
Updating and revision of the 1:25 000 scale series geological maps covering the Mt Read Volcanics belt in western and northwestern Tasmania

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Introduction

This report represents the culmination of a two-stage project carried out by the author under the Western Tasmanian Regional Minerals Program (WTRMP) to revise and update the series of published 1:25 000 scale geological maps of the Mount Read Volcanics belt through western and northwestern Tasmania. In particular, advances in understanding and knowledge of the geology of this belt gained through study of WTRMP geophysical surveys (aeromagnetics and radiometrics) and associated geological mapping, from recent work by exploration companies in the area, and from recent University research in the area, was to be shown on the maps. Much of this work had been summarised in a previous series of WTRMP reports (Corbett, 2002, 2003; Corbett and McClenaghan, 2003; Morrison, 2002) and on three specially produced 1:100 000 scale geological maps, but it was considered necessary to have the information represented on the mainstream digital map products.

Some 36 map sheets have consequently been revised and updated, with new boundaries in some cases, including some large areas of completely new mapping, and new legends in all cases. In addition, there has been an extensive reorganisation of stratigraphic Rcodes* and mnemonics, with the addition of many new stratigraphic units, the replacement of many existing units, and the re-combination of many units.

Many of the geological changes flow through to the 1:250 000 scale maps of the area, and some revisions to boundaries, legends, Rcodes and mnemonics are proposed for these maps.

Because the revision of Rcodes involved a statewide database, with flow-on effects to maps outside the project area, it was necessary to fully complete the revision and updating process for all the project maps before the new system could be implemented. The revised maps and Rcodes have been presented to Mineral Resources Tasmania, but actual implementation of the changes will involve considerable time for re-drafting.

(Note added in proof by G. R. Green: The revisions suggested here represent a thorough review and a major advance in the understanding of the geology of the Mount Read Volcanics and adjacent rocks by Dr Corbett. Most, but not all, have been implemented on the 1:25 000 scale digital compilations after subsequent review by MRT geologists and further research and limited field checking by M. J. Vicary. However, it is considered important to preserve the views of the author of this report. Hence, the recommendations for changes to the maps presented herein are entirely those of Dr Corbett, but there has been minor editing of the text.)

Stages in the revision project

Stage 1

The 13 published map sheets of the Central West area (Darwin to Ramsay) were revised and updated with new boundaries and correlations, and new legends were drawn up. A list of new Rcodes and mnemonics was prepared, and most of these were entered into the Rcode database by Dr M. P. McClenaghan, although some were deferred pending work in the northwest and southwest areas.

* Both the 1:25 000 and 1:250 000 scale digital geology data use RCODE – each scale has a separate coding system. RCODE is a unique number given to each rock unit and is used as a link to the geology lookup tables GEOL25.LU or GEOL250.LU or GEOL500.LU and LITH.LU. RCODE is also used to record the rock or mineral type of veins or dykes.

This stage was carried out in the period August to October, 2003. The revised maps were held by the Data Management Branch, but no revisions were carried out pending completion of the northwest and southwest maps.

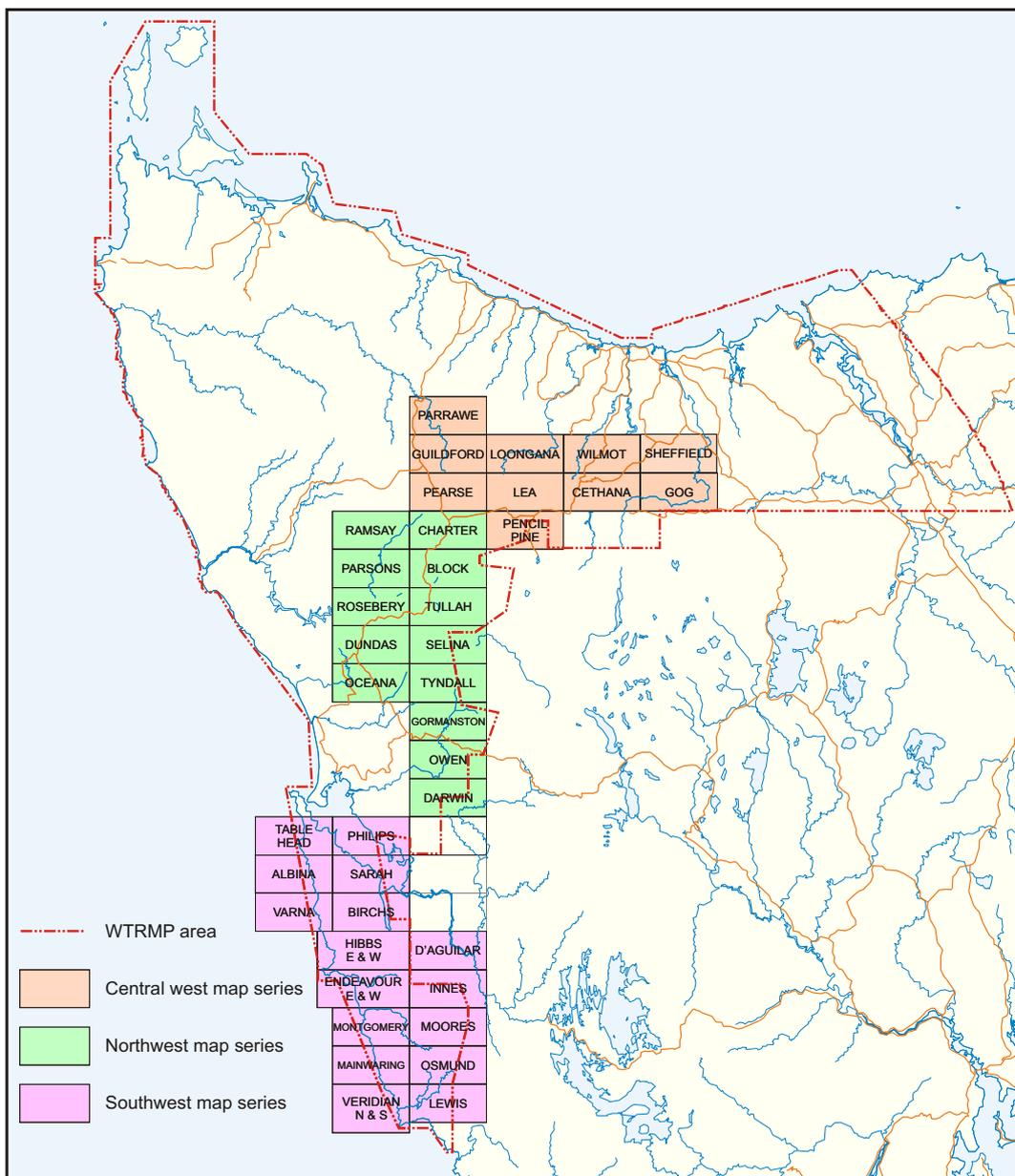
Stage 2

The ten published map sheets (excluding the previously done Charter) in the northwest sector (Parrawe to Gog), and 13 of the 15 published sheets in the southwest sector (two did not require revision) were revised and updated, with new legends drawn and new Rcodes prepared. An integrated complete set of revised 1:25 000 scale Rcodes and mnemonics, including units from the Central West, was completed with the assistance of Dr M. P. McClenaghan of MRT and M. J. Vicary (WTRMP contractor). Revisions were also made to the legends and Rcodes of the Southwest and Northwest 1:250 000 scale maps to accommodate the geological changes and revisions, but the necessary boundary changes have not yet been implemented.

The final phase of Stage 2 involved the preparation of a preliminary new colour design for the 1:25 000 scale maps, to take account of the geological changes, and the preparation of this report, in which the major map revisions are listed, and the overall findings of the project in terms of advances in understanding and presentation of West Coast geology are described. Stage 2 was carried out over the period March to June, 2004.

Acknowledgements

The author is again pleased to acknowledge the encouragement and helpfulness of MRT staff, particularly Dr Geoff Green, who supervised and supported the project; Dr Marcus McClenaghan, who assisted with the difficult and time-consuming process of entry, scrutiny and checking of Rcodes; and Chris Meech, who assisted with the supply of maps and much useful advice. Michael Vicary, WTRMP contractor, is thanked for his enthusiastic participation in discussions of the geology, and assistance with Rcodes.



Revisions to the 1:25 000 scale map sheets

The many revisions made to the map sheets are listed below.

The following abbreviations are used hereafter:

EQPS = Eastern Quartz-Phyric Sequence

CVC = Central Volcanic Complex

WVSS = Western Volcano-Sedimentary Sequence

Central West Map Series

Darwin

- designation of eastern sequence changed from EQPS to Tyndall Group after WTRMP studies by Morrison (2002) and Corbett (2002).
- andesite body at Garfield prospect extended, after mapping by RGC Exploration.
- revision of mnemonics-Rcodes for Owen Group units.
- compilation errors in Siluro-Devonian rocks in Lake Burbury area rectified.

Owen

- area of new mapping at Little Owen Spur added from WTRMP study and M.Sc. mapping (Corbett, 2001*b*).
- eastern sequence at Jukes Proprietary changed to Tyndall Group.
- revision of Owen Group mnemonics.
- compilation errors corrected in Ordovician-Silurian-Devonian rocks in Lake Burbury area.

Gormanston

- major addition of new geology over 18 km² in Mt Lyell mines area from M.Sc. mapping (Corbett, 2001*a, b*), and clarification of geology in this area, including setting of Comstock and North Lyell chert bodies within hydrothermal alteration zone.
- many topographic and prospect names recommended for inclusion.
- revision of Owen Group mnemonics.

Tyndall

- very minor changes only
- small outcrop of granite added at Lake Dora after WTRMP study by KDC and KLM.
- dip on Whitham Fault added.
- number of topographic names recommended for inclusion.

Selina

- dyke of Devonian lamprophyre added at Red Hills after WTRMP studies (KDC and KLM).
- eastern sequence confirmed as EQPS after WTRMP studies (KDC, KLM).

- Owen Group unit at Gooseneck Hill assigned to Lower Owen after WTRMP study.
- revision of Owen Group mnemonics.

Tullah

- unit of feldspar-phyric CVC-type lava added in EQPS north of Mt Murchison, after WTRMP studies, confirming interfingering relationship between CVC and EQPS in this area.
- boundary of Granite Tor granite modified from WTRMP geophysics and reconnaissance mapping by M. P. McClenaghan.
- revision of Owen Group mnemonics.

Block

- major area of new Aberfoyle Resources mapping (Richardson, 1994) added northeast of Mt Block.
- revision of Henty Fault Zone geology in Lake Mackintosh area after WTRMP mapping (KDC).
- new mapping added in Boco Road-Pinnacles area from Pasminco (McNeill, 2002) and thesis by R. O. Reid (1990).
- revision of Granite Tor granite boundary by M. P. McClenaghan.
- Tertiary basalt boundary extended at Mt Romulus from WTRMP geophysics.

Charter

- large area (50 km²) of new mapping by Aberfoyle Resources (Richardson, 1994) in Que-Hellyer-Mt Charter area added, simplifying previous mapping to some extent.
- large area of sedimentary rocks in lower Que River-Hatfield River area assigned to Tyndall Group correlates, underlain by Southwell Subgroup correlates (part of WVSS) and overlain by marine Owen Group correlates.

Oceana

- western part of White Spur Formation and western part of Henty Fault Wedge sequence (with andesitic-basaltic volcanic rocks) re-assigned to Tyndall Group correlates, after work summarised in Corbett (2002).
- remainder of White Spur Formation and Henty Fault Wedge sequences, plus Yolande River Sequence, all grouped as WVSS, achieving much simplification.
- southern continuation of 'Rosebery Group' sequence around Farrell Rivulet-Tom Creek designated as marine Owen Group, together with sequence in area east of Professor Range.
- small area of Pioneer Beds/Moina Sandstone added in western tributary of Ewart Creek, unconformably

overlying marine Owen Group, after mapping by Berry (1996).

- upper Dundas Group sequence in Mariposa Creek area re-designated as marine Owen Group.
- conglomerate-sandstone sequences at Mt Zeehan and Professor Range rationalised.
- significant glacial deposits with Owen Conglomerate boulders recognised at Henty Road–Badger River area, and differentiated out, after WTRMP studies (KDC). One of these has been wrongly compiled from Zeehan 1:50 000 scale sheet as Owen Group outcrop.
- ‘outcrop’ of Cambrian basalt on Zeehan Highway north of Henty River removed, as the evidence clearly indicates that this is a large erratic in glacial moraine.
- several important concealed faults have been added.

Dundas

- the belt of ‘Rosebery Group’ sedimentary rocks through the Moores Pimple area re-designated as marine Owen Group, from fossil evidence and lithological correlations. Units include ‘Stitt Quartzite’, ‘Munro Creek Slate and Quartzite’, ‘Westcott dolomitic beds’, fuchsitic polymict conglomerates at Moores Pimple. There are some uncertainties with designations in this structurally complex area, and it seems likely that some rocks of pre-Owen Group age (i.e. Tyndall Group or WVSS) are also present. This is particularly the case in the Concert Creek–Red Lead mine area, where fossil localities of Middle Cambrian age are known from early work. Several outcrops of allochthonous-type basaltic rocks are now distinguished near Moores Pimple, after work by A. V. Brown, and presumably represent ‘basement’ in this area.
- the upper formations of the ‘lower Dundas Group’ at Dundas (the Razorback Conglomerate and lower Brewery Junction Formation) have been re-designated as Tyndall Group, on fossil evidence.
- the lower part of the ‘lower Dundas Group’ (Hodge Slate, Red Lead Conglomerate and ‘Judith Formation’) has been re-designated as WVSS.
- the hangingwall sedimentary sequence at Hercules is re-designated as WVSS, not CVC, after work by R. L. Allen, J. McPhie and others for Pasmaenco. The Jones Creek shale sequence is also so designated.
- the ‘Huskisson Group’ volcano-sedimentary sequence in the Godkin Ridge–Ring River area is re-designated as Tyndall Group correlates on fossil evidence, although its basal contact with underlying WVSS equivalents is poorly defined.
- the andesitic ‘Curtin–Davis volcanics’ at Montezuma Falls is re-instated, although the boundaries are poorly known.

- the mafic greywacke sequence on the south ridge off Colebrook Hill is re-designated as Cleveland–Waratah Association, after WTRMP studies (Corbett, 2002), and a terminating fault is reinstated from MRVP Map 3.
- a double fault arrangement is added for the Rosebery Fault at Moores Pimple to allow for different observations on MRVP Map 3 and the Zeehan 1:50 000 scale sheet.
- the large area of mafic-intermediate volcanoclastic greywacke in the Cuni area is designated as a sub-unit of the Crimson Creek Formation, after an Honours thesis study (Greenhill, 1995; Corbett, 2002).
- the area of Pleistocene glacial deposits west of Williamsford has been extended, following MRVP Map 3, to cover the patch of Siluro-Devonian rock, which is considered to be a large glacial erratic.

Rosebery

- the Mt Black Fault has been added as a concealed fault under Quaternary deposits, between Koonya and Rosebery north, after work by R. L. Allen and others for Pasmaenco.
- the hangingwall sedimentary sequence at Rosebery is re-designated as WVSS, after work by R. L. Allen and others for Pasmaenco.
- the area of White Spur Formation rocks (formerly ‘Primrose Pyroclastics’) in the curve of the Rosebery Fault at Rosebery is re-designated as Tyndall Group correlates, based on correlation to the Howards Road–Yolande River area, and its position underlying Owen Group correlates (Stitt Quartzite).
- most of the ‘Rosebery Group’ sequence west of Rosebery is re-designated as marine Owen Group, based on fossils at Higgins Creek to the north, and lithological correlation. This includes the Stitt Quartzite, Munro Creek Slate and Quartzite, Westcott dolomitic beds, Salisbury fuchsitic conglomerate, and Natone Volcanics. Again, there is some uncertainty about ages of units in this structurally complex area, and some pre-Owen rocks may be present.
- the mafic greywacke-mudstone sequence on Colebrook Hill is designated as Cleveland–Waratah Association on the basis of its composition and its continuity with the belt of these rocks extending north on the Pieman Road.
- the ‘Huskisson Group’ volcano-sedimentary sequence is designated as Tyndall Group correlates, on the basis of good fossil control. A poorly defined inferred contact with underlying WVSS rocks is shown.
- the Cuni-type volcanoclastic unit northwest of Renison is designated as a sub-unit of the Crimson Creek Formation.

Parsons

- a significant area of new mapping is added at The Pinnacles after work by A. McNeill (2002) for Pasminco, R. Reid (1990), and WTRMP studies (Corbett, 2002). This includes recognition of correlates of the Southwell Subgroup (part of WVSS), placement of the major felsic lava unit at The Pinnacles in the WVSS (possible correlate of the Que dacite), and clarification of the probable interfingering contact between Southwell Subgroup and the large unit of CVC pumice breccia extending south towards Rosebery (partly after Gifkins, 2001).
- the extension of the 'Rosebery Group' sequence through the Higgins Creek area is designated as marine Owen Group, based on good fossil evidence (Jell *et al.*, 1991). Stitt Quartzite-type quartzwacke persists into this area, as well as polymict conglomerate (e.g. Green, 1983).
- a large area of volcano-sedimentary rocks north of The Pinnacles is designated as Tyndall Group correlates, after work by McKibben (1993), Poltock (1994) and Poltock and Saxon (1993). The sequence has a distinctive Tyndall-type magnetic signature.
- a new extension of the Cleveland-Waratah Association basaltic sequence is added west of Silver Falls, after drilling by Pasminco (Basford, 1997) and WTRMP studies (Corbett, 2002).

Ramsay

- the new extension of Cleveland-Waratah Association rocks continues into this area.
- the large area of Tyndall Group correlates continues into this area.
- the large area of conglomeratic rocks in the Hatfield River area is designated as marine Owen Group – a continuation of the belt of 'Rosebery Group' – and an adjacent wedge of siltstone-rich rocks is also grouped as marine Owen Group.

Northwest Map Series

Pearse

- three new windows of Ordovician-Silurian-Devonian rocks added within the Tertiary basalt area, after WTRMP studies (Poltock, 2002).

Guildford

- large new area of Silurian-Devonian rocks added at Rabbit Plain, after WTRMP studies (Poltock, 2002).
- the volcano-sedimentary sequence at St Valentines Peak designated as Tyndall Group correlates on the basis of fossil ages.

Parrawe

- two new areas of Precambrian Oonah Formation rocks added near Emu River from WTRMP studies (Poltock, 2002).

- volcano-sedimentary sequence at St Valentines Peak assigned to Tyndall Group correlates on basis of fossil ages.

Pencil Pine

- minor changes only

Lea

- an error near Lake Lea has been corrected, where part of Owen Group sequence shown as talus; boundaries not properly transferred from MRVP Map 8.
- another error at Black Bluff Range window, where unit shown as lava instead of volcanoclastic rocks.
- various quartz-phyric volcanic units in the Stormont area re-assigned to EQPS.

Loongana

- mapping in the Loongana Range-Native Track Tier area has been improved by incorporating company mapping by RGC (Vicary, 1994, 1995), with some reconnaissance WTRMP mapping by the author, to produce this update. Hence there are many new boundaries.
- some uncertainty remains about the geology in places, particularly in the area where E-W faults affect the Cambrian sequence just west of the Loongana Range.
- an error is evident at Leven Canyon, where a large area of Moina Sandstone and its basal conglomerate has been mis-compiled as Gordon Limestone – hence the main Canyon viewpoint and track are shown as being in limestone instead of sandstone, and the main gorge is shown as being in limestone.
- the volcanic sequence at Native Track Tier has been divided into WVSS correlates in the southeast, and Tyndall Group correlates in the northwest (most of this on Loyetea sheet), after the WTRMP study (Corbett and McClenaghan, 2003). A number of large dacitic intrusive/lava bodies are present in the Tyndall Group sequence.
- the conglomerate unit forming the Loongana Range and Griffiths Ridge-Leven Canyon has been re-assigned as basal Moina conglomerate, after examination at Leven Canyon. Here, the typical Moina Sandstone lithology, with trace fossils, is interbedded with pebbly bands nearly to the base of the sequence. A puzzle remains as to how this unit relates to the conglomerate-sandstone sequence at Native Track Tier, just to the northwest, where a basal conglomerate unit, designated as a Lower Owen correlate, is followed by a marine Owen sequence, with Moina Sandstone above this again.
- a new area of Gordon Limestone is added in Dempster Creek, south of Mt Everett, based on

WTRMP geophysics (Corbett and McClenaghan, 2003), but ground checking is recommended.

Cethana

- large areas of quartz-phyric volcanic rocks in the Cethana-Lorinna area are assigned to EQPS, including the host rocks of the Cethana alteration zone, following WTRMP studies (Corbett and McClenaghan, 2003).
- several areas of quartz-feldspar-biotite-phyric 'rhyolite' in the Round Mount area have been designated as Bonds Range-type intrusive quartz-feldspar-biotite porphyry (Corbett and McClenaghan, 2003).
- large areas of andesite, felsic lavas, and associated Tyndall-like volcanoclastic rocks in the Staverton-Mt Roland area have been assigned to the Tyndall Group (Corbett and McClenaghan, 2003).

Wilmot

- large area of greywacke-siltstone sequence around Roland-Lake Barrington-Wilmot-Nietta has been assigned to WVSS (Corbett and McClenaghan, 2003).
- andesite and associated volcanoclastic rocks in the Dasher River-Mt Roland area have been assigned as Tyndall Group correlates, as has the extensive felsic lava sequence which appears to be interbedded with these rocks in the Staverton-Gowrie Park area (Corbett and McClenaghan, 2003).
- one large and two small bodies of mafic intrusive rock (highly magnetic) of uncertain affinity have been added in the Wilmot area, after WTRMP work by Poltock (2002).

Gog

- the 'Gog Range Greywacke' and associated extensive sedimentary-volcanosedimentary sequences north of the Gog Range are designated as WVSS on the basis of lithology and pre-Tyndall Group stratigraphic position (Corbett and McClenaghan, 2003).
- the large body of 'Minnow Keratophyre' is designated as a quartz-feldspar porphyry intrusive.
- the andesites and related volcanoclastic rocks on the slopes of Mt Roland are designated as Tyndall Group correlates on the basis of fossil evidence from Paradise, just to the north.
- new mapping by RGC Exploration (Callaghan, 2002) in the western Gog Range area has been added, after some checking during WTRMP studies (Corbett and McClenaghan, 2003). This includes recognition of some Tyndall Group conglomerate on the slopes of Mt Roland, more extensive quartz-feldspar porphyry bodies, and recognition of some highly altered basaltic rock on the Union Bridge Road.
- the overly detailed splitting out of units in the volcano-sedimentary sequence in the Beulah-

Lobster Rivulet area has been simplified and rationalised to some extent.

Sheffield

- the 'Gog Range Greywacke' and extensive sedimentary sequences in the Beulah area are designated as WVSS on the basis of lithology and pre-Tyndall stratigraphic position.
- the andesite and related volcano-sedimentary rocks in the Dasher River-Mt Roland area are designated as Tyndall Group correlates on the basis of fossil control at Paradise and general lithological similarity.
- the 'Minnow Keratophyre' porphyry body is shown as a large intrusive body.
- the Beulah 'granite' bodies are re-designated as andesite-related intrusive rocks, after work by Aberfoyle Resources (Rand, 1990; Wallace, 1991) and radiometric dating (Black *et al.*, 1997).

Southwest Series

Lewis

- the area of felsic volcano-sedimentary rocks west of the Osmund Syncline-Stony Creek Granite body is designated as WVSS, and the more volcanic-rich sequence east of this line as EQPS, even though there is probably some interfingering. There is no recognised CVC equivalent in this area.
- the sandstone unit below the Gordon Limestone in the Giblin River Syncline is designated as Ordovician sandstone, on the basis of descriptions in Williams and Corbett (1977) and Hall *et al.* (1969).

Veridian North and Veridian South

- several sequences have been combined into WVSS here, including the felsic volcano-sedimentary sequence in the Wart Hill Camp area, the more sediment-rich sequence in the Copper Creek area, and the volcano-sedimentary sequence on the west coast at The Shank, which contains andesitic volcanic rocks further north (see Mainwaring sheet discussion). These three sequences appear gradational and interfingering.

Mainwaring

- the western volcano-sedimentary sequence with andesites is assigned to WVSS, together with the Copper Creek-upper Mainwaring River sequence, and the volcano-sedimentary sequence in the Wart Hill area. Although Corbett (2003) tentatively assigned the western andesitic sequence to the Tyndall Group, further reflection suggests there is insufficient evidence to warrant this, and that a WVSS assignment is safer pending better age definition.
- the Copper Creek sequence appears to be essentially identical to the western coastal sequence, with andesitic volcanic units in a sedimentary matrix.

Osmund

- a compilation error northeast of Mt Osmund, where a lava unit has been mis-plotted as a volcanoclastic rock, has been corrected.
- the interbedded sandstone-siltstone-conglomerate sequence on Mt Osmund has been designated as marine Owen Group.

Moores

- compilation error near Hazell Hill, where a small boundary segment was not plotted and a wrong unit was consequently shown, has been corrected.
- the undifferentiated conglomerate-sandstone sequence in the Olga Valley is designated as Ordovician sandstone (Os) on the basis of original work by the author for the Hydro-Electric Commission, and descriptions in Williams and Corbett (1977) and Spry and Banks (1962). These describe the unit as 'Caroline Creek-type sandstone'.
- a new boundary is added to take in the zone of low ridge outcrops in the lower part of the Gordon Group along the western side of the Olga Valley. These probably represent a siltstone-sandstone unit at the base of the Gordon Group.

Montgomery

- no topographic names shown on this sheet.
- designation of western andesite-bearing sequence as WVSS continued.

Endeavour West and Endeavour East

- designation of western andesite-bearing sequence as WVSS continued.
- two groups of company geologists (BHP and Cyprus Minerals) describe ultramafic rocks at the eastern end of Spero Bay, in addition to gabbro. The WTRMP compilation map of Corbett (2003) shows this body, but they have not been shown here pending field checking.

Innes

- boundary of Gordon Group in Olga Valley modified to include obvious ridge of outcrop.

Hibbs West and Hibbs East

- designation of western andesite-bearing sequence as WVSS continued

D'Aguilar

- lazy compilation indicated by lack of any data on the large area of Ordovician rocks around Lower Gordon-Franklin. There are HEC reports, published papers by Rao and Naqvi (1981), and even the original 1:250 000 scale Queenstown sheet (Corbett and Brown, 1975) has some bedding readings. A number of readings in the Gordon Group shown on MRVP Map 12 have not been transferred.
- 'Intrusive Rocks' section has been left off the legend.
- the sandstone sequence in the Gordon River-King Billy Range area is designated as Ordovician sandstone (Os), rather than 'CO', on the basis of personal knowledge (HEC work) and the description by Rao and Naqvi (1981). The latter describe this unit (Butler Island Formation) as containing several major limestone horizons, and having Ordovician fossils.

Birchs

- the extensive volcano-sedimentary and sedimentary sequences with andesitic to felsic volcanic rocks (including the 'Noddy Creek Volcanics') are assigned to WVSS, in continuity with those to the south.
- mapping has not clearly resolved the relationship between allochthonous sequences (particularly the high-Mg andesites) and WVSS in the Timbertops area.
- the sandstone-conglomerate-siltstone sequence in the Timbertops syncline is assigned to Ordovician sandstone (Os) on the basis of good fossil control. Marine Owen Group correlates of Late Cambrian age are present in the Hibbs Fault Zone.

Sarah, Philips, Table Head

- minor mnemonics and legend changes only.

Albina, Varna

- no changes made.

Summary of major changes and revisions to 1:25 000 scale series maps

1. A number of large new areas of Tyndall Group rocks and correlates have been recognised and depicted, e.g. in the Henty Fault Wedge, at Howards Road, in the lower Dundas Group at Dundas, in the 'Huskisson Group' throughout its outcrop area, beneath the Rosebery Fault at Rosebery, in the Silver Falls-lower Que River area, at St Valentines Peak, at Native Track Tier, and in a major E-W zone from Staverton to Mt Roland and the Dasher River. Andesites are a major component of the sequence in the latter area.

The much wider extent of Tyndall Group rocks now recognised raises the possibility of locating further expressions of the known major mineralisation event which occurred immediately preceding and during lower Tyndall time in the Mt Lyell-Henty zone and elsewhere. This event appears to correspond to the time of intrusion of many of the widespread granite bodies, intrusion of many of the major felsic porphyry bodies, and eruption/intrusion of many of the andesite complexes.

The newly recognised prospectivity in a Mt Lyell-type position under the Tyndall Group cover rocks in the Mt Jukes-Mt Darwin area, beside the extension of the Great Lyell Fault, has already been canvassed by Morrison (2002) and Corbett (2002), and is currently being actively explored and drilled by Newcrest Ltd.
2. Grouping of many units into the WVSS clarifies and simplifies treatment of the marine volcanosedimentary sequences throughout the Mt Read belt from Elliott Bay to Sheffield. The group now includes andesite-bearing sequences along the southwest coast from Low Rocky Point to Macquarie Harbour (encompassing the 'Noddy Creek Volcanics'), the Yolande River Sequence from the Garfield Valley to the South Henty Fault, the Henty Fault Wedge sequence (excluding Tyndall Group), most of the White Spur Formation, the lower part of the Dundas Group at Dundas, the hangingwall sequences at Hercules and Rosebery, the Farrell Slates sequence, the Mt Charter Group from The Pinnacles to Mt Cripps and Mt Tor (including the Southwell Subgroup), and the extensive sequence from Loongana Range through Nietta, Wilmot and Roland to the Gog Range area (the local name 'Gog Range Greywacke' is probably appropriate for this area). This clarification will be particularly effective at 1:250 000 scale. Further fossil discoveries may show that some parts of this sequence are of Tyndall Group age, and these areas can be then be placed into that group. The legend block is designed to cater for this.
3. Large areas of quartz-phyric volcanic rocks through the Stormont-Lorinna-Bell Mount-Cethana area have been identified and depicted as EQPS, correlating with those in the Mt Murchison-Lake Dora area. The large Bonds Range porphyry body provides a strong link through this sequence for some 50 km from Lake Mackintosh to Mt Claude. Granite bodies are also a characteristic feature. There is some interfingering with CVC-type feldspar-phyric lavas at Mt Murchison and Lake Dora, indicating that the two sequences are essentially coeval and laterally equivalent. It is now apparent that there is no major zone of feldspar-phyric rocks, such as forms the Central Volcanic Complex between Mt Darwin and Mt Block, in either the northwest or southwest areas, where EQPS rocks pass laterally into WVSS.
4. The quartz-phyric rocks forming the major 'eastern sequence' in the Mt Jukes-Mt Darwin area, by contrast, appear to belong mainly to the younger Tyndall Group, overlying the CVC with erosional unconformity in places (Morrison, 2002; Corbett, 2002).
5. Largely consistent with recent MRT 1:25 000 scale maps, large areas of marine Late Cambrian Owen Group correlates are now recognised and depicted, including the 'Rosebery Group' belt from south of Mt Dundas to the Hatfield River. A probable continuation of this belt is seen at Native Track Tier. A broader belt of these rocks extends from the lower King River through the Professor Range area to Misery Hill and Dundas, where it has been referred to as the upper Dundas Group. The southerly continuation of this belt is seen as a narrow sliver of Late Cambrian rocks along the Hibbs Fault Zone south of Macquarie Harbour. Recognition of these zones of younger rocks within the welter of Cambrian units in the 'Dundas Trough' is a major simplifying advance.
6. Largely consistent with recent MRT 1:25 000 and 1:250 000 scale maps, the widespread mafic greywacke-mudstone-basalt-chert sequences now considered to be allochthonous, referred to as Cleveland-Waratah Association and correlates, have been more clearly identified and depicted. These now include the Mainwaring Group, Birchs Inlet Volcanics, Miners Ridge Basalt (near Queenstown), Colebrook Hill-Mt Ramsay belt, a recently recognised fault strip in the Ross Creek-Coldstream River area, the main zone around Luina-Waratah, several windows in the Tertiary basalt in the Parrawe area, the Barrington Chert sequences in the Barrington-Palooona area, and the Motton Spilite basalt sequences in the Castra area. Recognition of these rocks and their significance greatly improves our understanding of the nature of the basement to the Mt Read belt.
7. A large area of new mapping has been added at the Mt Lyell mines area (Corbett, 2001a, b). This shows

considerable detail in the extensive hydrothermal alteration zone in this area, with sericitic and chloritic schists forming marginal zones about a central core of pyritic schist containing most of the Mt Lyell ore bodies. The presence of replacement silica-chert bodies in the upper part of the alteration zone, including the enigmatic large chert bodies at Lyell Comstock and North Lyell, is evident in the mapping, as is the large wedge of pyritic schist containing chert bodies and high-grade ore bodies which has 'collapsed' into the Owen basin to form the North Lyell 'corridor' area.

8. New mapping around the Hellyer and Que River mines and south to the Mt Charter area by Aberfoyle Resources (Richardson, 1994) has been added. This shows the surface alteration zone of mainly pyritic schist at the mines, and also at the Mt Charter barite prospect; the distribution of the various andesitic, basaltic and dacitic volcanic units; the various intrusive bodies; and the series of important cross-faults which cut the mine area.
9. New mapping at The Pinnacles–Boco Road area by McNeill (2002) and Reid (1990) clarifies the stratigraphy in this complex area. Southwell Subgroup correlates are recognised, and the large body of dacitic lava at North Pinnacles is seen as a probable correlate of the Que dacite, rather than a CVC unit as previously shown. There appears to be an interfingering relationship between the Southwell Subgroup sequence and a thick unit of pumice-rich volcanoclastic rock which extends south towards Rosebery and may be equivalent to the Rosebery footwall pumice breccia according to Gifkins (2001).
10. The stratigraphic terminology and mnemonic system for the Owen Group sequence has been rationalised and clarified. The mnemonic 'CO' is used to indicate Late Cambrian units which may extend into the Ordovician (e.g. the Owen Group units), whereas units known to be of Ordovician age are given just 'O' as a mnemonic (e.g. Moina Sandstone, Pioneer Beds). Other changes have been made to:
 - avoid the usage of ambiguous or invalid formation names, such as 'Linda Sandstone', 'Huntley Conglomerate', 'Sedgwick Conglomerate', 'Cattley Sandstone'. These names appeared only in a Symposium abstract volume (Corbett, 1990), have not been properly defined, and are unlikely to come into general usage (subsequent publications have reverted to the original Lower–Middle–Upper Owen terminology to avoid ambiguity, e.g. Corbett, 2001a).
 - adopt a simple lithology-based terminology rather than one based on formation names, e.g. COc for conglomerate, COs for sandstone, COms for marine sandstone-siltstone sequences. Further subdivision is then made for local formation names at 1:25 000 scale level, e.g. COcm for Middle Owen Conglomerate, COsu for Upper Owen Sandstone, COmsn for Newton Creek Sandstone, COcr for Roland Conglomerate, Osm for Moina Sandstone, Osp for Pioneer Beds.
11. A number of previously unknown outcrops, particularly of Ordovician–Silurian–Devonian rocks but of older rocks in some cases, have been identified in areas of Tertiary basalt cover, mainly from follow-up studies using WTRMP geophysical data (e.g. Poltock, 2002), and have been added to the revised maps. One of these, at Rabbit Plain, covers over three square kilometres.
12. The significance of a number of major igneous bodies has been clarified during the WTRMP studies and incorporated into the maps. These include:
 - the former Beulah 'granite' bodies, originally mapped as Devonian granites but now known to be intrusive rocks related to the Cambrian andesite in the area.
 - the 'Minnow Keratophyre' felsic porphyry body, now known to be a large intrusive quartz-feldspar porphyry body, similar to others at Bulgobac River, South Queenstown, etc.
 - a largely concealed body of strongly magnetic mafic 'diorite' at Wilmot, mapped on the shore of Lake Barrington on the Wilmot sheet but extended greatly after WTRMP follow-up work by Poltock (2002).
13. Extensive Ordovician sandstone sequences spread across all areas have been identified and grouped as 'Os' or 'Osm' (Moina Sandstone) to bring out this useful correlation. There is a clear indication that whereas the conglomeratic Late Cambrian Owen Group siliciclastic sequences were restricted to the major fault troughs along the Tyennan margin, or to marine troughs just 'outboard' from this, the shallow marine siliciclastic sandstones which followed the Owen Group in the Ordovician were deposited much more widely, typically overlapping the Precambrian rocks of the Tyennan area as well as the Cambrian basins. The basal part of the transgressive sandstone sequence is commonly conglomeratic, and it is difficult in some areas to determine whether or not this basal conglomerate also encompasses some Owen Group equivalents.
14. A number of compilation errors have been found and corrected.

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