

**Geological and geomorphological sites of international, national and state significance in the Central Highlands state forests**

International significance					
Site ID	Name	Location	Latitude/ Longitude	Site Description	Significance statement
WR 092	Sekaninaite mineral occurrence, Eildon area	Marysville	-37.310145° 145.894023°	A cutting along Snobs Creek Road in the Eildon area exposes part of the Devonian Rubicon Rhyolite which contains unaltered crystals of iron rich cordierite. The Rubicon Rhyolite is a thick welded volcanic ash flow or ignimbrite within the Licola Volcanics of the Cerberean Cauldron (Caldera) Complex (see WR 015).	The Rubicon Rhyolite is the only known volcanic rock to contain phenocrysts (large crystals) of iron rich cordierite and specifically the very rare mineral species sekaninaite.

National significance					
Site ID	Name	Location	Latitude/ Longitude	Site Description	Significance statement
WR 014	Baw Baw Plateau	Erica area between Mt Whitelaw and Mt Erica	-37.822996° 146.242307°	<p>The Baw Baw Plateau is an alpine high plain between 1000 and 1563 m asl developed on the Late Devonian Baw Baw Granodiorite. The granodiorite is an elliptical-shaped pluton and is the easternmost of an east to west trending series of plutons within the Tynong Batholith. The hornfels contact aureole surround the pluton is 1–2 km wide (see site WR 014.06). A few large hornfels bodies occur within the granite, e.g., one near the northern edge of the pluton on Mt Matlock, runs parallel to the boundary, 500 m in from the pluton's edge. Several silicic dykes intrude into surrounding rocks. A wide variety of features are associated with the weathering characteristics of the granite such as broadly concave valleys, peaty flats, tors, whalebacks, stepped valley heads and the very distinctive rectangular joint controlled drainage pattern.</p> <p>Weathered rocky outcrops comprising large tors form prominent features of the eastern slopes of Mt Erica and Mt Mueller. Stepped valley heads occur in Tullicoutty Glen, Whitelaw Creek and at the head of the west branch of the Tanjil River. Peaty flats are prominent at Mustering Flat and the rectangular drainage pattern is best developed between Mt Baw Baw and Mt Erica.</p> <p>No radiometric dates are known for this pluton but it is assumed to be Late Devonian (~359–383 mya) as it truncates folds and cleavage formed in the Middle Devonian Tabberabberan Orogeny indicating that it is post-Middle Devonian (~393–383 mya).</p>	<p>The geological significance of this site lies in the surface preservation, resulting in a combination of geomorphological features which are only found at one other site on the Australian mainland — Mt Buffalo. The drainage pattern is highly significant, and the type locality is around the Mt Baw Baw summit tower.</p> <p>The stepped valley forms are of particular interest as early workers attributed these to glaciation. Unequivocal supporting evidence of glaciation is lacking. There are no obvious moraines or striated rocks, and later research indicates that these features are produced by weathering processes without the need for a glacial episode.</p>

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WR 014.06	Marshall Spur Road quarry: contact metamorphosed shale	Road metal quarry on the west side of the main Marshall Spur Road, Thomson	-37.747775° 146.292967°	This quarry provides exposures of the contact aureole of the Late Devonian Baw Baw Granodiorite pluton. Here the Wilson Creek Shale has been metamorphosed into a fine-grained black hornfels. Small white spots of cordierite are visible, and rare samples have tiny glassy andalusite prisms. Bedding is not visible because of recrystallisation. Several fault zones are visible in the east wall of the quarry. These are weathered and stained by yellow jarosite, and also contain some fresh pyrite.	This quarry provides an excellent example of the features of the metamorphic aureole surrounding the Baw Baw Granodiorite and complements the geology of the pluton.
WL 017	Labertouche Cave	11km north of Princes Hwy at Robin Hood	-37.998213° 145.851504°	The cave is developed in the Late Devonian Tynong Granite where a tributary of the Labertouche Creek flows underground. The cave is entered through an old stream sink located above the currently active stream passages. It has 710 metres of passage in a 3-dimensional maze with up to 3 levels. It was formed when a landslide consisting of a significant number of granite tors and boulders blocked the floor of the valley. Weathered material between the boulders has been removed by the stream. Evidence of silicious dissolution is present as small opal-A and allophane speleothems.	Although caves in granitic rocks are not particularly rare in eastern Australia, Labertouche Cave is one of the most complex and extensive. Understanding of the processes of formation is now better understood than previously but this site remains a nationally recognised example of this type of geomorphological feature. In addition, the evidence of silicious dissolution is significant.
WR 013	Acheron Cauldron	Mt Donna Buang area to Maryville	-37.669133° 145.564484° -37.706476° 145.681310°	The Acheron Cauldron is kidney shaped and forms the southern half of the Late Devonian Marysville Igneous Complex, the northern half being the Cerberian Cauldron (WR 015). The two cauldrons are very similar in nature to the Dandenong Igneous Complex but are much more extensive. These features were formed following a volcanic eruption and subsequent collapse of the material overlying the emptied magma chamber. They now form a dissected highland plateau and have considerable influence on the local physiography.	The site provides important information about the geological history of the state and the Central Victorian Magmatic Province. Volcanic cauldrons are a characteristic feature of central Victoria, although they also occur in other parts of the Tasman Fold Belt. In Victoria they are Late Devonian (~374 mya) and follow the Middle Devonian (~393–383 mya) Tabberabberan Orogeny. The Mount Donna Buang Hypersthene Rhyodacite rock unit is the uppermost part

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				The Mount Donna Buang Hypersthene Rhyodacite is the most common rock type of Acheron Cauldron and forms the southern part. It is remarkable for its homogeneity and is thought to represent a single crystallised ash flow.	of the volcanic sequence and accompanied the collapse of the Acheron Cauldron. This rock type is not represented in the adjoining Cerberean Cauldron.
WR 013.02	Marysville to Cumberland Junction road cuttings	Marysville	-37.5156° 145.7617°	The road cuttings on the road from Marysville to the Cumberland Junction (Marysville-Woods Point Road) provide a complete section of the Acheron Cauldron rocks from the underlying Early Devonian Cathedral Group to the igneous rocks of the Taggerty Supergroup, Rubicon Rhyolite, Mount Stinton Granodiorite, and Lake Mountain Biotite Rhyodacite. That is from basement, through the pre-collapse phase to the collapse phase and intrusion of the granodiorite.	These road cuttings provide the most complete picture of the Acheron Cauldron with a sequence from the underlying Early Devonian Cathedral Group to the Lake Mountain Biotite Rhyodacite. Such complete sequences in one sequence of exposures are not common.
WR 015	Cerberean Cauldron	Marysville to Snobs Creek	-37.510263° 145.947717°	The Cerberean Cauldron is circular shaped and forms the northern half of the Marysville Igneous Complex (see WR 013 Acheron Cauldron). The two cauldrons are very similar in nature to the Dandenong Igneous Complex but are much more extensive. They form a dissected highland plateau and have considerable influence on the local physiography. The rocks are Middle Devonian (~393–383 mya) and overlie the rocks folded by the Tabberaberan Orogeny. This is a large site and several subsites probably exist within it. Further investigation is warranted.	The site provides important information about the geological history of the state and the Central Victorian Magmatic Province. Cauldrons are a characteristic feature of central Victoria, although they also occur in other parts of the Tasman Fold Belt. In Victoria they are Late Devonian (~374 mya) in age and follow the Middle Devonian Tabbarabberan Orogeny. The site provides important information about the Palaeozoic geological history of central Victoria.
WR 017	Enochs Point Ordovician fauna	Enochs Point	-37.425880° 146.098084°	Laminated black shale of the Upper Ordovician (~460–445 mya) Mount Easton Shale here contains an Eastonian faunal sequence which includes rare straight cephalopods (class of molluscs) in a restricted outcrop.	Ordovician sediments are restricted in outcrop in this region and cephalopods, particularly straight species, are rare in the Ordovician.

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WR 019	Matlock Fossil localities	Matlock	-37.543380° 146.139047°	Lower Devonian, Silurian and Ordovician Fossil localities; no detailed information is available.	An important Palaeozoic fossil area. No descriptive information available. Further investigation is warranted.
WR 020	Woods Point dyke swarm Site 1	Woods Point	-37.511018° 146.175853°	<p>The Devonian ultramafic to felsic dyke swarm has a trend that broadly parallels the hosting Silurian-Devonian sediments. The dyke swarm is located on the western limb of the Walhalla synclinorium, within and to the east of the Mount Easton Fault Belt, and extends north-south for over 150 km, with some dykes traceable along strike for &gt;20 km. The dykes were intruded into steeply dipping fractures and have themselves been cut by numerous faults. Their composition ranges from peridotite to quartz porphyry but lamprophyres and diorite porphyrites predominate. Auriferous quartz veins were also introduced.</p> <p>The swarm is discontinuous in outcrop and therefore there may be several sites of state significance as well as more less significant sites.</p>	The Woods Point Dyke Swarm is a significant gold bearing feature in central Victoria. The mafic to felsic dykes are associated with the Woods Point and Walhalla gold mineralisation. Its discontinuous outcrop results in several separate sites. Further investigation needed.
WR 064	Frenchman Gully Peridotite	3 km NNW of Aberfeldy, along Violet Town Track	-37.673576° 146.345698°	A peridotite dyke is exposed in Frenchman Gully. The exposure is largely moss covered but is recognisable by large, rounded boulders which contrast with the surrounding soils developed on Early Devonian Norton Gully Sandstone of the Walhalla Group. Access is from Violet Town Track.	Ultramafic igneous rocks such as peridotites are relatively rare in Victoria and the Frenchman Gully outcrop is the largest known in the state.
WR 065	Mt Easton area	7 km west of Aberfeldy	-37.688501° 146.277516°	The type district of the Silurian to Devonian Jordan River Group lies between the Yarra Track and the junction of the Jordan and Thomson rivers over an extensive area. In this area the Jordan River Group comprises the McAdam Sandstone, Bullung Siltstone, Sinclair Valley Sandstone, Whitelaw Siltstone and Wilson Creek Shale.	The significance of this areas is the abundance of graptolites in the Mount Easton Shale and their use in the definition of the Eastonian stage of the mid Late Ordovician (~453–445 mya), together with the type sections of the Jordan River Group.

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				The Ordovician Mount Easton Shale in this area contains graptolites useful for stratigraphic correlation.	
WR 094	Jordan River Group: Mt Easton area Reference no: 37 Jericho	Pinnacle Track, S of Matlock	-37.672952° 146.228929°	<p>In this area the Jordan River Group comprises the McAdam Sandstone, Bullung Siltstone, Sinclair Valley Sandstone, Whitelaw Siltstone and Wilson Creek Shale containing graptolites, useful for stratigraphic correlation and dating. The age ranges from Early Silurian (Llandevonian) to mid-Early Devonian (middle Pragian). The outcrops (2200 m thick) are along the Mt Easton axis from Bonnie Doon to the Thomson-Jordan confluence, at Coopers Creek, Tyers River and the Tanjil River anticlinorium and are overlain by the very thick Walhalla and Cathedral groups' condensed sequence. This area provides the best exposures in the Mount Easton Fault Belt.</p> <p>The Jordan River Group rocks here expose a sequence from the top of the Mt Easton Beds to the top of the Wilson Creek Shale.</p>	Type district is the Mount Easton Axis between the Yarra branch and the Thomson-Jordan confluence. This site includes the type area of the Jordan River Group. The Group members, McAdam Sandstone and Bullring Siltstone are exposed in road cuttings on the Thomson-Jordan Divide Road and the T-J Divide Road although the type section for the former Formation occurs outside the study area. Shales and slates of the Mount Easton Beds outcrop in numerous fault silvers to the north of Mount Easton. These are highly fossiliferous and the graptolite collections from this site form the basis of the definition of the Eastonian stage, the middle stage in Victoria's Late Ordovician (~458–444 mya). The abundance of graptolites and their use in the definition of the Eastonian Stage, together with the type sections of the Jordan River Group, indicate the significance of this site.