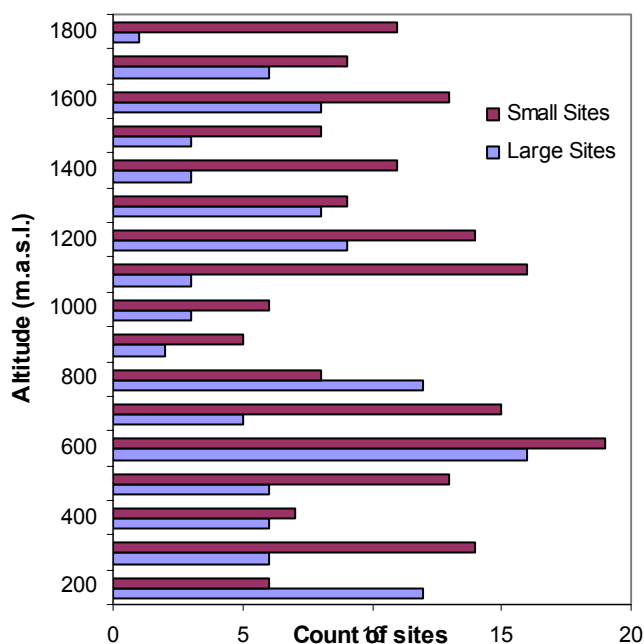


20.5 Altitude

Figure 20 shows site size plotted against altitude. Small sites have less than ten artefacts and sites have more than ten. The figure shows that sites are distributed throughout the altitude range from 200 metres above sea level to the highest areas at 1800 metres and above. Most large sites are located at 600 to 700 m.a.s.l. reflecting occupation of the higher river valleys such as the Gibbo, Big, Dargo, Mitta Mitta and Snowy valleys. At higher altitudes there are small peaks in larger sites at 1200–1300 m.a.s.l. (Dinner Plain, Dargo High Plain), and another peak at 1600 to 1700 m.a.s.l. (Tawonga Huts). Small sites predominate at high altitudes and are generally those located on exposed (and high) ridgelines and crests, but also in more sheltered locations in small saddles and tiny high altitude valleys. Almost all of the

sites at high altitude are most probably associated with the exploitation of moths (Mount Loch, Mount Tabletop, Tawonga Huts). Other sites may be associated with lines of movement along narrow ridges (St Bernard, Swindlers Spur). Other sites are not so easily explainable and occupy high locations with panoramic views (Mount Tingaringy, Blue Rag Range). As noted above such sites may have a social or ceremonial purpose. This information, combined with observation and other data, forms the basis for the preliminary interpretation of site distribution discussed below.

Figure 20: Site size plotted against metres above sea level intervals



20.6 Artefacts

Over 2476 artefacts were recorded during the field survey. At many sites this represented only a small sample of the total number of artefacts in the site.

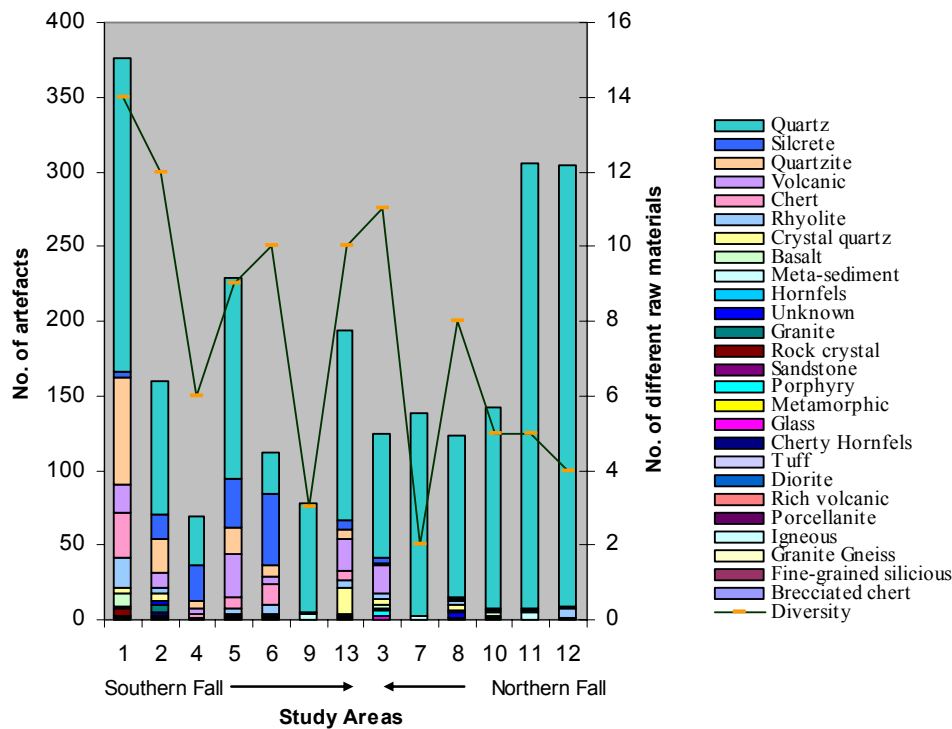
Table 54: Number of artefacts recorded in detail in study areas

SURVEY UNIT NO	SURVEY AREA	NO. OF ARTEFACTS
1	Mt Sarah/Winchester/Dargo	377
2	Bundarra/Glen Wills	160
3	Gibbo	125
4	Tambo	69
5	Mt Taylor/Tubbut	229
6	Yalmy Road/Moonkan	113
7	Nariel/Pinnibar	138
8	Mitta Mitta Dartmouth	123
9	Stanley State Forest	78
10	Buffalo N.P.	142
11	Mount Selwyn	306
12	Mount Mittamatite	304
13	Expanded Dargo Area	194
14	Tom Groggin	118
Totals		2476

20.6.1 Raw materials

Artefacts were made using a range of silicious raw materials. While quartz was ubiquitous across all SAs, some raw materials were more restricted in distribution, showing a distinctive distribution. Figure 21 shows the distribution of raw materials in the study units. Study units 1, 2, 4, 5, 6 and 13 are on the southern fall of the Alps, while units 3, 7, 8, 9, 10, 11, 14 are on the northern fall of the Alps.

Figure 21: Distribution of raw materials



The graph shows that while although quartz is found in large proportions in all SAs, it is found in much higher proportions in the SAs in the Northern Fall. Although raw material diversity predictably varies with assemblage size in the study areas in the Southern Fall, in the Northern Fall raw material diversity is generally lower even in assemblages which are comparatively large. There is greater overall proportion of other raw materials found in the southern sites. Silcrete is more common in southern SAs as is quartzite which is only found in very small amounts in the Tom Groggin study unit. Although raw material diversity in Study Area 9 (Stanley Forest) is more like SAs on the northern fall, only one site was found in this study unit and it may not be indicative of the general distribution of materials in the study area. It is likely that raw material procurement is local so that raw material diversity in the Southern Fall reflects the underlying geology or river catchment. In support of this argument, SA 3, Gibbo, is similar to the study areas in the Southern Fall. The area has a very diverse geology and the major rivers have diverse raw materials in their gravel banks. Rhyolite is also much more common in the southern sites. This result is consistent with results from other site surveys in the alpine region and most likely indicates the generally local nature of stone procurement (see Freslov and Goulding 2002). The small amounts of silicious materials found in the northern sites may be transported some distance. For instance there is no obvious local source for the small numbers of pieces of chert found in the Buffalo, Selwyn and Mittamatite SAs. While comparatively large proportions of silicious materials such as chert and hornfels are found in sites on the Southern Fall right up to the highest peaks, sites on the northern part of the Divide only a couple of kilometres away have at most one or two pieces of fine-grained silicious materials. This suggests that although procurement may be relatively local, transport of materials may be restricted to landforms such as ridgelines

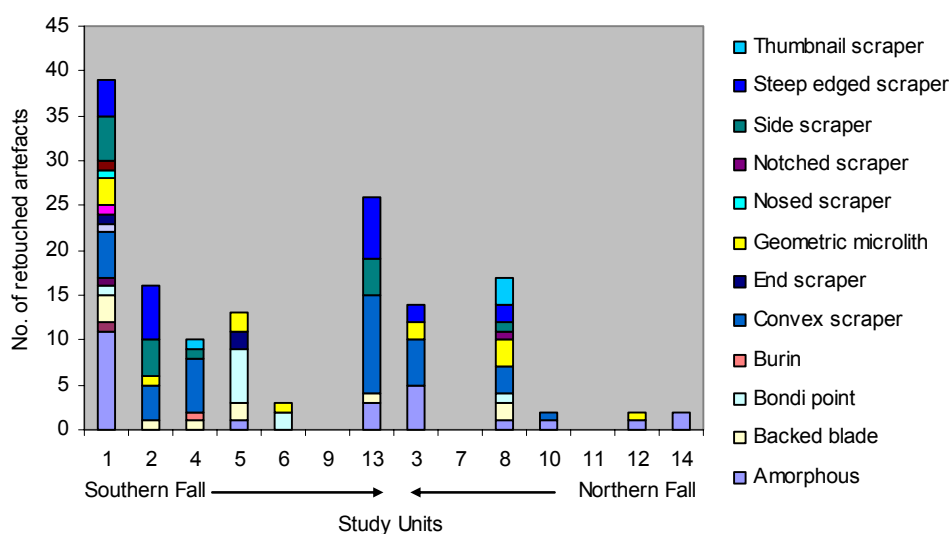
and river valleys and materials with materials possibly transported along lines of movement through the landscape.

20.6.2 Retouched Artefacts

Retouched artefacts are important temporal markers. Worked artefacts such as Bondi points and geometric microliths are only found in sites dated to the last 5000 years (Gould 1980: 177; Bowdler and O'Connor 1991). In the SAs there are also marked differences between the southern sites and the northern sites in the distribution of retouched artefacts. Fewer retouched artefacts are found in the northern sites (Figure 22). A few worked tools occur in SAs 3 and 8 (Gibbo and Mitta Mitta Dartmouth), but these areas are well connected to the southern study units via the Big River valley and the Mitta Mitta Valley, so that there may be some similarities based around connection and geography. Bondi Points are only found in SA 8 in the north, while they are more commonly found in southern sites. Bondi Points tend to be made on fine-grained silicious material and rarely on quartz, so that this distribution may reflect raw material availability. However geometric microliths are more commonly found in southern sites. These were frequently made on quartz so that the absence of these artefact types from SAs 710, 11, and 14 is not related to raw material availability. Retouched artefacts in these units were generally poorly shaped (amorphous) or were simple convex scrapers.

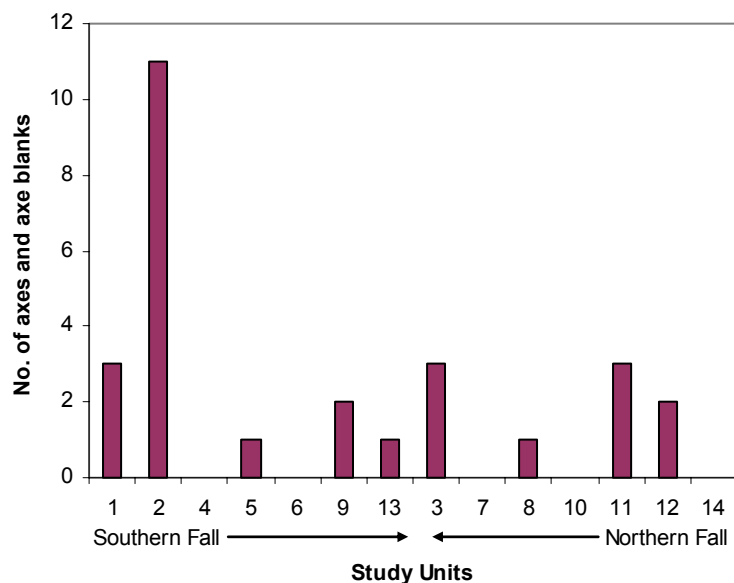
The reasons for the differences between the northern sites and the southern sites in retouched artefacts are not clear and this may be due to the lack of suitable materials, cultural preferences, activities taking place or to the time period during which these areas were used. Excavations of dated deposits in these SAs and detailed artefact analysis may provide further insight.

Figure 22: Distribution of worked artefacts

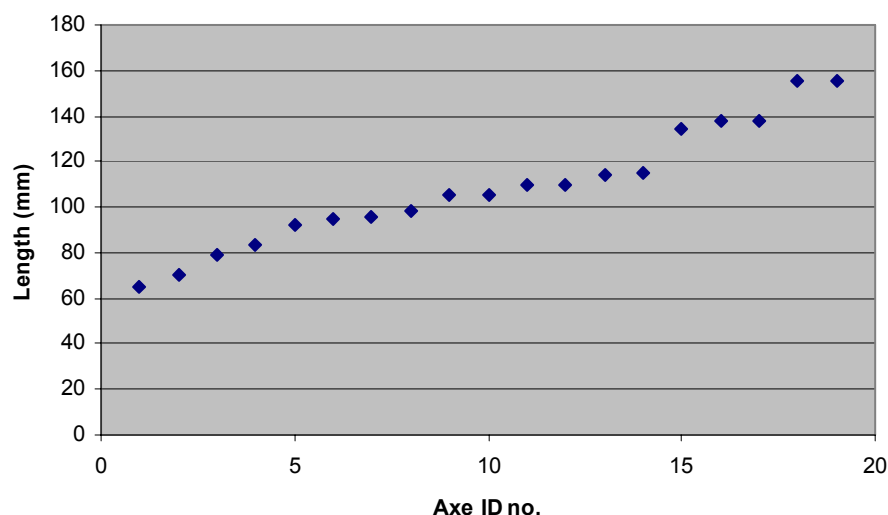


20.6.3 Axes

A relatively large number of axes and axe blanks were found in the study areas. Most ground-edge axes and axe blanks were found on the spurs, flats and terraces of the Mitta Mitta and Big rivers (SAs 2 and 3, Figure 23). One narrow chisel shaped axe was found on the Dargo High Plains embedded in a car lay-by. It is not clear whether it had been transported to this area during the precontact period or had been imported in with road fill in more recent times. A large number of axes, axe blanks and ground edge axe fragments were found in sites on the Mitta Mitta River and Big River (N=15). One large and oddly shaped axe was found on a bare peak in the Blur Rag Range. It was made from relatively softer sediments and it was difficult to see what functional use it might perform.

Figure 23: Numbers of axes and axe blanks found in the study areas

During examination in the field the axes appeared to fall into two length classes (median 90 mm and 120 mm). When length was plotted most axes are less than 120 mm in length, with most falling between 90 mm to 120 mm 90 mm and then some larger size classes (Figure 24). All axes were made on a hard basalt available in the Big River as flattish preforms, or on rhyolite pebbles, commonly available in the Mitta Mitta River. Axes were present in all stages of manufacture from preforms to finished and ground products. During the training exercise community representatives made a ground-edged axe. A reasonable edge was produced on hard volcanic stone using granitic sand and granite gneiss rock as a grinding stone within two hours. The frequency with which axes were found on the Big River and Mitta Mitta River suggest these were favoured axe manufacturing locations. Possible grinding grooves were found on the Big River with depressions of a comparable size to the axe sizes described above. A number of badly damaged axes were discarded in these sites and it is likely that 'tooling up' was occurring at the sites with new axes exchanged for old ones past their prime.

Figure 24: Size distribution of axes and axe blanks

20.7 Discussion

The results of this study, while partially consistent with previous studies in the alpine region, also provide important new insights into past Aboriginal occupation of the highlands. The study has shown that occupation and the type of occupation was not homogenous across the region and that there appear to be important sub-regional differences emerging in the archaeological record. This patterning and interpretation are discussed in the following sections with a tentative model of occupation or interpretation proposed in the final sections.

20.8 The 2004 Post Wildfire Survey

The survey of the post wildfire areas was designed to address the requirements of the brief. However, explanation and interpretation can only be usefully structured by a research framework in which the survey participants actively observe phenomena and address specific questions about the past Aboriginal occupation of the study area through the observation and analysis of the archaeological data, those that are of interest to the Aboriginal community and to the scientific community. The survey therefore observed and collected data to address questions about:

- Use of resource zones in the alpine/sub-alpine region.
- Length/timing of occupation.
- Nature and extent of the occupation (activities, populations).
- Comparisons to other highland regions.
- Information to address major questions about the past in Australia such as late Holocene intensification.

These questions form the basis of the discussion and interpretation below.

20.9 Aboriginal Use of the Victorian Uplands

20.9.1 Highland Occupation Zones and Lines of Movement

One of the more obvious and immediate results from the survey was that evidence of past Aboriginal occupation of the highlands is abundant throughout the study areas. While the Aboriginal community never doubted that this was so, it is an important result in that it convincingly demonstrates to the broader community that occupation of these seemingly harsher environments was no deterrent to past Aboriginal communities who lacked the benefits of modern technology.

Survey in disparate parts of the highlands has demonstrated that there is evidence of differential density of occupation, so that some areas have been used more frequently or by more people than other areas. Parts of the Nariel Pinnibar, Tom Groggin, Gibbo, Buffalo, Yalmy Road and Selwyn study areas have evidence of a lower intensity of occupation than other areas, while parts of the two Dargo areas, Bundarra, Tambo, Deddick and Moonkan study areas have evidence of a greater occupation intensity.

Evidence of greater occupation intensity (more artefacts overall, greater artefact and site density) is clearly associated with major lines of movement through the highlands. These occur between the Omeo Valley and the highlands, through the Bundarra, Cobungra, Mitta Mitta and Big River valleys to the Dargo High plains, Bogong High Plains, Dinner Plain and Hotham Heights, as well as a major line of movement in the Snowy River valley between the south and the Victorian border. The results from the surveys also suggest that there were similar lines of movement from the Kiewa Valley and the Mitta Mitta Valley to Mount

Fainter, the Niggerheads, Mount Bogong and the Bogong High Plains. Minor ridges leading into the high country such as the Mount Sarah and Tea Tree ridgelines were also important, but possibly less frequented lines of movement into the high country. Evidence for routes onto the Buffalo Plateau was sparse, but there is some suggestion these were most likely to be on the west side of Mount Buffalo. The surveys failed to find such evidence in the Tom Groggin, Nariel Pinnibar, and Tambo study areas.

20.9.2 Altitude and Risk

Although low altitude river valleys in the footslopes seem to be obvious lines of movement into the high country, they lead into narrow headwater river valleys at higher altitudes which were steeply incised, so that river corridors from the lowlands seemed less likely corridors for movement. The surveys specifically addressed this issue and surveys were conducted in accessible narrow headwater valleys. Several sites (both large and small) were found in these valleys demonstrating that river corridors may have been utilised up into headwater valleys. Although the narrow headwater valleys may be steep and hard to travel, they are sheltered, full of resources, and are generally at a lower altitude than the high plains above, and therefore are up to 5° C warmer (Figure 25). Sheltered valleys at lower altitudes immediately adjacent to higher altitude resource zones minimise the risk of utilising those environments. If bad weather such as snowstorms strikes suddenly, people were able to quickly drop down into the sheltered valleys and effectively into a warmer, fresh resource zone. Following the rivers downstream, groups would have remained in shelter as they moved down to lower altitudes. Where the alpine/sub-alpine zones are steeply incised, it is possible that that people could have safely used the zones well into autumn and early winter and then again in early spring as the snow began to melt. Even the higher valleys such as the headwaters of the Cobungra River which are likely to be snow covered in winter provide shelter against the wind and the wind chill factor in bad weather.

20.9.3 Exploitation of Resources and Risk

As noted above the evidence from the surveys suggests that occupation across the highlands was not homogenous and some areas may have had more intense or more frequent occupation than other areas. Ease of movement though difficult country, the distribution of resources over different altitudes in close proximity and safety zones close to high risk areas may have made some areas more attractive than others.

People travelled to the highlands to exploit specific resources. The most attractive resource in the highland area was the Bogong moth. A number of authors commented on the movement of Aboriginal people in the early 19th century up into the highlands. In 1844 Robinson commented:

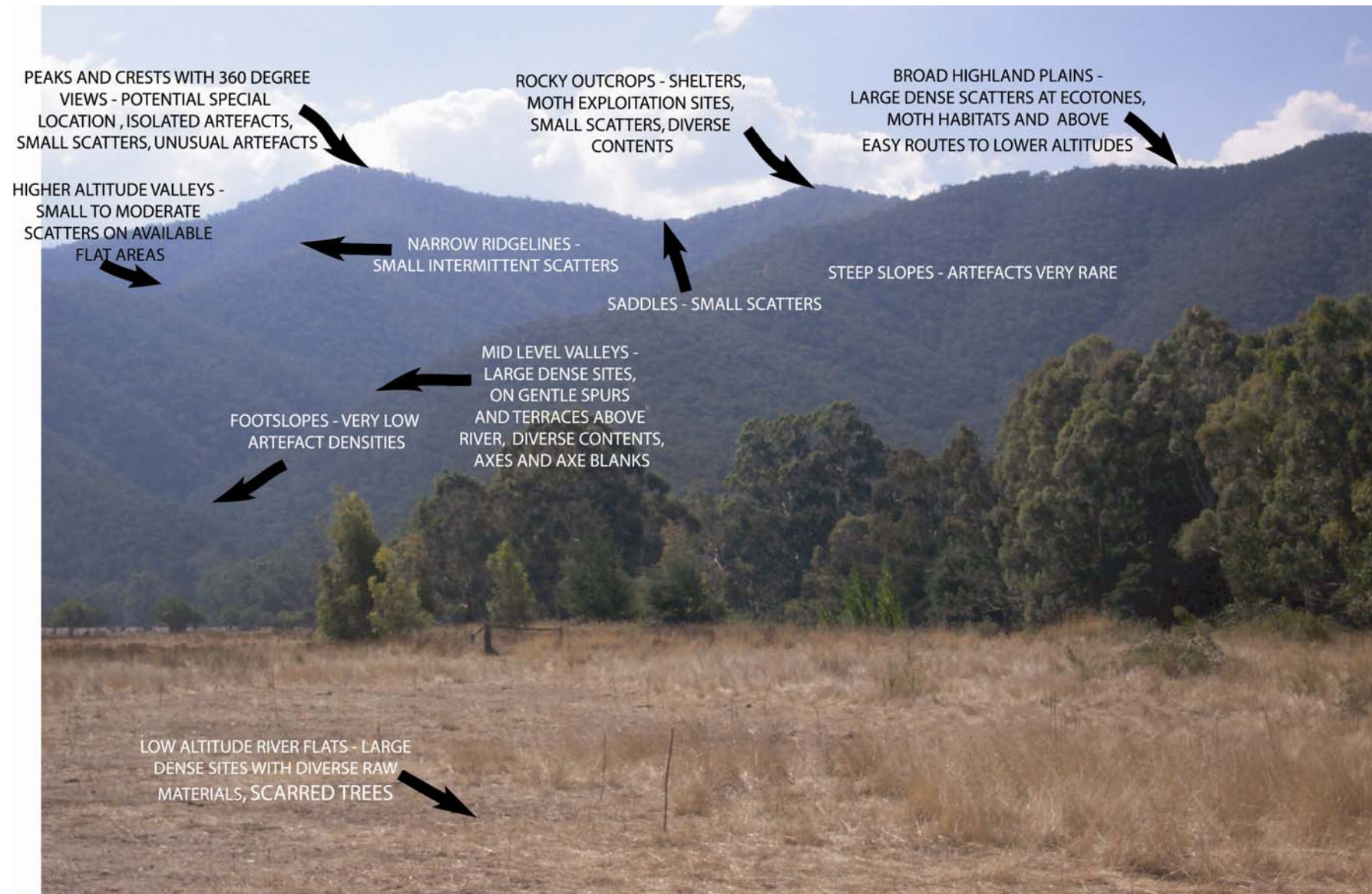
The natives of the Low Country and of the Mountains assemble in large numbers in the fine season to collect the boogong fly a species of moth found in myriads in the higher altitudes of the mountains. They are extremely nutritious and the natives subsist during the season entirely upon them they are called *cori* by the Omeo, and *boogong* by the Yass blacks (Mackaness 1978: 15, see Volume 3).

He also stated:

Mr McMillan says all the tribes from Gipps Land, the Dodoro, Omeo, Maneroo and others all assemble during month of [blank] at the Boogon mountains part of the Alps at Omeo and feast upon a fly which are found in that particular locality. Coming [combing] the rocks, the native women brush them off into their bags, they contain honey and are called the Boogon fly. The Alps are called the Boogon mountains but is one mountain at Omeo where the fly is so abundant. Large numbers of blacks go thicker, they are in general very thin but return stout, it is fine feasting for them. Mr McMillan said the natives burnt their camps when he first went to them; this was their invariable practice. (Robinson jnl 1/6/1844).

Not only did people travel to the 'Bogong Mountains' but people from the lowlands and the Omeo area, travelled into NSW to feast on the Bogong moths in other places, including Mount Townsend.

Figure 25: General model of site location



Clark (2005: Volume 3) describes the reminiscences of Thomas Wilkinson from the Tumut Valley—

The blacks used to come from Yass, Wellaregang, Omeo, and Mitta Mitta and hold corroborees at Yallowin. I have seen 300 there at one time... The blacks increased in numbers after a while and 600 of them used to come from Tumbarumba way ... The Bogong moths were a great relish to them ... (Mitchell 1985: 5).

People were also said to travel to the Mount Buffalo plateau, where Bogong moths were also present in some quantities. Clark (2005, Volume 3) cites Hoy (1968):

That Harrierville was ever permanently inhabited by aborigines appears doubtful. In 1843, W.H. Baylie wrote that the Goulburn River tribes' territory extended to the Ovens River. Brough-Smyth indicates the possibility of the Upper Murray and Gippsland tribes using a route which would take in the Upper reaches of the Ovens, on their inter-tribal visitations. Aborigines did make pilgrimages to the Bogong and Buffalo mountains to feast on the Bogong Moths, which are there in great masses.

The theories about the exploitation of Bogong moths in the southeastern highlands have been discussed above (Chapter 3). While Flood's (1980, 1983) arguments for Aboriginal exploitation of the highlands focussed on the exploitation of moths, subsequent explanations have suggested that occupation of the highlands was more complex (Bowdler 1981a; Grinbergs 1992; Hughes *et al.* 2002; Kamminga 1992). Bowdler (1981a: 103) argued that as only men were allowed to eat the moths, other resources must have been exploited. She argued that daisy yam (*Microseris scapigera*) was an important staple in the highlands which was available all year round and was available when moths failed to aestivate in the highlands (some years they can be blown out to sea). However, as the ethnohistory above indicates, in the Victorian Highlands there is no suggestion that the moths were only eaten or exploited by men or gathered by men.

We have argued that the highlands of Victoria are a risky environment, subject to sudden weather change and dramatic falls in temperature. Even in summer temperatures can be low at night and frosts or snowfalls may occur. In conditions where temperatures are low, human metabolic rates are higher, so that calorific demands are increased. This places extra demands on food procurement and requires careful attention to methods which ensure shelter and warmth (Jochim 1981: 81). In such situations food procurement strategies are likely to be directed toward acquiring high energy foods which are available in dense patches and relatively easily acquired with minimum energy expenditure. In southwest Tasmania during the last glacial maximum (about 18,000 years before present) when temperatures were about 6°C below current temperatures, procurement strategies focussed on the exploitation of Bennett's or red-necked wallaby (*Macropus rufogriseus rufogriseus*). Long bones were mashed to extract the fatty marrow maximizing the calorific value extracted from the game (Cosgrove 1991: 248). In higher latitudes, ethnographic studies have shown that foods high in fats, particularly meat, are consistently ranked more highly as preferred foods amongst hunter-gatherers (Jochim 1981: 81). It therefore seems unlikely that people travelled into the mountains for the tubers of the daisy yam which require some effort to extract and process and are low in fat and protein, but more likely that the highly nutritious Bogong moths, which are full of protein and fat, were the goal. Although emus, wallabies, kangaroos, wombats and possums are also available in the forests and plains in the highlands, the pursuit of these animals requires considerable expenditure of energy and they are thus more risky in this environment.

Resource zones in the highlands are differentially distributed. Not all alpine zones have good moth habitats. Not all good moth habitats are close to shelter and water. In the sub-alpine zones and foothills resources are more dispersed, while in some areas of the alpine zone and in the river valleys, resources are more concentrated. In the alpine/sub-alpine zone sites are located where there is a combination of resources, shelter, water, travel routes and safe exits. It seems likely that Mount Fainter, the Niggerheads, Hotham Heights, and the edges of the Bogong High Plains and Dinner Plain were attractive because of their dense concentrations of resources and easy access to lower and more sheltered valleys. It is likely that the Howitt Plains, Mount Howitt and Mount Buffalo are similar. Other high altitude areas may have

lacked moth aestivation areas, or similar concentrations of resources combined with easy access to lower and warmer zones. The Mount Buffalo plateau has Bogong moth habitats, but a smaller resource zone than comparable moth habitats in the highlands. However, large riparian river corridors are located adjacent to its footslopes so that the plateau could be exploited by small groups taking advantage of seasonal resources like the Bogong moths and larger family groups could safely camp at the foot and exploit the rich resources of the watercourses. It is highly likely that large campsites are located on what is now the freehold land surrounding the massif. Large dense sites may occur at Nug Nug and the Eurobin Creek as they are sheltered, provide relatively easy access points up onto the plateau and are located close to the riparian resources of the river corridors.

While moths may have been a favoured food, it is clear that other foods were also targeted. Possums must have been a favoured food as well as providing fur for the warm possum skin cloaks worn by people in the southeast of Australia. David et al. (1998: 22) suggest that possums are most frequently found in the Woollybutt and Snowgum forests. Axes would have been essential items when hunting for possums and in stripping bark for shelter. The large numbers of axes, axe blanks and adzes found in the Big River and Mitta Mitta valleys suggest that people were taking advantage of the plentiful supply of basalt and rhyolite pebbles and suitable stone for grinding to prepare axes and replace old ones before going up into the higher zones.

As discussed in an earlier chapter (Chapter 4), use of a risky environment has implications for the overall distribution of artefacts in the landscape. It was argued that such an environment would require highly mobile and flexible responses which would result in a low density carpet of artefacts over the landscape with peaks or clusters of artefacts at resource ecotones, low densities scattered along lines of movement and very low densities away from lines of movement or resource zones. Technologically efficient tools might be required to exploit this environment. The evidence from the surveys tends to support the concept of highly mobile groups occupying and exploiting the highlands. The ground-edge axe may be the technologically efficient tool. It is a relatively long lasting, can be resharpened, can be the source of sharp flakes if required and can be used to butcher game, cut bark and kindling and for a myriad other tasks.

20.9.4 Social Complexity and the Highlands Environment

The uneven distribution of dense resources, the risky nature of the environment, the different access points into the resources and exits to safer zones, the seasonal nature of the resources, and the potential number of different groups using the region must therefore contribute to differential use of the environment and social complexity which will be reflected in the heterogeneity of the archaeological record across the highlands of Victoria. Therefore, it seems unlikely that explanations derived from research in NSW (e.g. Flood, Bowdler and Kamminga) can be simply transferred onto this complex ecological and social landscape.

The attractiveness and differential distribution of clustered resources in the alpine and sub-alpine zone have their expression in the distribution of clan/tribe boundaries across the highlands zone observed at contact. Many group's territories extend into the highest alpine areas with group boundaries from widely dispersed groups meeting at the top of the Great Divide. For instance at least three language group boundaries met at Mount Howitt (Freslov and Goulding 2002). At least one group of people were thought to be living throughout the year in the high country in the Omeo area, the Yaitmathang (Clark Volume 3). This group controlled access to the densest resources ostensibly throughout the year. Where resources are at a premium and are concentrated within circumscribed locations, where group contact from widely different groups is highly likely within limited travel pathways, where one group lives permanently in the area, inter group social relations may have to be negotiated in a very intense way. Inter group allegiances, social relations and conflict may be attenuated and expressed in highlighting differences, for instance personal attire and decoration or in material culture and behaviour or in reinforcing group solidarity (Binford 1972: 200; Conkey 1978; Shanks and Tilley 1987: 87–88). Groups in the mountains had more similarities to each other and were often markedly different to surrounding groups (Wesson 2000: 57).

Use of the mountains by all groups was accompanied by observance of special customs and ceremonies. Groups going up to the mountains gathered in certain locations and held ceremonies before going up into the mountains. For instance ceremonies and corroborees were held on the confluence of the Snowy Creek and the Mitta Mitta River, on the Upper Murray, at Mungabareena near the confluence of the Mitta Mitta and the Murray River and the confluence of the Mitta Mitta and Tallangatta Creeks (Colquhoun 1972; Wesson 2000; 92–84, Figure 33). Large gatherings of people were also observed at Cudgewa Creek near Berrigama, the Upper Ovens River, Wodonga and on the Omeo Plains (Colquhoun 1972; Wesson 2000; 92–84, Figure 33). It is possible initiation ceremonies were also held in the mountains. Certainly some people from the mountains were held in awe and said to be the source of ceremonial information. Thomas (cited in Smyth 1878: Vol. 1: 136-7) described the arrival of a *Mogullumbitch* man in Melbourne.

More than one hundred and fifty aborigines came from the country which lies to the north-west of Gippsland and north-east of the Delatite River, and assembled at the camp of the Yarra tribe, and they brought with them an aged head-man named Kul-ler-kul-lup. He was supposed to be more than eighty years of age. He was at least six feet in height, fat, and with a fine upright carriage. His forehead was corrugated; the fine horizontal wrinkles looked scarcely natural; it seemed as if a native artist had been at work on his countenance; and his cheeks were too finely and strangely wrinkled. His friends – indeed, all who saw him – paid respect to him. They embarrassed and encumbered him with their attentions. He could not stir without an effort being made by some one to divine his wishes. At sunrise, the adult aborigines – strangers and guests – sat before him in semicircular rows, patiently waiting for the sound of his voice, or the indication by gesture of his inclinations. None presumed to speak but in a low whisper in his presence. The old man, touched by so much fealty and respect, occasionally harangued the people – telling them, probably, something of their past history, and warning them, not unlikely, of the evils which would soon surround them. Whenever Mr Thomas approached for the purpose of gathering some hints of the character of this discourse, the old man paused, and did not resume his argument until the white listener had departed. Mr Thomas endeavoured through the chief-man – Billi-billari – of the Yarra tribe, to gain some information touching the nature and substance of these long speeches, but though he succeeded in gaining a seat amongst the adult Aborigines, Kul-ler-kul-lup would not deliver a speech in his presence. Whatever the old man suggested as proper to be done was done; what he disliked was looked upon with disgust by all the men of all the assembled tribes; what he liked best was by all regarded as good. And he did not approve of the attempts of the white man to hear his discourses, and care was taken accordingly to prevent him from learning anything relating to them. But when Kul-ler-kul-lup and his people went away, Mr Thomas ascertained from Bill-billari that the old man had come from a tribe inhabiting the Australian Alps (probably the north-western slopes), which was not in any way connected with any of the Gippsland tribes, and which had never had any intercourse with any Gippsland people. He said that Kul-ler-kul-lup had informed them that there was a race living in the Alps who inhabited only the rocky parts, and had their homes in caves; that this people rarely left their haunts but when severely pressed by hunger, and mostly clung to their cave-dwellings; that to this people the Australians were indebted for corroborees; that corroborees were conveyed by dreams to Kul-ler-kul-lup's people and other Australians; and that the men of the caves and rocks were altogether superior to the ordinary Aboriginal .

The clustering of resources and dense patches of resources such as the Bogong moth may provided the opportunity for seasonal aggregations of people allowing ceremonies, initiations, contact with other groups, trade and the exchange of marriage partners. The highlands therefore may have been very specifically associated with ceremony allowing people like Kul-ler-kul-lup to build up immense knowledge and expertise in such things. It is difficult to determine how far back into the past these gatherings extended. The results from the survey suggest that many of the sites were occupied in the last 5000 years, but without radiometric dating it is difficult to confirm the chronology of the sites found during the survey. Similarly, both large and small sites are clustered around the moth habitats suggesting that this may have been a focus of exploitation in the highlands. Some of the sites, for examples those at Dinner Plain, are very large and dense and suggest that either large numbers of people were camped in these locations or that there were small numbers camping repeatedly in these locations over long time period. Again without excavation of dated deposits it is difficult to determine which. Some sites found during the survey were located in areas which were very exposed but had panoramic views of the highlands. Again, is difficult to determine the

function of such sites as they are unlikely locations for campsites. The obvious conclusion is that such sites are associated with ceremony or ritual. The presence of many large dense sites, potential ceremonial sites and sites that date to the last 5000 years is consistent with the archaeological record in other areas of Australia where similar evidence has been linked to an 'intensification' of social and economic behaviours during the last 3000 years (Lourandos 1983). Criteria for intensification include:

- More intensive use of individual sites.
- More frequent establishment of new sites.
- Increased use of marginal environments.
- 'Management' of resources.
- New ceremonies and complex social behaviour.

Evidence for this phenomenon has been relatively weak in Victoria and mainly derived from the increasing numbers of sites found on the coast, large scale projects such as the development of eel traps, changes in stone tool typology, and increasing discard/deposits in dated deposits during the last 3000 years (Freslov and Frankel 1999: 239; Lourandos 1983). Freslov and Frankel (1999: 248–251) have argued that evidence cited for the establishment of an increasing number of new sites in Victoria and exploitation of new resources can be more properly associated with increased site survival and that almost all the foods represented in late Holocene sites are found in earlier sites. However, that the large dense sites found in the Victorian highlands are associated with elements of the small tool tradition, with ceremony and with the exploitation of new resources in marginal areas may be of significant scientific importance as they fulfill many of the criteria associated with intensification so far lacking elsewhere in the Victorian archaeological record. The archaeological record in the highlands suggests that there is a differential distribution of sites both spatially and possibly chronologically, associated with social and economic complexity. It is difficult to go further at this stage than to highlight the strands of evidence and their possible context of interpretation without further analysis and most importantly dating of the sites. The following questions therefore need to be explored in the future:

- Is the evidence of dense occupation found in the highland during this project part of the intensification phenomenon?
- Does this occupation date to the last 3000 years or is this occupation evidence the result of a much longer, less intensive occupation?
- Is the evidence of difference between areas the result of different behaviours and activities, cultural differences between groups, or an expression of difference associated with the negotiation and conflict at boundaries?

The evidence found during this project is therefore of great scientific interest and recommendations are made for further investigations in the following section.

21 Significance

Assessment of the Cultural Heritage Values

As a general principle all Aboriginal sites are considered to be of high cultural significance to Aboriginal people as they are a tangible link to their past. The archaeological record is the primary record of the pre-contact period of the Aboriginal occupation of Australia, so that all manifestations of this record are significant to Aboriginal people.

Similarly all Aboriginal sites are of some scientific significance as they are a non-renewable resource. The *Australian ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter)* examines the significance of heritage places and proposes a methodological procedure for establishing significance, which has generally been adopted by heritage professionals (Australia/ICOMOS 1988).

Significance is defined by a limited range of criteria and values: ‘aesthetic, historic, scientific or social values for past, present or future generations’ (Marquis-Kyle and Walker 1992: 21). Aesthetic, social and historic values are not generally assessed for Aboriginal pre-contact sites (for a full discussion of these values see Appendix 4). Scientific significance is the most commonly assessed value for pre-contact sites, though other values may be assessed for post-contact or cultural sites and places.

21.1 Aboriginal Community Statement of Cultural Significance

Aboriginal cultural significance can only be assessed by Aboriginal people. The study region falls within a number of community boundaries, and within the traditional lands and custodianship of several traditional owners. The project has been discussed with the relevant Aboriginal people who have commented on the cultural values of the study area. Their views are included in the management recommendations. Aboriginal people in the study area consider that all sites in the study area are of **HIGH** cultural significance and should be managed accordingly.

21.2 Scientific Significance Assessment

Scientific values are those associated with the importance of sites to research, the rarity of the site, its ‘quality’ and representativeness (Australia/ICOMOS 1988: 2.4). Three main criteria are used to assess the significance of Aboriginal archaeological sites:

- Site contents (cultural material, organic remains and site structure).
- Site condition (degree of disturbance of a site).
- Site representativeness (the regional distribution of a particular site type).

The scientific significance of sites found in the study area have been rated on the above criteria. The significance assessments are listed in Volume 4. For the purposes of this study the Aboriginal estimation of significance for all sites is used as the basis for the

recommendations in the management options provided below. (See Appendix 4 for an explanation of the scientific significance scoring).

22 Management of Cultural Heritage Values

Cultural heritage remains, both Aboriginal and non-Aboriginal, are a record of the past occupation of the landscape by Aboriginal people and by later immigrants. They have the potential to provide a different record of the past than that provided by written records and to record much longer periods of time. Their value lies in their relevance to current society. As the urban development of the environment continues, pressure increases on this diminishing resource and the potential to damage or destroy such sites is increased. All heritage remains are protected by legislation (see Appendix 3).

The legislation governing the protection of heritage remains determines their management. The relevant components of the legislation are discussed in this section, followed by three components which outline the major management options for the general management of Aboriginal cultural heritage values in the study areas. A separate section has been provided for the specific management of cultural heritage values during and after wildfire (Volume 2). The two components in this section are:

- Section 1: General management options for the protection of all cultural heritage.
- Section 2: Specific management options for sites, site complexes and special archaeological areas.

22.1 Statutory Protection of Aboriginal Sites¹⁵

With the exception of human remains interred after 1834, the Victorian *Archaeological and Aboriginal Relics Preservation Act 1972* provides protection for all material relating to the past Aboriginal occupation of Australia. This includes individual artefacts, scatters of stone artefacts, rock art sites, ancient campsites, human burials, scarred trees, ruins and archaeological deposits associated with Aboriginal missions or reserves. The Act also establishes administrative procedures for archaeological investigations and the mandatory reporting of the discovery of Aboriginal sites. Aboriginal Affairs Victoria administers the *Archaeological and Aboriginal Relics Preservation Act 1972*.

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* provides protection for Aboriginal cultural property in Victoria. The Commonwealth has delegated specific powers and responsibilities to the Victorian Minister responsible for Aboriginal affairs. This delegation is held by the Hon. Gavin Jennings MP. The legislation is administered by Aboriginal Affairs Victoria.

Whereas the State Act provides legal protection for all the physical evidence of past Aboriginal occupation, the Commonwealth Act deals with Aboriginal cultural property in a broader sense. This cultural property includes any places, objects and folklore that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'. There is no cut-off date for the Commonwealth Act and it may apply to contemporary Aboriginal cultural property as well as older sites.

¹⁵ Source AAV.

The Commonwealth Act takes precedence over State cultural heritage legislation if there is conflict. In most cases, Aboriginal archaeological sites registered under the State Act will also be Aboriginal places subject to the Commonwealth Act.

22.2 Statutory Protection of Non-Aboriginal Heritage Sites¹⁶

It should be noted that there is statutory legislation which protects non-Aboriginal cultural heritage and this is briefly outlined below. While non-Aboriginal cultural heritage was not the subject of this survey, non-Aboriginal sites, both registered and unregistered were found during this survey and sites were in some instances intermingled. Recommendations are made for the protection of such sites and are included in Recommendations 1 and 2. Any works to protect Aboriginal cultural heritage in such sites should not be at the expense of the integrity of non-Aboriginal cultural heritage and works to protect non-Aboriginal sites should not contribute to damage or loss of integrity of Aboriginal cultural sites or values.

All non-Aboriginal archaeological sites and places in Victoria older than 50 years are protected under the *Heritage Act* 1995, whether or not they are recorded by Heritage Victoria (HV). Sites and places include buildings, designed landscapes, gardens, historic places and objects, archaeological sites, and historic shipwrecks. The Act is administered by Heritage Victoria (Department Sustainability and Environment). Under this Act it is an offence to knowingly disturb damage or excavate a site or artefact without obtaining permission from the Executive Director of the Heritage Council.

Sites, places or objects may be registered on the Victorian Heritage Register and on the Heritage Inventory. All places on the Victorian Heritage Register and the Heritage Inventory are legally protected under the Act. Protection extends to places, buildings, gardens, trees, archaeological sites, shipwrecks, precincts, and land. The term 'object' may refer to building contents, archaeological artefacts and relics associated with places.

22.2.1 The Heritage Register

Heritage Victoria administers the Victorian Heritage Register. The Register, established under the *Heritage Act* 1995, lists Victoria's *most significant* places, objects and historic shipwrecks.

22.2.2 The Heritage Inventory

The Heritage Inventory lists *all* known historic archaeological sites and relics and was established under the *Heritage Act* 1995. Sites may be added to the inventory regardless of their significance.

22.3 Recommended Management Options for the General Management of Impact to both Known and Unknown Aboriginal Sites

The first two general management recommendations (**R1** and **R2**) are discussed in detail below, but as there is a lengthy list of management options the remaining recommendations are listed in the table only and are not discussed in detail.

¹⁶ Source HV.

The management process outlined below is based on potential impacts to Aboriginal sites located in the study areas, the Alpine National Park, and other associated alpine and sub-alpine Crown land areas. The recommended management options also apply to Crown land areas in some lower river valleys including the Dargo, Crooked and Wongungarra rivers and also to the possible impact to as yet unknown archaeological sites referred to as 'potential archaeological deposits'. All Aboriginal and non-Aboriginal sites are protected by legislation, so that the recommended management options are designed to ensure that any proposed works or other impacts in these areas do not breach the legislation and are consistent with the AAV, HV, PV and DSE policy guidelines and objectives for the protection of heritage sites and places.

i. Potential Impacts to Known and Unknown Heritage Values

The following actions are recommended to mitigate impact to both known and unknown heritage values within the study area and associated Crown land areas. It is the responsibility of the relevant government agencies to ensure that all personnel and subcontractors carrying out works or disturbance activities in these areas are fully aware of their responsibilities for the cultural heritage values of the area under current heritage legislation and the recommended management options outlined below. If the recommended management options are followed, these actions will be effective at ensuring that impacts to Aboriginal and non-Aboriginal sites will be minimised. More recommendations for Aboriginal sites may follow any further site works or investigations.

22.4 R1: Ground Disturbing Works General Recommendation

As discussed in the Cross Cultural Workshop (Volume 3), Indigenous representatives stressed the importance of considering the cultural heritage values of the study region not just in terms of a series of archaeological sites, but in a more holistic way as a cultural landscape that is spatially and temporally interconnected both materially (sites) and non-materially (associations). It is important therefore to address both the material and non-material aspects in the general management options and to be aware that an impact in one area has an impact on the whole cultural landscape of the alpine and sub-alpine region. Management recommendations have therefore been constructed to address this broader concept.

While specific management options can be recommended for known sites, all ground-disturbing works in the impact area have the potential to disturb previously unknown Aboriginal and non-Aboriginal sites.

22.4.1 Aboriginal Sites

The background review of the archaeology in the study areas and associated Crown land areas and the archaeological survey have identified numerous sites in the study areas and areas of PADs. These sites and any so far unknown sites are protected by legislation even though the unknown sites are not registered on the Aboriginal Affairs Victoria Sites Register. Figures that indicate areas of 'High', 'Moderate' and 'Low' potential for PADs to occur in the study areas are found in Volume 4. It is important to note that when planning for works in the study region that sites can be very extensive and that even very small sites can be highly significant as assessed by scientific criteria and culturally significant to the Aboriginal community.

When planning to carry out ground disturbing works within the study areas and associated Crown land areas, all planners should follow PV and DSE Guidelines during the planning stage (PV Cultural Heritage Planning Phase). At the same time, planners are encouraged to consult this report to assist this process in identifying PADs and any specific recommendations related to known sites or archaeological areas. The specific locations (AMG coordinates) of sites in the management area may be obtained from the Indigenous Coordinator. Volume 4 which lists all the detailed site location data and information will be restricted in circulation and held by one or two people only. As required by the PV

Guidelines, consultation with the Aboriginal community will be required as part of this preparation process. Where works are required on or near an Aboriginal site a 'Consent to Disturb' permit will be required from the relevant Aboriginal community under the terms of the *Aboriginal and Torres Strait Island Heritage Protection Act 1984* before any works can proceed.

During the works phase all government agency personnel should follow the PV and DSE Guidelines closely (PV Project Implementation and Delivery).

22.4.2 All Areas and Areas of Potential Archaeological Deposits (PADs)

Where works are carried out in areas where there are no known sites or in areas of PADs, the PV and DSE Guidelines should be followed (Project Implementation and Delivery). Consultation with the relevant Aboriginal community and the agency Indigenous coordinator should be undertaken where works are planned in PADs. Outcomes from the consultation process may include further archaeological survey, subsurface testing by a qualified archaeologist with relevant Aboriginal representatives or monitoring of the proposed works by relevant Aboriginal representatives. During works anywhere agency personnel and contractors should remain attentive and note the following:

- Be alert and observe for Aboriginal materials during all ground disturbing activities.
- If located, stop all works in the vicinity immediately it is safe to do so.
- Note the location.
- Report any finds or disturbance to the Works Supervisor who should then inform the appropriate people, including the relevant agency Indigenous representative, relevant Aboriginal community representative and AAV.

Works in this location cannot proceed without a 'Consent to Disturb' permit (see above).

A qualified archaeologist and the relevant Aboriginal community representatives should then attend the site promptly to fully record the site, place the site on the AAV Sites Register and determine appropriate management through consultation. The archaeologist can assist the agency to obtain a 'Consent to Disturb' permit following the above procedures.

22.4.3 Human Remains

If human remains are disturbed the *Coroners Act 1985* requires that the discovery should be immediately reported to the State Coroners Office or to the Victoria Police. Even if the remains are thought to be Aboriginal, the Act does not differentiate between the treatment of Aboriginal or non-Aboriginal remains. If the remains are suspected to be Aboriginal, then the discovery should be reported to Aboriginal Affairs Victoria at the same time under the terms of Part IIA of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*. The procedures for reporting a discovery recommended by AAV are outlined in Appendix 5. These should be followed closely so that all legal and cultural requirements are satisfied.

22.4.4 Aboriginal Places

During the planning phase for any project, the potential for impact to Aboriginal places should be factored into the planning process. As noted earlier, Aboriginal Places may or may not have archaeological remains but are important because of their cultural significance to Aboriginal people and because they usually demonstrate ongoing connection and association with the landscape and with Aboriginal pre-and post-contact history. Planners should be sensitive to the potential for impact to less tangible cultural heritage and special places. The location of these places and the potential for impact can only be established through a thorough consultation process with Elders in the Aboriginal community with special knowledge of the proposed impact areas. Outcomes from the consultation process may include further archaeological survey, subsurface testing by a qualified archaeologist with relevant Aboriginal representatives or monitoring of the proposed works by relevant

Aboriginal representatives. If the area is very sensitive (e.g. a massacre site) negotiation may be undertaken to avoid works altogether in this location.

22.4.5 Non-Aboriginal Sites

If non-Aboriginal artefacts are found, all works should cease in the vicinity of the sites and the finds should be immediately reported to the Works Supervisor, who should then inform the relevant PV or DSE person and Heritage Victoria. A qualified archaeologist should then attend the site to determine whether further investigation is required and to establish the significance of the finds. As with Aboriginal sites, further disturbance cannot take place without the relevant permits under the terms of the *Heritage Act* 1995 (Appendix 3).

22.5 R2: General Management of Mixed Aboriginal and Non-Aboriginal Sites

A number of sites located during the survey had a mixture of pre-contact Aboriginal artefacts and post-contact mining features and artefacts. Such sites/areas are distinct from Aboriginal sites with post contact Aboriginal artefacts (Aboriginal sites). They contain the remains of differing activities by different people potentially discarded during different time periods. These sites are both protected by legislation, so that protective measures cannot be undertaken of the one type of cultural remains at the expense of the other. For instance, protective fencing cannot be undertaken around mining sites or at heritage hut sites if it disturbs or impacts upon an Aboriginal site at the same location without a process put in place to mitigate impacts to the Aboriginal site. Similarly, stabilisation measures for an Aboriginal site cannot be undertaken if it damages or destabilises a non-Aboriginal site. It is therefore recommended that the PV Guidelines be amended to include recognition of coexisting sites and the need to consult with Heritage Victoria and the HV Register or the HV Inventory online to determine whether a non-Aboriginal site is in the proposed works location. A mutually agreed process should be negotiated with Heritage Victoria and the relevant Aboriginal representatives and land manager to mitigate impacts and to protect both types of sites.

22.6 Conclusion

The Alpine National Park and adjacent Crown land reserves are an important part of the nation's cultural heritage inventory. While Aboriginal people have consistently stressed the importance of their connections to this region, it has been difficult for many reasons to document the cultural heritage values more consistently across this larger area. This project has provided an opportunity to work with Aboriginal people to re-evaluate the nature and significance of this resource and place Aboriginal cultural values firmly in the forefront of current perceptions of alpine/sub-alpine landscape management. The results enhance respect and recognition for Aboriginal knowledge and culture and provide the basis to move forward in partnership with Aboriginal people to manage the significant heritage values of the region. The archaeology revealed during the project also challenges current interpretations of our understanding of Aboriginal settlement and subsistence systems over the last 21,000 years and provides many opportunities to pursue this further. The relationships forged during the project provide an opportunity for land managers across all tenures to work with the Indigenous community to provide the best level of care for the ongoing protection of all cultural heritage values.

Table 55: Management Options

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
All areas	All surface works in the management areas	Various	Artefact scatters, isolated artefacts, scarred trees, quarries, hearths, grind stones, grinding grooves, stone arrangements, rock shelters	R. 1	<p>General recommendation for all ground disturbing works across all land management tenures</p> <p>Aboriginal Sites</p> <ul style="list-style-type: none"> Follow PV and DSE cultural heritage guidelines during planning for ground disturbing works (Cultural Heritage Planning Phase). The management recommendations in this report should be consulted during this planning phase to assist this process. Where works are likely to impact upon cultural heritage values, consultation with both traditional owners and the relevant Aboriginal community will be required and a Consent to Disturb permit sought from the relevant Aboriginal community under the terms of the <i>Aboriginal and Torres Strait Island Heritage Protection Act 1984</i> before any works can proceed (see Appendix 3). Follow PV and DSE cultural heritage guidelines during the works (Project Implementation and Delivery). Some larger and more important sites may require individual heritage management plans (see below). <p>All areas and areas of potential archaeological deposits (PADs)</p> <p>Where works are carried out in areas where there are no known sites or in areas of potential archaeological deposits (PADs), PV and DSE heritage guidelines should be followed. The following should be noted:</p> <ul style="list-style-type: none"> Consult with the relevant Aboriginal representatives and the agency Indigenous coordinator prior to conducting works in these areas. An archaeological survey or sub-surface testing may be required in PADS prior to works commencing. Monitoring of works by relevant Aboriginal representatives may be required of PADS during works. In all areas, including PADS, works staff should be alert and observe for Aboriginal materials during all ground disturbing activities. If located, stop all works in the vicinity immediately that it is safe to do so. Note the location of any finds. Report any finds or disturbance to the Works Supervisor who should then inform the appropriate people, including the relevant Indigenous agency representative, relevant Aboriginal representative and AAV. Works in this location cannot proceed without a Consent to Disturb permit. A qualified archaeologist and the relevant Aboriginal representatives should then attend the site promptly to fully record the site, place the site on the AAV Sites Register and determine appropriate management through consultation. The archaeologist can assist the agency to obtain a 'Consent to Disturb' permit following the above procedures.
			See Volume 4, sensitive archaeological zones		
Human remains					

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
			Dreaming tracks, massacre sites, Travelling routes etc (see Volume 3)		<p>If human remains are located follow the procedure outlined in Appendix 5. It is important that this protocol be adhered to completely.</p> <p>Aboriginal places</p> <ul style="list-style-type: none"> During the planning phase for any project, the potential for impact to Aboriginal places should be considered during the planning process. Planners should be sensitive to the potential for impact to significant places of spiritual, social, historical and other heritage values to Aboriginal people which may not necessarily have material remains (e.g. dreaming tracks). The location of these places and the potential for impact can only be established through a thorough consultation process with relevant Aboriginal elders (traditional owners) with special knowledge of the proposed impact areas (see Volume 3). If known places are located near the proposed works, consult with the relevant Aboriginal representatives and the agency Indigenous coordinator prior to conducting works in these areas. An archaeological survey or sub-surface testing may be required in these areas prior to works commencing. Monitoring of works by relevant Aboriginal representatives may be required during works. It is possible that works may not be permitted in some locations (e.g. massacre sites). <p>Non-Aboriginal sites</p> <ul style="list-style-type: none"> If non-Aboriginal finds are located, stop all works in this location immediately, report finds as above, and inform Heritage Victoria. Remove or minimise impact in the area. A qualified archaeologist should attend the site to record any finds, determine the significance of the site and provide a heritage management plan.
All areas	All surface works		Lithic scatters, gold mining sites, early settlement sites, cattlemen's huts, muster sites etc.	R. 2	<p>Mixed Aboriginal pre-contact sites and post-contact non-Aboriginal sites</p> <ul style="list-style-type: none"> Consult AAV, relevant Aboriginal representatives and HV when undertaking any site stabilisation works. Any proposed site works should recognise both sets of values. Works on one set of values should not proceed if they affect the other set of values. HV should be provided with a copy of this report and their attention drawn to this recommendation.
Areas with large sites or a high density of	Vehicles, walkers and riders	High	All site types	R. 3	<p>Restriction of access to some special archaeological areas</p> <ul style="list-style-type: none"> Heritage precincts should be managed with sensitivity. Assess sites in areas of high public usage with Aboriginal representatives.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
sites					<ul style="list-style-type: none"> Develop access strategies and heritage action plans for sites at risk Restrict access or control access in some locations.
Area 1: Mt Sarah/Winchester/Dargo High Plains					
Macs Hut 1 (AAV 8323-0061)	Camping, vehicles, pedestrian	Very high	Artefact scatters	R. 4	<ul style="list-style-type: none"> Inspect regularly for disturbance from camping and latrines and for further exposure of artefacts. If erosion or disturbance occurs, consideration should be given to restricting access in the site area and providing formal locations for campsites and parking. Consideration should be given to providing a composting toilet. This will not interfere with the use of the hut. Further investigations should be considered including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives.
Blue Rag Range Sites 1–7 (AAV 8323-0035–0041)	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 5	<ul style="list-style-type: none"> If an excavation proceeds, a Schedule 1 excavation permit should be sought from AAV. Preferably no works should take place in or adjacent to these sites including any further disturbance from F.C.L. works. Existing fire control lines should be used along this ridge, and no further widening should occur if practicable. Preference should be given to hand trail or air attack rather than dozer trail in fire suppression on this ridgeline. If rehabilitation works are planned, the relevant Aboriginal representatives should monitor any works on the F.C.L.s. A Consent to Disturb permit should be obtained from the Gippsland East Gippsland Aboriginal Co-operative (GEGAC), for all sites likely to be affected.¹⁷
Blue Rag Range 1 (AAV 8323-0035)	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 6	<ul style="list-style-type: none"> Track maintenance should be confined to the existing track where practicable. Preferably no works should take place in or adjacent to this site including any further disturbance from F.C.L. works. Existing fire control lines should be used along this ridge, and no further widening should occur if practicable. Preference should be given to hand trail or air attack rather than dozer trail in fire suppression on this ridgeline. Consultation should be undertaken with relevant Aboriginal representatives prior to any works in or adjacent to the site.
Mt Sarah Track	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 7	<ul style="list-style-type: none"> No further control lines beyond existing lines should be put along this ridgeline in the future without careful consideration of the impact on Aboriginal cultural heritage sites along the track. Relevant Aboriginal representatives should monitor rehabilitation of the F.C.L.s. A Consent to Disturb permit should be obtained from the GEGAC for all sites likely to be affected.

¹⁷ In the following recommendations all relevant community organisations with statutory responsibilities under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* are listed as the preliminary referral body. It should be noted however, that both DSE and PV have established procedures for an inclusive consultation process for heritage issues on Crown land which will involve not only the statutory community bodies but also native title claimants and traditional owners. Traditional owners and native title claimants are not listed in these recommendations in order not to preempt the PV and DSE consultation process.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Mt Sarah Track 5 (AAV 8223-0081)	Camping, vehicles, pedestrian	Very high	Artefact scatters	R. 8	<ul style="list-style-type: none"> Consider revegetation works in this location and restrict access to parking bays and individual camp/tent areas. Consider putting in a composting toilet to restrict latrine excavation. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site.
Mt Sarah Scarred Trees, Mt Sarah 2-9 (AAV 8223-0051–0058)	Vehicles, fire suppression activities	Very high	Scarred trees	R. 9	<ul style="list-style-type: none"> An archaeologist with scarred tree expertise and an arborist or botanist should inspect the trees and determine the origin of the scarring. The following information should be provided to the specialists prior to the inspection of the trees: <ul style="list-style-type: none"> Landuse of this management zone (timber harvesting history). Fire history of this management zone. Fire suppression activities history of this management zone. If the scarring is determined to be cultural, the experts should provide management recommendations for the scarred trees.
Guys Hut Mount Sarah 1 (AAV 8223-0050)	Vehicles, fire suppression activities	Very high	Artefact scatters	R. 10	<ul style="list-style-type: none"> The wheel ruts should be filled with material foreign to the area with the assistance of the relevant Aboriginal representatives and the track reconstituted so that wheel ruts do not occur in the future. The track should not encircle the hut. Following management works the site should be regularly monitored to ensure stability of site works. <i>(Works to stabilise this site are currently in progress).</i>
Crooked River 2 (AAV 8323-0026)	Vehicles, camping	Very high	Artefact scatters	R. 11	<ul style="list-style-type: none"> The site should be regularly monitored by PV staff (see final recommendation R.66). If the situation deteriorates, consideration should be given to revegetation works in this location and access restricted to parking bays and individual camp/tent areas. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Crooked River Sites 3–9 (AAV 8323-0027–0033)	Vehicles, camping, European heritage stabilisation works, visitors	Very high	Artefact scatters	R. 12	<ul style="list-style-type: none"> Further consultation should be undertaken by PV/DSE or relevant land manager when undertaking track management works in the site locations. The community recommendation during the survey was that a GEGAC representative should move all artefacts exposed on the track to the bush on the side of the track prior to any track works and should monitor works to locate further artefacts exposed during the grading process. The condition of the sites should be periodically monitored to see whether further artefacts are being exposed. If the sites deteriorate and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site. No works should be carried out on any historic mine site in the Crooked River without relevant Aboriginal representatives (e.g. safety fences around historic mine shafts). HV should be given a copy of this report and their attention drawn to this issue.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Red Rose Spur 1 (AAV 8323-0048)	Vehicles, picnic area pedestrians	Very high	Artefact scatters	R. 13	<ul style="list-style-type: none"> The condition of the site should be monitored occasionally. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site.
Area 2: Bundarra/Glen Wills					
Omeo Road 1 (AAV 8324-0029)	Sediment movement	Very high	Artefact scatters, quarries	R. 14	<ul style="list-style-type: none"> Monitor regularly for artefact movement particularly over the next five years. If artefacts are observed to be washed onto the parking area and road, stabilisation measures should be considered. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the GEGAC for the site.
Omeo Road 2 (AAV 8324-0110)	Sediment movement, pedestrians, vehicles	Very high	Artefact scatters	R. 15	<ul style="list-style-type: none"> Monitor regularly for artefact movement particularly over the next five years. Ensure that it is not being impacted by vehicles or subject to collecting. Encourage regrowth in the area.
Cobungra River Track 1 (AAV 8323-0087)	Vehicles, stock, camping	Very high	Artefact scatters	R. 16	<ul style="list-style-type: none"> It is recommended that the track be closed immediately east of the Cobungra River on the Emu Creek Track. A gate should be installed at this point with later works to provide a parking spot which would allow anglers access to the river, but would not provide through access to the Bundarra River valley. The track is also used twice a year by farmers to move stock and the by CFA as a fire access route. A key to the gate could be provided to farmers and by the CFA to access the track. No further ground disturbing works should take place in the Crown land area without an impact assessment by a qualified archaeologist and relevant Aboriginal representatives. The area should be allowed to rehabilitate naturally.
Mount Cope 3 (AAV 8324-0154)	Fire, water induced erosion	Very high	Rock shelter and possible deposit	R. 17	<ul style="list-style-type: none"> Further investigations should be considered including controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives should be considered in this location. The excavation would aim to retrieve data about the timing and nature of occupation on the Bogong High Plains. Given the size of the shelter, it is recommended that a minimal impact excavation be carried out using the methodology used by the Southern Forests Research Group in southwest Tasmanian rockshelters (Allen and Cosgrove 1996: 36–38). If an excavation proceeds a Schedule 1 excavation permit should sought from AAV.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Mount Cope 6 (AAV 8324-0155)	Fire, water induced erosion	Very high	Rock shelter and possible deposit	R. 18	<ul style="list-style-type: none"> Further investigations should be considered including controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives should be considered in this location. The excavation would aim to retrieve data about the timing and nature of occupation on the Bogong High Plains. Given the size of the shelter it is recommended that a minimal impact excavation be carried out using the methodology employed by the Southern Forests research Group in southwest Tasmanian rockshelters Allen and Cosgrove 1996: 36–38). If an excavation proceeds a Schedule 1 excavation permit should sought from AAV.
Area 3: Gibbo					
Mitta Mitta Gibbo Confluence (AAV 8424-0051)	Vehicles, camping, pedestrians	Very high	Artefact scatters	R. 19	<ul style="list-style-type: none"> No further works should be carried out in this locality without prior consultation with relevant Aboriginal representatives and Moogji Aboriginal Council (MAC) and a Consent to Disturb permit. The condition of the site should be monitored. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works. Access should be restricted to the main tracks and any informal tracks closed. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from MAC for the site.
Upper Gibbo River 1 (AAV 8424-0052)	Vehicles, camping, works on historic site	Very high	Artefact scatters	R. 20	<ul style="list-style-type: none"> The artefacts are located in association with an historic mine site. If works are carried out to improve or restore the river crossing at this point to provide through access on the track, an assessment of the impact on heritage values should be carried out prior to carrying out any works by a suitably qualified archaeologist with experience in both non-Aboriginal and Aboriginal archaeology and relevant Aboriginal representatives. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC for the site. HV should be consulted regarding the impact assessment. No works should be carried out on the mine site without an Aboriginal monitor and consultation with HV. HV should be given a copy of this report and their attention drawn to this issue. The condition of the site should be monitored occasionally (once per 5 years). If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works.
Area 4: Tambo River					
Scrubby Creek/Tambo Spur 1 (AAV 8423-0024)	Vehicles	Very high	Artefact scatters	R. 21	<ul style="list-style-type: none"> Periodic monitoring of the condition of the site should be carried out. If the site deteriorates, site stabilisation works should be considered. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
					<ul style="list-style-type: none"> It is recommended that consideration be given to carrying out further investigations including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location. If an excavation proceeds, a Schedule 1 excavation permit should be sought from AAV.
Area 5: Mt Taylor Tubbut					
Willis Campground (Willis 9B) (AAV 8524-0041)	Fire suppression activities, camping, vehicles	Very high	Artefact scatters, possible <i>in situ</i> deposits	R: 22	<ul style="list-style-type: none"> Consideration should be given to developing a heritage action and management plan for this site to control the development of formal and informal tracks within the site and possibly the closure of some tracks. Heavy machinery should not be used within, or adjacent to, the site and any future fire suppression activities should aim to avoid the sensitive Snowy River corridor. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works and restricted access. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC for the site. Stabilisation should include the prevention of erosion and some revegetation. The condition of the site should be regularly monitored (annually if possible). It is recommended that consideration be given to carrying out further investigations including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location. If an excavation proceeds, a Schedule 1 excavation permit should be sought from AAV.
Gattamurh Creek 1 (AAV 8524-0200)	Fire suppression activities, camping, vehicles	Very high	Artefact scatters, possible <i>in situ</i> deposits	R. 23	<ul style="list-style-type: none"> The condition of the site should be regularly monitored (possibly annually). If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works and restricted access. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC for the site. Stabilisation should include the prevention of erosion and some revegetation. It is recommended that consideration be given to carrying out further investigations including a controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location. If an excavation proceeds, a Schedule 1 excavation permit should be sought from AAV.
Tingaringy 1, 2 and 3 and Tingaringy Summit (AAV 8623-0080–0082, 8624-0003)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 24	<ul style="list-style-type: none"> It is recommended that grading of this track be overseen by relevant Aboriginal representatives in site locations. Consideration should be given to discussing with MAC whether the artefacts should be removed from the road by Indigenous monitors before grading. A Consent to Disturb permit should be sought from MAC before works commence.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Armstrong 4 (AAV 8524-0199)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 25	<ul style="list-style-type: none"> It is recommended that grading of this track be overseen by relevant Aboriginal representatives in site locations. Consideration should be given to discussing with MAC whether the artefacts should be removed from the road by Indigenous monitors before grading. A Consent to Disturb permit should be sought from MAC before works commence.
Amboyne Creek 2 (AAV 8624-0002)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 26	<ul style="list-style-type: none"> It is recommended that grading of this track be overseen by relevant Aboriginal representatives in site locations. Consideration should be given to discussing with MAC whether the artefacts should be removed from the road by Indigenous monitors before grading. A Consent to Disturb permit should be sought from MAC before works commence.
Springfields Property (AAV 8523-0159)	Agricultural activities, stock, vehicles, collecting	Very high	Artefact scatters, scarred trees, collecting	R. 27	<ul style="list-style-type: none"> It is recommended that AAV negotiate with the owners to gain access to the assemblage collected from the property by the owners to record the collection and also arrange to record the scarred trees on the property.
Area 6: Yalmy Road/Moonkan					
Moonkan Track, Moonkan 1 and 2 (AAV 8523-0092, -0093)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 28	<ul style="list-style-type: none"> It is recommended that PV should carry out works only in the presence of a qualified archaeologist and relevant Aboriginal representatives to minimise damage to the site, and when access is improved, to fully record the extent and contents of the site. The degree to which the site extends into the bush and is connected with the Varneys Track sites should also be explored. The archaeologist should identify where <i>in situ</i> deposits are retained and consideration should be given to undertaking some controlled scientific excavation at the site during this process. The aims of this excavation would be to obtain data which would provide information about the nature and timing of occupation in this area of the Snowy River corridor. At the end of the works the archaeologist and community representative should reassess the significance of the sites and should make a full set of recommendations for the protection of the site. Consultation should be undertaken with MAC and PV with the intent to the site's possible inclusion on the Register of the National Estate. The Varneys Track and Moonkan Track area should be monitored regularly (annually) subsequently. Consideration should be given to re-installing the Moonkan locked gate at the southern end of the track at the intersection.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
					<ul style="list-style-type: none"> AAV should reconsider the status of the two sites (Moonkan 1 and Moonkan 2, AAV 8523-0092, -0093) and consider amending the site registration to encompass both sites as one larger site. <i>(These works are currently being carried out).</i>
Varneys Track between the Snowy River and the Moonkan Track, Hicks 20–24 (AAV 8523-0094–0098)	Fire suppression activities, vehicles	Very high	Artefact scatters	R. 29	<ul style="list-style-type: none"> It is recommended that if works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the MAC for the sites. At the end of the works on the Moonkan Track the archaeologist and relevant Aboriginal representatives will reassess context of the Varneys Track sites and determine whether they should be included in the consultation process outlined in R. 28. The Varneys Track area northwest of the Moonkan intersection should be monitored regularly (annually). No further ground disturbing works should be carried out in this location without a heritage impact assessment by a qualified archaeologist and relevant Aboriginal representative. AAV should reconsider the status of the five sites identified on Varneys Track and consider amending the site registration to encompass these as one large single site.
Area 7: Nariel Pinnibar					
All Nariel Pinnibar Sites	Various, forestry harvesting activities	High	Artefact scatters, scarred trees	R. 30	<ul style="list-style-type: none"> The study unit is an area of low density occupation, but small low density sites will be located occasionally, frequently associated with watercourses. PV/DSE staff should follow R1 when carrying out any works in this study unit. If works are proposed within 100 metres of a watercourse, consideration should be given to undertaking prior archaeological inspections of such areas with an experienced relevant Aboriginal representative.
Cattlemans Creek 1 (AAV 8424-0030)	Vehicles	Very high	Artefact scatters	R. 31	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without a heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location, PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the Bangerang Cultural Centre (BCC) and Mungabareena Aboriginal Corporation (MGAC) for the site.
Cattlemans Creek 2 (AAV 8424-0031)	Vehicles	Very high	Artefact scatters	R. 32	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without a heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Gibsons Hut 1–7 (AAV 8424-0034–0040), Dunstans	Vehicles	Very high	Artefact scatters, scarred trees	R. 33	<ul style="list-style-type: none"> It is recommended that if works are carried out in these locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Track 1–2 (AAV 0032–0033), Wild Boar Track 1 (AAV 8424–0045)					
Paddys Joy 1 (AAV 8424–0041)	Vehicles	Very high	Artefact scatters	R. 34	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without an heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Shady Creek 1, 1–2, 4 (AAV 8424 0042–0044)	Vehicles	Very high	Artefact scatters	R. 35	<ul style="list-style-type: none"> It is recommended that if works are carried out in these locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Area 8: Mitta Mitta Dartmouth					
Lake Dartmouth 1 and 2 (AAV 8424–0049–0050)	Water erosion, speed boats	Very high	Artefact scatters	R. 36	<ul style="list-style-type: none"> It is recommended that the land manager Murray Goulburn Water be informed of the site locations and encouraged to consult with relevant Aboriginal representatives including BCC and MGAC about site management and impact mitigation.
Hollow Way 1 (AAV 8324–00148)	Track maintenance vehicles	Very high	Artefact scatters	R. 37	<ul style="list-style-type: none"> It is recommended that the Shire of Towong be informed of the site location and encouraged to consult with BCC and MGAC regarding the management of the site. It is recommended that any grading be overseen by relevant Aboriginal representatives. Consideration should be given to discussing with relevant Aboriginal representatives whether artefacts should be moved off the road by Indigenous monitors before grading. A Consent to Disturb permit should be sought from BCC and MGAC before works commence.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Mitta Gap 1 (AAV 8324-0149)	Easement slashing/maintenance vehicles	Very high	Artefact scatters	R. 38	<ul style="list-style-type: none"> The relevant electricity body responsible for this transmission line (SP1 PowerNet) should be informed of the site and responsibilities under the State and Commonwealth Acts. The site should be periodically monitored to review site stability and condition and any works associated with the transmission line should be monitored by relevant Aboriginal representatives and a Consent to Disturb permit obtained from BCC and MGAC prior to works commencing. If the site deteriorates it is recommended that site stabilisation works be carried out in consultation with the relevant Aboriginal representatives. It is recommended that consideration be given to carrying out further investigations including a small controlled scientific excavation by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives in this location with the aim of providing information about the nature and timing of occupation in this area. If an excavation proceeds a Schedule 1 excavation permit should sought from AAV.
Area 9: Stanley State Forest					
Stanley Forest Area	Various, recreation activities, bike riding, walking, track maintenance, forestry harvesting	Various, moderate to low	Artefact scatters	R. 39	<ul style="list-style-type: none"> The study unit is an area of possible higher density occupation, but extensive alluvial mining in the 19th century has potentially destroyed most sites in areas where sites would be expected (e.g. watercourses). PV/DSE staff should follow R1 when carrying out any works in this study unit.
Guys Creek area	None apparent	Very high	Artefact scatters	R. 40	<ul style="list-style-type: none"> It is recommended that if works are carried out in this area it should be re-examined by a qualified archaeologist with experience in quartz artefact technology, to determine whether shattered quartz in this area is Aboriginal knapping debris or 19th century goldmining debris.
Sheppards Creek 1 (AAV 8225-0178)	None apparent	Very high	Artefact scatters	R. 41	<ul style="list-style-type: none"> It is recommended that if works are carried out in these locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought for the site from the BCC and MGAC or the Minister for Aboriginal Affairs and TC depending on location.
Area 10: Buffalo N. P.					
Buffalo N. P. and surrounding Crown land in the project	Various, recreation activities, bike riding, walking,	Various	Artefact scatters, quarries, <i>in situ</i> deposits, scarred trees,	R. 42	<ul style="list-style-type: none"> The study unit is an area of variable density occupation, with higher site densities on the western side of the plateau and on the plateau itself. No works should be undertaken in site locations without a heritage impact management plan prepared by a qualified archaeologist and relevant Aboriginal representatives including representatives of the Taunaurong Clans (TC). PV/DSE staff should follow R1 when carrying out any works in this study unit.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
area	track maintenance, forestry harvesting		isolated artefacts, rock shelters, art sites		
Buffalo River 1 (AAV 8224-0065)	Vehicles, camping, pedestrians	Very high	Artefact scatters	R.43	<ul style="list-style-type: none"> The condition of the site should be monitored occasionally when PV inspects the area. If the site deteriorates and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and TC for the site.
Nine Mile Track 1–5 (AAV 8224-0059–0063), Durling Track Sites (AAV 8224-0070)	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R. 44	<ul style="list-style-type: none"> If works are carried out in these locations PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and TC for the sites.
Nug Nug Track 1–4 (AAV 8224-0054–0057), Nug Nug 1–2 (AAV 8224-0071–0072), the Nug Nug area	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters, rock shelters, art sites, scarred trees	R. 45	<ul style="list-style-type: none"> The area is potentially quite sensitive and there is some potential to locate rockshelters with occupation deposits and also larger sites. If works are carried out in these site locations, PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and the TC for any site disturbance. PV staff should be alert to finding good shelter sites in this area. If shelter sites are located, the PV staff should inspect closely for signs of occupation and art. The location should be recorded with a GPS and AAV contacted to organise an inspection.
SEC Transmission Line 1–2 (AAV 8224-0073–74)	Easement maintenance, works on mining heritage site, track maintenance, vehicles, slashing	Very high	Artefact scatters	R. 46	<ul style="list-style-type: none"> The relevant electricity body responsible for this transmission line (SP1 PowerNet), should be informed of the sites and responsibilities under the State and Commonwealth Acts. The sites should be periodically monitored to review site stability and condition and any works associated with the transmission line should be monitored by a relevant Aboriginal representatives and a Consent to Disturb permit obtained from the Minister and the TC prior to works commencing. If the sites deteriorate, it is recommended that site stabilisation works be carried out in consultation with relevant Aboriginal representatives.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Lake Catani 2/3 and 4 (AAV 0033–0034)	Walkers, frost, water	Very high	Artefact scatters	R. 47	<ul style="list-style-type: none"> The condition of the sites should be monitored. If the sites deteriorate and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the Minister for Aboriginal Affairs and the TC for the site.
Area 11: Mount Selwyn					
Mount Selwyn Sites	Various, fire suppression activities, track maintenance, camping, walking, forestry harvesting	Various	Artefact scatters, scarred trees, rock shelter sites	R. 48	<ul style="list-style-type: none"> The study unit has evidence of variable occupation densities, with higher site densities on ridgelines and higher areas than the lower, damper, river valleys. No works should be undertaken in Aboriginal site locations without a heritage impact management plan prepared by a qualified archaeologist and representatives of the relevant Aboriginal communities. PV/DSE staff should follow R1 when carrying out any works in this study unit.
Buffalo Range Dog Trap Site (AAV 8224–0064)	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R. 49	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without an heritage impact assessment by a qualified archaeologist, relevant Aboriginal representatives, and BCC and MGAC representatives It is recommended that if works are carried out in this location PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Kiewa Valley West 3 (AAV 8324–0124)	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R.50	<ul style="list-style-type: none"> No further ground disturbing works should be carried out in this location without an heritage impact assessment by a qualified archaeologist and relevant Aboriginal representatives. It is recommended that if works are carried out in this location PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Mount Murray Site	Track maintenance, fire suppression activities, vehicles	Very high	Artefact scatters	R. 51	<ul style="list-style-type: none"> A site was found on Mount Murray but not recorded as it was thought to be out of the survey team's community boundaries. This site should be recorded by a qualified archaeologist, relevant Aboriginal representatives, and GEGAC at the earliest opportunity.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Tawonga Huts Site Complex, Wurrdun Liwik 1–14 (AAV 8324-0125–0138)	Track maintenance, fire suppression activities, vehicles, riders, stock, camping, bushwalkers	Very high	Artefact scatters, rock shelters, <i>in situ</i> deposits	R. 52	<ul style="list-style-type: none"> ▪ The Tawonga Huts sites should be recorded in detail with further exploration conducted of the surrounding ridgelines. The recording process should be carried out by a qualified archaeologist with the assistance of relevant Aboriginal representatives. ▪ An effective Heritage Management Plan should be prepared for the area. ▪ Consideration should be given to a consultation program with the Aboriginal community regarding the possible nomination of the site to the Register of the National Estate. ▪ AAV should note that this archaeological exercise would form a suitable training opportunity. ▪ Several possible rockshelter locations were observed adjacent to Wurrdun Liwik 2 (AAV 8324-0126) in the site complex, but there was insufficient time to investigate them. These shelters should be investigated for possible deposits and fully recorded at the same time as the surface sites. ▪ It is also recommended that PV review access through the area in consultation with the relevant Aboriginal representatives and consideration be given to controlling access more closely through the sites to minimise impact by campers, walkers and riders. The management plan should address this issue. ▪ The condition of the sites should be regularly monitored. ▪ No further ground disturbing works should be carried out in this location without an assessment of the impact on Aboriginal heritage by a qualified archaeologist and relevant Aboriginal representatives. ▪ If the sites deteriorate and a large number of artefacts become exposed, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site. ▪ It is also recommended that consideration be given to installing interpretative signage at the hut. Consultation should be undertaken with the relevant Aboriginal representatives about wording. The sign could point out the important and strong connection of the Aboriginal community with the alpine region without indicating site location. ▪ No works should be carried out on the huts without relevant Aboriginal representatives. ▪ HV should be given a copy of this report and their attention drawn to this issue. ▪ Consideration should be given to carrying out further investigations in the valley including subsurface testing to determine whether there is any depth of deposit.
Area 12 Mount Mittamatite					
Mt Mittamatite	Walkers, vehicles, track maintenance, fire suppression activities	Very high	Artefact scatters, quarries/stone sources	R. 53	<ul style="list-style-type: none"> ▪ It is recommended that consideration be given to carrying out further survey in the park. ▪ This area would be the ideal location for a training program and AAV should give this some consideration. ▪ No works should be carried out in any site location without carrying out a works assessment as per PV Guidelines, which should be followed closely. ▪ Consultation should be undertaken with the relevant Aboriginal representatives, relevant Aboriginal representatives should monitor any works and a Consent to Disturb permit should be sought from the BCC and MGAC before any works commence.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Mt Mittamatite 2, Mount Mittamatite 8 (AAV 8425-0011, -0017)	Walkers, fire suppression activities	Very high	Artefact scatters, stone sources/quarries	R. 54	<ul style="list-style-type: none"> It is recommended that access through these sites be reviewed in consultation with the relevant Aboriginal representatives and consideration be given to controlling access more closely through the sites to minimise impact by park users, particularly in the areas to the northeast of Ranch Road. The condition of the sites should be regularly monitored. If the sites deteriorate, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from the BCC and MGAC for the site.
Area 13: Expanded Dargo Area					
Expanded Dargo Area Study Area	Various, fire suppression activities, walkers, vehicles, track maintenance, resort activities, forestry harvesting	Very high	Artefact scatters, grinding stones, grinding grooves, rock arrangements, <i>in situ</i> deposits, scarred trees, rock shelters	R. 55	<ul style="list-style-type: none"> The study area contains a high density of Aboriginal occupation sites and is highly significant. Sites are confined to high ridges, scarce flat areas and river terraces and flats. Any works undertaken in these highly sensitive areas must be preceded by an heritage impact assessment carried out by a qualified archaeologist and members of the relevant Aboriginal community. All proposed works in the Hotham/Dinner Plain area should be monitored by relevant Aboriginal representatives.
Wire Plain 1 (AAV 8324-0114)	Development, car park, fire	Very high	Artefact scatters	R. 56	<ul style="list-style-type: none"> It is recommended the Hotham Resort Management Committee and DSE Alpine Resort Unit is informed of the site location and all legislative responsibilities. No disturbance should be carried out to the site without prior consultation with relevant Aboriginal representatives and GEGAC and a Consent to Disturb permit from GEGAC. All works should be supervised by relevant Aboriginal representatives.
Dinner Plain Track 1-4 (AAV 8323-0047, -0074-0076), Precipice Plain 1 (AAV 8323-0073), Victoria Track 1-2 (AAV 8323-	Fire suppression activities, resort development, vehicles, forestry activities, timber harvesting	Very high	Artefact scatters, <i>in situ</i> deposits, scarred trees, grinding stones, stone source/quarries	R. 57	<ul style="list-style-type: none"> It is recommended that a qualified archaeologist assisted by relevant Aboriginal representatives, map the extent of the sites, take a larger sample of artefact recordings and explore the potential for subsurface deposits and an effective Heritage Management plan be developed for the entire site complex. It is recommended that consideration be given to further investigations including controlled scientific excavations in a number of areas of the site by a qualified and experienced archaeologist with the assistance of relevant Aboriginal representatives. The aims would be to determine the nature of occupation and timing of occupation in the Hotham area. If an excavation proceeds a Schedule 1 excavation permit should sought from AAV. The site is potentially scientifically highly significant and is of great significance to the Aboriginal community. Following further investigations consideration should be given to undertaking consultation with the Aboriginal

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
0071–0072)					community to see whether the community would like the site placed on the Register of the National Estate.
Dargo River Road 3 and 4 (AAV 8323-0064–0065)	Camping, vehicles, track maintenance	Very high	Artefact scatters	R. 58	<ul style="list-style-type: none"> ▪ The condition of the sites should be regularly monitored. ▪ If the sites deteriorate, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Wonnangatta River 2 (AAV 8323-0016)	Camping, vehicles	Very high	Artefact scatters	R. 59	<ul style="list-style-type: none"> ▪ If the site deteriorates, and a large number of artefacts become exposed, or are moved onto the road and lay-by, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Wonnangatta River 4 (AAV 8323-0017)	Camping, vehicles	Very high	Artefact scatters	R. 60	<ul style="list-style-type: none"> ▪ No stabilisation works are required currently, but it is recommended that the condition of the site should be regularly monitored. ▪ If the site deteriorates, and a large number of artefacts become exposed in the camp area, consideration should be given to site stabilisation works and should include controlling the development of informal tracks. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.
Wonnangatta River 5 (AAV 8323-0018)	Fire, visitation, timber harvesting	Very high	Scarred tree	R. 61	<ul style="list-style-type: none"> ▪ No special management works are required by GEGAC representatives who feel ‘nature’ should take its course’, but the tree should be monitored when practical to do so.
Wonnangatta River 6 (AAV 8323-0011)	Camping, vehicles, erosion	Very high	Artefact scatters	R. 62	<ul style="list-style-type: none"> ▪ The site needs urgent stabilisation. Consultation should be undertaken with PV and relevant Aboriginal representatives to determine the most appropriate method. ▪ The PV sign should be removed and placed elsewhere. ▪ Ideally the site should be covered with a thin covering material foreign to the area (e.g. white sand), then a covering of soil and finally vegetation indigenous to the area. ▪ The relevant Aboriginal representatives may recommend that the site is carefully recorded by a qualified archaeologist and then all artefacts collected instead. <i>(These works are currently being implemented)</i>
Wonnangatta River 8 (AAV 8323-0013)	Camping, vehicles, erosion	Very high	Artefact scatters	R.63	<ul style="list-style-type: none"> ▪ Consultation with GEGAC representatives established that no stabilisation works were required currently, but it is recommended that the condition of the site should be regularly monitored. ▪ If the site deteriorates, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. ▪ If works are carried out in this location PV Guidelines should be followed, relevant Aboriginal representatives should monitor works and a Consent to Disturb permit should be sought from GEGAC for the site.

MANAGEMENT ZONE	IMPACT	SENSITIVITY	PREDICTED SITES	REC. NO.	RECOMMENDATION/MANAGEMENT OPTION
Area 14: Tom Groggin					
Tom Groggin Area	Camping, fire suppression activities, forestry harvesting	Various	Artefact scatters, scarred trees, <i>in situ</i> deposits	R. 64	<ul style="list-style-type: none"> The study unit is an area of moderate to low density occupation. Sites may occur fairly frequently particularly associated with watercourses. No works should be undertaken in site locations without a heritage impact management plan prepared by a qualified archaeologist and representatives of the MAC. PV/DSE staff should follow R1 when carrying out any works in this study unit. Where works are planned in sensitive locations such as within 100 m of a watercourse, works should be monitored by MAC and Monaro People representatives.
Tom Groggin (TG) 12 (AAV 8524-0197)	Camping, vehicles	Very high	Artefact scatters	R. 65	<ul style="list-style-type: none"> Site TG12 is on the Dogmans Hut camping area immediately adjacent to the Snowy River so was the most intensively used of all areas where sites were found and the only one which might deteriorate and/or where works might be carried out. If the site deteriorates, and a large number of artefacts become exposed, consideration should be given to site stabilisation works. If works are carried out in this location PV Guidelines should be followed, an Aboriginal representative should monitor works and a Consent to Disturb permit should be sought from the Moogji, in consultation with the Monaro People.
Other Recommendations					
Monitoring Program				R. 66	<ul style="list-style-type: none"> Consideration should be given to the development of a monitoring program for the sites located in the Alpine National Park. This would more efficiently monitor this valuable resource, provide valuable training for PV/DSE staff and opportunities to liaise with the relevant Aboriginal community. When established the program could be integrated with track inspection or other regular maintenance programs. The program should undertake to: <ul style="list-style-type: none"> Develop a regular inspection regime and effective inspection procedures. Identify the physical condition and any conservation works required. Establish a management framework where better planning can be developed and undertaken, and where heritage funding across State and Commonwealth government can be sought and allocated. Identify training opportunities for participants and for PV/DSE staff. When established, the program could be integrated with track inspection or other regular maintenance programs. A training or heritage awareness program should be developed that complements this inspection program and which enables a minimum level of information to be collected. An example of necessary information is provided in Appendix 6.

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APPENDICES

Appendix 1: Project Brief

Post Wildfire Indigenous Cultural Heritage Survey-Eastern Victoria

1. Introduction

During January to March of 2003 a large scale wildfire burnt over 1.2 million hectares across the high country of Victoria's North East and Gippsland. Over 3000 fire fighters from DSE, DPI and Parks Victoria (PV) contributed to the fire suppression activities, including the construction of 3000 temporary access tracks and control lines and the widening of over 1600 existing tracks.

In response to the fires the Victorian State Government has established a multi agency Statewide Bushfire Recovery Taskforce and Program to assist communities, the environment and infrastructure recovery. A component of this recovery program is the Public Land Ecological and Cultural Bushfire Recovery Program.

The Program has identified that Indigenous cultural heritage values were significantly affected as a result of wildfire and associated fire suppression activities in the North East and Gippsland regions. Assessing the degree and nature of this affect is crucial to better understand these values, establish better planning processes and to provide effective ongoing management. The project will aim to survey and assess the nature and extent of the damage caused by wildfire and the associated fire suppression activities to Aboriginal heritage values on Public land, including those areas which constitute a significant landscape or spiritual place or those that have some historic connection with Indigenous people .

The survey presents many opportunities where ground surface visibility and accessibility to forested regions has been dramatically increased. Many areas not previously surveyed but of known occupation have been exposed through the stripping of ground cover by fire. A primary outcome will be an increased knowledge and awareness of Indigenous cultural heritage and to ensure that this information contributes to, and is incorporated into future land and waterways management on Public land, including fire planning.

The project will be managed on a 'land tenure blind' basis (i.e. irrespective of public land management tenure) and jointly funded by DSE and PV.

The project will require:

- Close consultation with and participation of members of the local Indigenous community(s)
- Mentoring and training Indigenous staff employed by DSE/PV during the project in the area of heritage field survey, including cultural artefact identification and handling, use of field equipment, site recording and in developing management options.

2. Background

During immediate post fire soil conservation rehabilitation works archaeological scoping surveys were instigated by DSE and Parks Victoria, and focussed on the State Forests and National Parks in the North East and Gippsland. For most of the fire affected area there has been little or no previous field survey for identifying Indigenous cultural heritage values. The intention of scoping surveys conducted post fire was to confirm the presence of Indigenous cultural values in the fire affected area and to assess the impacts (actual and potential) of fire and fire suppression activity on those values. ‘Spot surveys’, sampling small areas across the million-hectare area identified a range of sites that have since been registered with Aboriginal Affairs Victoria (AAV). AAV staff led the program in Gippsland together with staff from the Gippsland Cultural Heritage Unit and Gippsland and East Gippsland Aboriginal Co-op Ltd. (GEGAC) and the Moogji Aboriginal Council Inc. In the North East archaeologists worked with representatives of the Bangerang Cultural Centre Co-operative Ltd., the Taungurung Clans Aboriginal Corporation and Mungabareena Aboriginal Council. AAV provided advice and technical support.

This current project relates to the fire affected area across Victoria’s North East and Gippsland. It covers national parks, state forests and a variety of other crown land reservation types. Natural environments affected by the fire range from low altitude riparian communities, through all altitudes and aspects of eucalypt forests, to alpine heathlands, grasslands and bogs. While there is a considerable body of scientific knowledge related to natural values and a reasonable level of documentation relating to European use, very little work has been done to demonstrate the extent and nature of Aboriginal peoples’ presence in, and association with, the area affected by the fire, despite strong local knowledge that it existed.

The sample areas selected for survey were determined from the results of the scoping surveys and a review of existing PV/DSE/AAV survey data, reports, predictive modelling and sensitivity zoning. Relevant Indigenous communities have been involved in identifying the proposed survey areas. (See attached maps)

The project will be overseen by a Steering Committee; comprising Indigenous community representatives, PV, DSE and AAV staff; and managed by a Project Team. The consultant will report to the Project Team which will consist of:

- PV – East Region Indigenous Cultural Heritage Officer, Team Leader Cultural Values.
- DSE - Indigenous Facilitator for Gippsland North East and nominated Forest Management staff.
- AAV – Heritage Team Leader (East).
- A representative from each relevant Cultural Heritage Unit.
- Representatives from other Indigenous organisation representatives as required.

A Project Team Leader will be jointly nominated by Parks Victoria and DSE to carry out

- Day to day liaison with the Contractor.
- Ensure that the appropriate government guidelines are adhered to.
- Arrange sign off for the stages for payment by PV & DSE as required.
- Ensure regular progress reporting to the Steering Committee.

The consultant will be responsible for:

- Coordinating the delivery of the project as outlined in the brief.
- Designing and leading the field survey.

- Assisting in Aboriginal community consultation.
- Training Indigenous field staff and.
- Report writing.

Two wheel drive access is available to some key locations, four wheel drive is required for more remote locations and much of the survey area will have to be traversed by foot. A reasonable degree of fitness will be required to access some areas. In some instances there may be also be the opportunity for other access options such as along rivers.

It will be necessary for the survey team to be self-reliant and have a clear communication strategy. All camping, food, four-wheel drive vehicles and logistical support is to be provided by the contractor.

3. Aims

This project is intended to facilitate ongoing protection and management for both *recorded* and *unknown* Aboriginal heritage sites and places across the project area.

Specifically, the aims are:

- To develop and execute an archaeological survey strategy which exploits the enhanced ground surface visibility conditions and tests currently understood predictive models of Indigenous occupation across the project area.
- To assess and document the nature and extent of damage caused by wildfire and the associated fire suppression activities to Indigenous cultural heritage values across the project area, and to provide recommendations for protection and future management.
- This assessment should also identify and discuss the concept of a cultural landscape, spiritual significance and of historical connections to Indigenous communities.
- To target areas not previously surveyed but of known or predicted occupation.
- To assess identified Aboriginal cultural heritage sites and areas in each survey location for their condition using criteria normally applied to the assessment of cultural heritage values.
- To work with the Aboriginal community in documenting matters such as cultural significance and traditional interpretation of recorded sites, and in developing appropriate management options;
- To make recommendations for the development of Heritage Action Plans for the significant Indigenous cultural heritage values of the project area.
- To mentor and train Indigenous staff employed by DSE/PV during the project in the area of heritage field survey, including cultural artefact, identification and handling, use of field equipment, site recording and in developing management options.

There may be a potential to incorporate sub-surface investigation into the assessment strategy. Proposals of this kind are encouraged and would be considered for their appropriateness and potential to contribute to the aims of the project.

4. Project Area

The project area is the immediate area affected by the 2003 wildfire and fire suppression activities in Gippsland and North East Victoria. Within this broad area specific sample areas will be targeted for survey. The sample survey locations would be roughly bounded by but not limited to:

Mount Sarah/Winchester/Dargo High Plains, Bundarra River/Glen Valley, Mount Fraser, Bindi/Marble Gully, Mount Taylor/Tubbut, Yalmy Rd/Moonkan Rd, Nariel/Mount Pinnabar, Mitta Mitta/Dartmouth, Stanley SF, Mount Buffalo, Mount Selwyn, Mount Pilot. (See attached maps).

The project should also include a review of previous Aboriginal cultural heritage investigations particularly where relevant to the design of the field survey strategy and interpretation of any cultural heritage sites, places or areas identified.

Appendix 2: Notifications and Permits



Department for Victorian Communities

20 January 2004

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Our Ref:

IH/04/0001
Project no:2833

Dear Joanna

PROPOSED SITE SURVEY: POST WILDFIRE SURVEY ALPINE/SUBALPINE REGION VIC

Thank you for providing Aboriginal Affairs Victoria (AAV) with notice of your intended survey.

Please note that, under the terms of section 22(5)(b) of the *Archaeological and Aboriginal Relics Preservation Act* 1972 and associated regulations, you are required to provide this office with:

- completed AAV record forms for any sites found during the survey; and
- two copies of any resultant project report (one of which may be provided in electronic format).

Please ensure that the project number shown at the top of this letter is quoted in any correspondence with AAV relating to this survey. The project number should also be added to any record forms resulting from the survey (in the "Reference in literature or report" space provided).

Blank record forms, and copies of the document *Guidelines for Conducting and Reporting upon Archaeological Surveys in Victoria*, are available on request.

Under the terms of the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act* 1984, specified local Aboriginal organisations hold responsibility for cultural heritage matters within their particular community boundaries. It is recommended that you contact the relevant organisation as soon as possible, to discuss your intended survey.

Further, if your survey includes Crown land (other than Crown land where native title has been extinguished), you are advised to consult with any parties who hold native title interests in the area. Advice on identifying and contacting groups with native title interests can be obtained from the National Native Title Tribunal (phone: 1800 640 501).

Information on Aboriginal community interests relating to your project area may also be obtained by contacting the Co-ordinator / Director / Manager for the relevant Regional Aboriginal Cultural Heritage Program (RACHP). The AAV web site at <http://www.dvc.vic.gov.au/aav.htm> includes maps and contact lists relating to local Aboriginal communities and the RACHP.

Please contact me on (ph) 03 9637 8180 if any further information is required.

Yours sincerely

BINDI THOMAS
Heritage Information Officer



Copy: Regional Cultural Heritage Program

03_0039

Appendix 3: Legislative Requirements

Aboriginal Sites¹⁸

Victorian State Legislation

With the exception of human remains interred after the year 1834, the State *Archaeological and Aboriginal Relics Preservation Act 1972* provides protection for all material relating to the past Aboriginal occupation of Australia, both before and after European occupation. This includes individual artefacts, scatters of stone artefacts, rock art sites, ancient campsites, human burials, scarred trees, and ruins and archaeological deposits associated with Aboriginal missions or reserves. The Act also establishes administrative procedures for archaeological investigations and the mandatory reporting of the discovery of Aboriginal sites. Aboriginal Affairs Victoria administers the *Archaeological and Aboriginal Relics Preservation Act 1972*.

The *Archaeological and Aboriginal Relics Preservation Act 1972* requires that a Schedule 2 'Notification of an Intent to Conduct an Archaeological Survey' be lodged with the Heritage Services Branch of Aboriginal Affairs Victoria prior to conducting an archaeological survey that does not involve disturbance to Aboriginal archaeological sites.

Consent from the Heritage Services Branch of Aboriginal Affairs Victoria be obtained before archaeological fieldwork involving disturbance to an Aboriginal site is carried out. Aboriginal Affairs Victoria will not usually issue consents for archaeological fieldwork involving disturbance to an Aboriginal site without prior permission from the relevant Aboriginal community.

Commonwealth Aboriginal Cultural Heritage Legislation

In 1987, Part IIA of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* was introduced by the Commonwealth Government to provide protection for Aboriginal cultural property in Victoria. Immediately after enactment, the Commonwealth delegated the powers and responsibilities set out in Part IIA to the Victorian Minister Responsible for Aboriginal Affairs. This delegation is held by the Hon. Gavin Jennings MP. The legislation is administered on a day-to-day basis by Aboriginal Affairs Victoria.

Whereas the State act provides legal protection for all the physical evidence of past Aboriginal occupation, the Commonwealth act deals with Aboriginal cultural property in a wider sense. Such cultural property includes any places, objects and folklore that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'. There is no cut-off date and the Act may apply to contemporary Aboriginal cultural property as well as ancient sites. The Commonwealth act takes precedence over State cultural heritage legislation where there is conflict. In most cases, Aboriginal archaeological sites registered under the State act will also be Aboriginal places subject to the provisions of the Commonwealth act.

¹⁸ Source AAV

Section 21U(3-4) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, requires written consent from the relevant Victorian Aboriginal community (see below) to disturb, destroy, interfere with or endanger an Aboriginal place, object or archaeological site. If a reply to any such permit application is not received from an Aboriginal community within 30 days, an application for a permit may be made to the State minister responsible for Aboriginal affairs. This is provided for under Section 21U (5-6) of the 1987 addition to the Act.

The schedule to the Commonwealth act lists local Victorian Aboriginal communities. Each community's area is defined in the Regulations. The relevant Aboriginal communities for the study areas are:

- Area 1: Gippsland East Gippsland Aboriginal Co-operative.
- Area 2: Gippsland East Gippsland Aboriginal Co-operative, Moogji Aboriginal Council.
- Area 3: Moogji Aboriginal Council.
- Area 4: Moogji Aboriginal Council.
- Area 5: Moogji Aboriginal Council.
- Area 6: Moogji Aboriginal Council.
- Area 7: Bangerang Cultural Centre.
- Area 8: Bangerang Cultural Centre.
- Area 9: Bangerang Cultural Centre.
- Area 10: Bangerang Cultural Centre.
- Area 11: Bangerang Cultural Centre.
- Area 12: Bangerang Cultural Centre.
- Area 13: Gippsland East Gippsland Aboriginal Co-operative.
- Area 14: Moogji Aboriginal Council.

Consultation or enquiries regarding Aboriginal sites and Consent to Disturb permits in these community areas may be referred to the chairpersons of the organisations. Current contact details for the representative bodies are listed on the AAV web site.

Applications to excavate or disturb an Aboriginal archaeological site for purposes of archaeological fieldwork should be made in writing to:

The Director
Aboriginal Affairs Victoria
GPO Box 2392V
MELBOURNE VIC 3001

General inquiries relating to Aboriginal archaeological sites should be forwarded to:

The Site Registrar
Heritage Services Branch
Aboriginal Affairs Victoria
GPO Box 2392V
MELBOURNE VIC 3001

Ph: (03) 9208 3273
Fax: (03) 9208 3292

Native Title Act

Native title refers to 'the rights and interests of Aboriginal and Torres Strait Islander people in land and waters, according to their traditional laws and customs' (NNTT 2000: 1). It is not a new grant of land rights but recognition that those land rights are already in existence.

Indigenous people who follow their traditional laws and customs and have maintained their traditional laws and customs and a link with their country hold native title rights (NNTT 2000: 1). These rights may mean rights of possession, use or access to country, but

commonly it may mean the right to be involved in any decisions regarding the use of their lands and waters by other people (NNTT 2000: 1).

Native title can exist in the following areas where title has not been extinguished by an act of government:

- Vacant Crown land, other public land or Crown lands.
- Forests, beaches, national parks, public reserves.
- Some types of pastoral leases.
- Land held by Government agencies, or held in trust for Aboriginal communities.

Native title may also exist over inland waters and offshore waters including oceans, seas, reefs, lakes, rivers, creeks, swamps and other waters not in private ownership (NNTT 2000: 3).

Native title may coexist with other rights in any area including leases, licences, public access, but it does not invalidate others' rights (NNTT 2000: 4). Rights such as home ownership, holding a pastoral lease or mining licences are not invalidated by native title rights. Native title rights are not recognised over land where freehold possession is held (e.g. most farms, cities, houses). Commercial leases also may confer exclusive possession (NNTT 2000: 4).

Native title may be extinguished in some circumstances including privately owned land, residential, commercial and some other leases and in areas where public roads and works have been constructed (NNTT 2000: 4).

Indigenous people in Australia may apply to have their native title rights recognised through the Federal Court. Since the 'Wik' amendments, claims are referred to the Native Title Registrar to pass a 'registration test' to gain some rights (NNTT 2000: 8). These rights include the 'right to negotiate over proposed developments' (e.g. mining or public works known as 'future acts'), 'statutory access rights to non-exclusive pastoral and agricultural leases, subject to certain conditions' and the 'right to oppose non-claimant applications' (NNTT 2000: 8). Where the applicant fails the registration test the case can be referred to the National Native Title Tribunal (NNTT) to be mediated. The NNTT is an independent body set up under the *Native Title Act 1993* 'to provide administrative processes to deal with native title applications and to provide information to indigenous people and the broader community about the native title process'. Enquiries about native title can be made through the National Native Title Tribunal.

National Native Title Tribunal
GPO Box 9973
Melbourne VIC 3000
PH. 1800 640 501

Appendix 4: Significance Assessment

Significance Assessment

In order to make informed decisions regarding the management of heritage sites and places, the assessment of significance is an integral part of the assessment of heritage values. The significance assessment process assists in deciding which sites and places are worthy of preservation, the degree to which they are managed and the way in which they are managed.

Significance assessment in Victoria and Australia in general is based on a common process that has been broadly accepted by heritage professionals. The process for determining significance is derived from an international formula developed by ICOMOS (International Council on Monuments and Sites) and is described in the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter) (Australia ICOMOS 1988; Marquis-Kyle and Walker 1992).

The Burra Charter (revised 1992) defines cultural heritage significance as the ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’.

The Burra Charter describes four criteria for assessing significance:

- Aesthetic value—associated with the stimulation of the senses, including form, scale, colour, texture and fabric material.
- Historic value—associated with an historic figure, event, phase, or activity.
- Scientific value—associated with importance to research, rarity, quality and representativeness.
- Social value—associated with its special meaning, or significance to groups, the general public, in a national or political sense.

Heritage Significance Assessment

The brief provided required an assessment of the significance of any newly located archaeological sites. This process requires assessment of both the cultural and scientific values. Scientific values are generally assessed by archaeologists, while the assessment of cultural significance is made by the relevant Aboriginal people. It is preferable to provide a written statement and include this in the report, although this is not always possible. The methodology for scientific significance assessment is described below. No methodology is described for Aboriginal assessment of significance, as this is a matter for the relevant Aboriginal people and is based on cultural knowledge. The Aboriginal assessment of significance is described in Chapter 21, Section 21.2.

Scientific Significance

Scientific significance assessment is assessed on two criteria: research potential and representativeness.

Research Potential

Research potential is assessed on the basis of the site contents and site condition.

Site Condition

The site contents refers to all material and organic remains present that are the result of past human behaviour, or are associated with past human behaviour, or that can shed light on past human behaviour. Site

contents also refer to the structure of the site, including its size, the distribution or patterning of material remains within the site, the presence of any stratified deposits and the rarity of the material remains.

The site condition affects its site significance and sites are assessed on the basis of the degree to which they have been disturbed.

An assessment methodology is outlined below (see Bowdler 1981b; Sullivan and Bowdler 1984).

Site Contents Ratings

- 0 No cultural materials remaining.
- 1 Site contains a small number (e.g. 0–10 artefacts) or limited range of cultural materials with no evident stratification.
- 2 Site contains:
 - (a) A larger number, but limited range of cultural materials: and/or
 - (b) Some intact stratified deposit remains.
- 3 Site contains:
 - (a) A large number and diverse range of cultural materials; and/or
 - (b) Largely intact stratified deposit; and/or
 - (c) Surface spatial patterning of cultural materials that still reflect the way in which the cultural materials were laid down.

Site Condition Ratings

- 0 Site destroyed.
- 1 Site in a deteriorated condition with a high degree of disturbance but with some cultural materials remaining.
- 2 Site in a fair to good condition, but with some disturbance.
- 3 Site in an excellent condition with little or no disturbance. For surface artefact scatters this may mean that the spatial patterning of cultural materials still reflects the way in which the cultural materials were laid down.

Representativeness

Representativeness refers to the regional distribution of a particular site type. It is assessed on whether the site is common, occasional or rare in a given region. Assessments of representativeness are subjective, biased by current knowledge of the distribution and numbers of archaeological sites in a region. This varies from place to place depending on the extent of previous archaeological research. Consequently, a site, which is assigned low significance values for contents and condition, but a high significance value for representativeness, can only be regarded as significant in terms of current knowledge of the regional archaeology. Any such site should be subject to further re-assessment as additional archaeological research is carried out.

Assessment of representativeness also takes into account the contents and condition of a particular site. For example, in any region, there may only be a limited number of sites of any type that have suffered minimal disturbance. Such sites would therefore be given a high significance rating for representativeness, although they may occur commonly within the region.

Representativeness Ratings

- 1. Common occurrence
- 2. Occasional occurrence
- 3. Rare occurrence

Scientific Significance Ratings

Overall scientific significance ratings for sites, based on a cumulative score for site contents, site integrity and representativeness are given as follows:

- 1-4 Low scientific significance.
- 5-7 Moderate scientific significance.
- 8-9 High scientific significance.

The scientific significance of all sites found during the survey is listed in the site gazetteer (Volume 4).

Appendix 5: Discovery of Human Remains

Discovery of Human Remains (Source AAV)

If suspected human remains are discovered during any excavation or development work, the steps outlined below should be followed.

Legal requirements

The *Coroner's Act 1985* requires anyone who discovers the remains of a 'person whose identity is unknown' to report the discovery directly to the State Coroner's Office or to the Victoria Police. A person who fails to report the discovery of such remains is liable to a \$10,000 fine. The Coroner's Act does not differentiate between treatment of Aboriginal and non-Aboriginal remains. The majority of burials found during development work are, therefore, likely to be subject to this reporting requirement.

In addition, Part IIA of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* requires anyone who discovers suspected Aboriginal remains in Victoria to report the discovery to the responsible Minister. The Director, Aboriginal Affairs Victoria, holds delegated authority to receive and investigate such reports.

It should be noted that the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* is subordinate to the *Coroner's Act 1985* regarding the discovery of human remains. Therefore, the location at which the remains are found should be first treated as a possible crime scene, and the developer and/or contractor should not make any assumptions about the age or ethnicity of the burial.

Victoria Police Standing Orders require that an archaeologist from the Heritage Services Branch, Aboriginal Affairs Victoria, should be in attendance when suspected Aboriginal remains have been reported (Police Headquarters and the State Coroner's Office hold after-hours contact numbers for Heritage Services Branch staff). Where it is believed the remains are Aboriginal, the Police will usually invite representatives of the local Aboriginal community to be present when the remains are assessed. This is because Aboriginal people usually have particular concerns about the treatment of Aboriginal burials and associated materials.

Aboriginal Affairs Victoria - suggested procedure to be followed if suspected human remains are discovered-

1. If suspected human remains are discovered during development, work in the area must cease and the Police or State Coroner's Office must be informed of the discovery without delay. The State Coroner's Office can be contacted at any time on

Ph: (03) 9684 4444

2. If there are reasonable grounds to suspect the remains are Aboriginal, the discovery should also be reported to Aboriginal Affairs Victoria on

Ph: 1300 888 544

Aboriginal Affairs Victoria will ensure that the local Aboriginal community is informed about the circumstances of the discovery.

3. Do not touch or otherwise interfere with the remains, other than to safeguard them from further disturbance.
4. Do not contact the media.

Appendix 6: Monitoring Record Example

Site Monitoring Form

AAV Site No:

AAV 9822-0719

AAV Site name:

Test Site 1

Location:

Map:

8621

Easting:

432546

Northing:

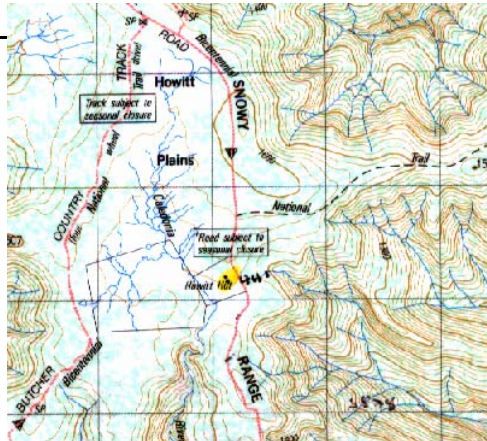
7891045

Actual Location:

Lumberjack Track

Community:

GEGAC



MAP

Site Information:

Site type:

Artefact scatter

Significance:

High, large dense scatter, rare materials, diverse materials, in situ materials

Original condition:

Good off track, poor on track, some downslope movement on southeast slope

Original Photo

Photo location:

Taken from large tree stump looking 45o



Photo

Original recommendation:

No ground disturbing works in this location. Monitor annually. Observe for downslope movement of artefacts onto road. Encourage vegetation regrowth. Observe for collecting. If more artefacts are exposed or excessive downslope movement occurs arrange to stabilise site with qualified archaeologist and community reps.

Monitoring frequency:

Yearly

Monitoring

Date	Name	Init.	Site Condition	Recommended action	Photo attached
1/01/2004	Ben Hur	BH	Stable	none	Yes
1/01/2005	Hilary Clinton	HC	Eroding	1. Contact PV Coordinator	Yes
				2. Archaeological assessment	
				3. Stabilisation plan	
				4. Stabilise	
1/01/2006	Elizabeth Windsor	ER	Stable	None	Yes

Actions

Recommended action	Date carried out	Name	Photo
Stabilise site	2/04/2004	Ben Hur, GEGAC	Yes

Photos (dated) to be placed in attached envelope

Glossary of Terms Used in the Text

Glossary of Terms Used in the Text

<i>Aboriginal Archaeological Site</i>	The location of the physical remains resulting from past Aboriginal behaviour before and after settlement
<i>Aboriginal Artefact Scatter</i>	A scatter of material remains resulting from past Aboriginal activity on the surface of the ground. Can be stone tools, animal bones, plant remains. AAV defines a scatter as more than 5 items in 100 m ²
<i>Aboriginal Historic Site</i>	Site with material remains resulting from Aboriginal people's activity from any period since settlement
<i>Aboriginal Historic Place</i>	A location that is important because of its associations with, and cultural significance to, Aboriginal people. Such places may or may not have material remains.
<i>Archaeological Site</i>	The location of the physical remains of past human behaviour
<i>Archaeology</i>	The study of past human behaviour
<i>Artefact Scatter</i>	Artefact scatters are scatters of stone artefacts, generally five or more within 100 square metres
<i>Backed Points</i>	Points that are asymmetrical in shape, triangular or flat, trapezoid in section, with a thick trimmed (retouched or blunted) back (McCarthy 1976: 44)
<i>Blade</i>	A long, thin stone flake that is at least twice as long as it is wide and which has parallel lateral margins
<i>Bondi Point</i>	Blades trimmed partially or completely along one or both edges of the thick margin combined with a plain, faceted or trimmed butt. The length ranges from 10 to 50 mm, width 18 mm to 30 mm, thickness 2 mm to 5 mm cm (McCarthy 1976: 44)
<i>Chert</i>	Cryptocrystalline silica occurring as bands or nodules in sedimentary rock (Whitten and Brooks 1972: 76). A stone with good flaking qualities highly prized for stone tool manufacture.
<i>Cleavage</i>	Natural weathered outer surface of the stone not smoothed by water
<i>Conglomerate</i>	Rounded or sub-rounded gravels in a silicious matrix

(Wesson and Beck 1981: 30)

Contact site	A site showing the material evidence of contact with an alien culture from the settlement period. For example an Aboriginal contact site may have worked glass tools or traditional use of non-Aboriginal materials, or non-Aboriginal materials in an unusual context (glass, tin or pottery in a campsite).
Core	Original nucleus from which stone fragments (flakes and blades) are removed by striking with a hammerstone
Cortex	Outer unworked surface of stone. May be rough or smooth discoloured or patinated.
Flake	Fragment of stone removed from a core by striking. Features include a platform where the stone was struck and detached, a bulb or bulge showing where the force of the blow transmitted through the stone, sharp edges where the stone detached
Geometric Microliths	Triangular or crescent shaped with backing or abrupt trimming along the thick margin (McCarthy 1976: 44)
Historic Site (Non-Aboriginal)	Site with material remains resulting from human activity from any period from settlement to 50 years ago
Heritage Place	A place with aesthetic, historic, scientific or social values for past, present or future generations – ‘...this definition encompasses all cultural places with any potential present or future value as defined above’ (Pearson and Sullivan 1995: 7)
Historic Scatter (Non-Aboriginal)	A scatter of material remains resulting from past non-Aboriginal activity on the surface of the ground. Can be bricks, glass, tin, iron, ceramics etc.
Historic Structure	Building or substantial above ground structure older than 50 years
Isolated Artefact	AAV term to describe the location of a small number (<5) of artefacts or items of cultural material in 100m ²
Knapping Event	Location where stone tool manufacture has taken place, showing evidence of related activities or sequence of manufacture
Microliths	Small retouched artefacts commonly hafted
Pre-contact	Before first settlement by non-Aboriginal people. Time period may vary as parts of Australia and Victoria were settled at different times. Contact peoples may vary e.g. Europeans in Victoria, but other groups earlier in northern Australia.
Post-contact	After settlement
Quarry	Exposed rock outcrops where stone or other materials (e.g. ochre) was removed for various purposes
Quartz	Clear or opaque highly silicious rock, pink, grey, white or clear. Very commonly used in the manufacture of stone

	artefacts
<i>Retouch</i>	Smaller regularly spaced elliptical flake removals from a tool for the purpose of shaping or sharpening
<i>Scarred Tree</i>	Scars on trees resulting from the removal of bark by Aboriginal people for various purposes. The scars may be various sizes and expose the sapwood on a branch or trunk of the tree.
<i>Scrapers</i>	Artefacts with retouched edges which are concave, convex or combinations of both (McCarthy 1976: 34)
<i>Silcrete</i>	Very brittle, intensely indurated rock composed mainly of quartz clasts cemented by a matrix which may be well-crystallised quartz, cryptocrystalline quartz, or amorphous (opaline) silica (Langford-Smith 1978: 3).
<i>Small Tool Tradition</i>	A wide range of small artefacts including Pirri Points, Kimberly Points, Tula (and non-Tula or Burren) adzes and slugs, backed blades, and blades without backed retouch (such as butted blades) present in late assemblages and most probably hafted (Gould 1980: 177; Bowdler and O'Connor 1991).
<i>Visibility</i>	The extent to which the ground surface may be viewed when surveying for archaeological remains

