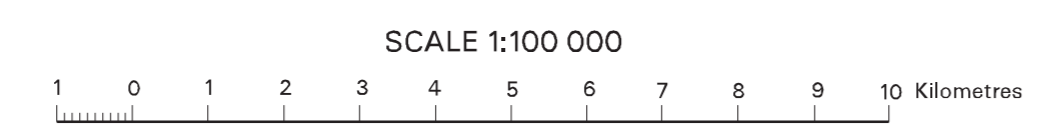


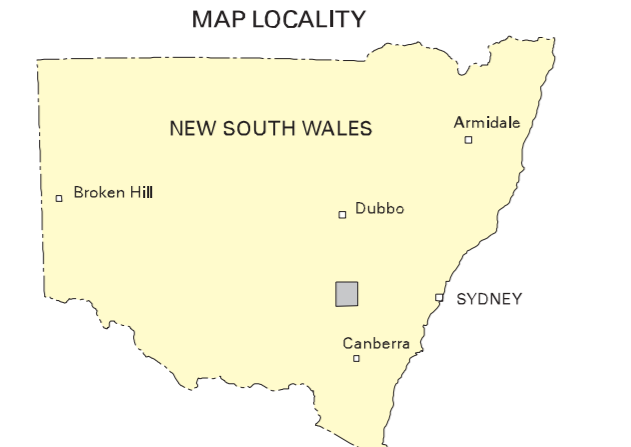
DIGITAL DATA
The digital data for this map were compiled on the AGSO ArcInfo System and may be available for transfer to other digital systems. Information on formats, release conditions and costs, can be obtained from the AGSO Sales Centre.



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
LATITUDE OF ORIGIN: 0. LONGITUDE OF ORIGIN: 129
This map shows the type and distribution of regolith-landform units and indicates their characteristic regolith-landform associations. These units are defined patterns of recurring landform elements with characteristic regolith associations. Geomorphic symbols indicate the location and type of geomorphic activity. This map presents a systematic analysis and interpretation of 1:85 000 scale 1:250 000 scale 1:100 000 scale topographic maps (AGSO), and field-measured data. High resolution (250m low resolution) air photos georeferenced and registered (contour) were used where applicable. It is recommended that this map be referred to: Chan, R.A., Dalrymple, G., 1995 - Cowra Regolith-Landforms: 1:100 000 scale map, Australian Geological Survey Organisation, Canberra. Copies of this map may be obtained from: AGSO Sales Centre, GPO Box 378, Canberra City, ACT, 2601; Ph: (06) 249 9519; Fax: (06) 249 9982

For definitions of regolith types, landform types, induration and geomorphic features refer to: Pan, C., Chen, R., Craig, M., Trood, M., Larned, J., and 1996, 1996. RTMAP: BMR Regolith database field handbook. BMR Record 1991/29

INDEX TO ADJOINING SHEETS. A grid of map sheets with alphanumeric codes indicating adjacent sheets.



Regolith and geomorphology interpreted and compiled 1992-1994 by R.A. Chan, AGSO and G. Göttsch, Monash University. Cartography by T. Brennan, M. Corby, G. Scott, Cartographic Services Unit, AGSO. Magnetic declination information for 1995 supplied by Geomagnetic Section, AGSO. Topographic base map compiled from digital data supplied by Australian Surveying and Land Information Group, AUSLIG 1994, with modifications. Published by the Australian Geological Survey Organisation, Department of Primary Industries and Energy, Canberra, issued under the authority of the Minister for Primary Industries and Energy, Canberra.

WARNING: Colours will fade with prolonged exposure to light.

TRANSPORTED REGOLITH

- A Alluvial sediments
C Colluvial sediments
CH Sheet flow deposit
CI Fungiolite

IN-SITU REGOLITH

- S Saprolite
SV Very highly weathered bedrock
SH Highly weathered bedrock
SM Moderately weathered bedrock
SS Slightly weathered bedrock
BU Unweathered bedrock

INDURATION

- Ferruginous induration
Clay hardpan and ferruginous nodules

LANDFORMS

- DEPOSITIONAL LANDFORMS
EROSIONAL LANDFORMS

LAVA FLOWS

- Multiple weathering profiles associated with lava flows

Flood plains
Apl1. Recent floodplains with some terraces in upper river reaches
Apl2. Sediments derived from clastic provenance (Murrumbidgee Formation); high frequency low amplitude meanders, broad floodplains with some anabranching; meandering lower reaches of Bellukaba River
Apl3. Sediments derived from clastic provenance (Murrumbidgee Formation); minor meandering, narrower floodplains with some anabranching; mid reaches of Bellukaba River
Apl4. Clastic formation in more recent tributaries of Lachlan River
Apl5. Clastic provenance associated with steep palaeovalley sequences (Coxs and Lachlan Formations and Glenlough Gneiss); downstream of Cowra these sequences only cover formation upstream of junction with floodplains, meandering lower reaches of Lachlan River

Terraced land
Apl2. High alluvial and alluvial terrace remnants of the Lachlan River below Wyngala Dam
Apl3. Wide alluvial terraces along Lachlan River floodplains; underlain by deep palaeovalley sequence (Coxs and Lachlan Formations and Glenlough Gneiss); along Cowra Creek and downstream of its junction with Cowra River, and Coxs Formation only above junction

Alluvial swamp
Apl1. Small swamp on Lachlan River floodplain
Apl2. High level partly indurated palaeosol/limited clay palaeosol on clay hardpan with iron nodules on very highly weathered saprolite; intervening alluvial flats

Colluvial fans
CH1. Low angle sheet flow fan, westerly flow; Coxs/Glenlough provenance
CH2. Low angle sheet flow fan, westerly flow; Coxs/Glenlough provenance
CH3. Low angle sheet flow fan, northerly flow; mixed provenance

Pediments
CH1. Sheet flow deposits on saprolite; long low angle slopes adjacent to Wyngala and Toms Waterfalls Creeks
CH2. Shallow valleys with medium angle slopes and narrow alluvial flats, forming dendritic pattern; western slopes adjacent to and below plateau to east
CH3. Local granitic provenance; catena of mineral differentiation - feldspars and quartz

Rises
CH2. Sheet flow deposits overlie deeply weathered bedrock, alluvium in places, marking of sediments due to occasional flooding; sheet pediment slopes at base of rises along lower reaches of Lachlan and Bellukaba Rivers; minor gully and alluvium

Colluvial fans
CF1. Coarse fanglomerate fans of granitic provenance around perimeter of Lake Wyngala
CF2. Likely heavy minerals, low angle elongate fanglomerate fans, northeast flowing

Lava plateau
SV1. Several level lava flows, 4-7m multiple flows with underlying alluvial sediments and intervening variably weathered basalt or trachyte, siltstone in places

Rises
SV1. Deep saprolite with deep red soils and ferruginous induration, clay in drainage lines, some remnant of basalt weathering north of Cowra; central rises with long slopes; part of extensive plateau with steep escarpments towards the south
SV2. Collicium on lower slopes; basaltic to basaltic

Low hills
SV1. Deep saprolite, mainly metamorphic bedrock, with areas of granite weathered to residual clay and concretion, some ferruginous and ferruginous nodules, broad central low hills with long gentle slopes; part of extensive plateau with steep escarpments towards the south
SV2. Weathered granodiorite, modified B2 soil horizon on crest; clay hardpan on lower slopes; open rounded low hills to rise; basal alluvial fans with gully erosion
SV3. Includes area of residual clay and limestone solution near Caranoodine Creek; closely spaced rounded low hills; minor soil erosion potential

Hills
SV3. Conical hills with steep smooth slopes; incision by Bellukaba River

Pediments
SH1. Base streams with palaeosols and terraces, north-south aligned valleys

Rises
SH1. Alluvium and palaeosols in undrilled trunk streams, lower colluvial slopes, north-northwest trending; structurally controlled wide U shaped valleys
SH2. Granite saprolite, plateau remnants
SH3. Coarse amphibolites with rises ramping down them, and including some, lava remnants
SH4. Collicium on lower slopes and alluvium in drainage lines; gentle coalescing slopes

Low hills
SH1. Some crests less highly weathered, colluvial lower slopes, alluvium along some drainage tracts; north trending ridges in places, sub-rounded to sub-angular crests, steeper upper slopes, moderate to gentle lower slopes
SH2. Stripping of regolith from upper slopes, deeper regolith down-slopes, darker soils, some granite concretions and tons; sub-rounded to sub-angular crests
SH3. Colluvial lower slopes and pediments in wider valleys, open low hills with broad to sub-rounded crests, gentle slopes, widely spaced drainage lines
SH4. Includes moderately weathered interbeds with collicium on lower slopes, alluvium in channels and flats, rounded some like low hills to rises with smooth long even slopes
SH5. Less weathered bedrock on crests, the dense drainage lines on lower slopes, low hills to rises with steeper sharp ridges on western slopes below plateau edge south of Lachlan River
SH6. Broad open low hills with sub-rounded crests, below and adjacent to plateau edges
SH7. Granite slopes, sub-rounded crests
SH8. Minor sediments; moderately steep slopes and sub-rounded ridge crests, moderate incision associated with headwaters of Wyngala Creek

Hills
SH6. Granite saprolite with concretions, outcropping tons on hill crests, collicium on lower slopes and cross cutting valleys, north trending ridges
SH7. Moderately weathered ridge crests, highly weathered granite slopes, collicium on lower slopes and associated with alluvium in cross cutting valleys; north-west trending ridges with sub-angular ridge crests, moderately dense drainage lines, erosion potential

Pediments
SM1. Amphitheatre headwaters

Rises
SM1. Collicium on lower slopes and pediments, alluvium along some drainage lines; open rises to low hills with sub-angular to sub-rounded crests in lower parts of fan/capae
SM2. Notched rise along upper reaches of Lake Wyngala

Residual rises
SM1. Flanking collicium, some crests moderately weathered; north to north-northwest trending elongated and accurate ridges

Low hills
SM2. Minor collicium; sub-angular ridge crests, moderately steep slopes, especially on escarpments
SM3. Basalt remnant in places (old, flatter, basaltic); rounded to the broad crests; eroded surface from beneath it; Coxs/Glenlough provenance; stripping of soil and gully flow to clearing
SM4. Basalt remnant in places, slightly weathered hog-back ridges trending north-south; parts eroded from beneath it; Coxs/Glenlough provenance
SM5. North-northwest to north-northeast trending lines and accurate ridges with sub-angular crests
SM6. Moderately steep slopes away from escarpment; incision/palaeosol remnant in core of hill
SM7. Minor collicium; north trending ridges with sub-rounded crests and clear open valleys
SM8. Moderately steep escarpment slopes with sub-rounded low hill crests along southern edge of plateau coinciding with the drainage divide between the Lachlan and Bellukaba Rivers
SM9. Sediments on lower slopes and in valleys; sub-rounded low hill crests and widely spaced drainage lines
SM10. Collicium over granite saprolite on moderately steep smooth pediment slopes flanking steeper upper slopes with sub-angular ridge crests

Hills
SM6. Minimal soil, collicium at base of slopes, minor ferruginous induration; steep hills with sharp to subrounded crests and narrow interbedded valleys with narrow strips of alluvium
SM7. Inclined steep slopes below plateau with very dense drainage lines and sub-rounded spurs; incision by Bellukaba River
SM8. Some collicium on lower slopes, granite hills with sub-angular crests and steep smooth lower slopes
SM9. Moderately steep slopes with sub-rounded ridge crests, below and adjacent to plateau edges; relates to Bellukaba River incision
SM10. Slightly weathered crests, some colluvial slope wash, form valleys from steep sides and broad crests to steep sides with subangular crests

Mountains
SM1. Sandy soils on weathered granite; sub-angular ridge crests
SM2. North trending ridges with sub-angular crests and steep slopes with high drainage density

Rises
SS1. Granite bedrock, collicium and gravel in places; plateaus with steep escarpments on top of mountains with sub-rounded rises and valleys

Low hills
SS2. Some collicium at base of slopes, north-west oriented low hills to hills, steep ridges and closely spaced drainage lines on steep slopes

Hills
SS3. Basaltic soils, more highly weathered footslopes with collicium; north trending cuesta ridges with dense drainage lines in places, eroded from beneath Mt. Corobal volcano; jute
SS4. Sandy soils and incision, hills with sub-angular to angular crests and steep slopes
SS5. Unweathered bedrock in places; north trending crests ridges with steep drops facing west without drainage lines; eroded from prior lava flows and incised by Bellukaba River

Mountains
SS1. Outcrop on steeper upper slopes, granite collicium on less steep lower slopes; soil erosion potential

Low hills
SS2. Limestone pavements with intervening strips of deep terra rossa soils and residual clay adjacent slightly weathered bedrock, minor alluvial flats, open low hills with rounded to sub-angular crests

BECKROCK

- BU Unweathered bedrock

INDURATION

- Notable occurrences (not necessarily widespread)
Ferruginous induration
Clay hardpan and ferruginous nodules

LAVA FLOWS

- Multiple weathering profiles associated with lava flows

- DEPOSITIONAL LANDFORMS
a Alluvial landforms
al Floodplain
at Terraced land
aw Alluvial swamp
cf Colluvial fans
pl Depositional plain

- EROSIONAL LANDFORMS
ep Erosional plateau
er Pediments
es Ridge of rises
erf Residual rises
el Low hills
eh Hills
erh Residual hills

- VOLCANIC LANDFORMS
vl Lava plains
vp Lava plateau

- Watercourse
Lake
Main road
Minor road
Railway
Swan
Symmetrical station

- Major lava flow direction
Major volcanic centre
Volcanic plug residual
Erosion volcanic plug
Basalt capped residual hill
Kink point

- Entrenched superimposed drainage, indicating direction (dashed) superimposed drainage between upstream and downstream limits, indicating direction
Site and direction of beheaded stream where no wind gap
Site and direction of near capture
Site and direction of near anastomosis
Wind gap
Kink point

- Fluvial drainage, indicating trend
Inverted paleochannels, indicating direction
Inverted paleochannels, indicating trend

- Major lava flow direction
Major volcanic centre
Volcanic plug residual
Erosion volcanic plug
Basalt capped residual hill
Kink point

- Polymetallic
Cu and Au
Cu
Au and AgI
Ag and AuI
Ag and AgI(Au)
Gems

- Pyrite
Sn, W, Mo
Coal and Oil
Industrial

- Mineral Deposits
Bathurst Mineral Deposit Database, Department of Mineral Resources, NSW.

NGMA
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