APPENDIX 4

Regolith landform mapping

Regolith maps within the Curnamona region generally follow the RTmap or the RED scheme (and modified versions, see Crooks, 2002).

RTMAP scheme

In RTMAP, units are described by a series of standard letter codes, where the first two upper case letters define the regolith material and the next two lower case letters describe the landform. A following subscript can be added as a modifier to define more subtle differences between units. For example, a map unit may be tagged thus:

CHfs₁

CH describes the main regolith type (sheetflow deposits);

fs describes the main landform type (sheetflood fan);

is a modifier for where there are a number of different regolith-landform units of this general type.

A guide to the use of RTMAP and a summary of RTMAP regolith landform unit codes are included in the Appendix 4 folder.

RED scheme

In the RED scheme, landscape regimes are described as being dominantly: relict/residual (R); or erosional (E); or depositional (D). These can be subdivided further using alpha-numerical characters that emphasise: in situ regolith source area; landscape position and degree of weathering; erosional dispersion pathways; and sediment depocentres.

Curnamona Province regolith map list

Regolith-landform maps for the region are referenced below:

At 1:500 000 scale

• Olary and Broken Hill regions (Gibson 1999). Although mapping was carried out at a large scale, this mapping scheme has provided the framework—with modification—for regolith mapping in future studies.

At 1:150 000 scale

• Bimbowrie Station (Burtt et al. 2005)

At 1:100 000 scale

- Anabama and Olary map sheets (Skwarnecki et al. 2001).
- Broken Hill region including Mundi Mundi Plain (Hill 2000)
- Minagary map sheet (Crooks 2002)
- Northern Olary region (mostly within Kalabity map sheet; Lawie 2001)
- Wonnaminta (Gibson 2001)

At 1:30 000 scale

• White Dam (Lau 2004).

At 1:25 000 scale

- Balaclava (Foster et al. 1999)
- Kalkaroo (CRAE mapping 1992; Dawson 2000)
- Kinalung West- Quondong West (Brachmanis 2000; Maly 2000)
- Mount Gipps (Lewis et al. 2002)
- Pinnacles (Senior et al. 2002)

- Redan (Brachmanis et al. 2001)
- Triple Chance (Debenham et al. 2001)
- Wahratta (Foster et al. 2008).

At 1:10 000

- Flying Doctor Catchment (Earl et al. 2002)
- Pine Creek (Hulme and Hill 2006).

At 1:5000

• Faugh-a-Ballagh, Wadnaminga, Blue Rose prospects (Skwarnecki et al. 2001).

At 1:4000

• White Dam Deposit (Brown 2003)

At 1:2500

• Luxemburg (Brown et al. 2002).

At 1:2000

- White Dam Deposit (Brown and Hill 2004)
- Wilkins prospect (Wittwer 2004)

References

- Brachmanis J, 2000. Regolith-landforms and geochemistry of silicified palaeovalley systems, Kinalung West, Broken Hill, NSW. BSc (Hons) thesis, University of Canberra.
- Brachmanis J, Debenham SC and Hill SM, 2001. Redan regolith-landform map (1:25 000). CRC LEME, Canberra.
- Brown A and Hill SM, 2004. White Dam prospect regolith-landforms (1:2000). http://crcleme.org.au/Pubs/MAPS/white_dam_2k.pdf
- Brown AD, Kernich A and Hill SM, 2002. Luxemburg regolith-landform map (1:2500): in Kernich A. 2002. *Weathering, erosion and element mobilisation in a catchment at the Luxemburg Copper/Gold site, Olary domain, South Australia.* BSc (Hons) Thesis, University of Adelaide, School of Earth and Environmental Sciences.
- Burtt AC, Conor CHH, Preiss WV, Robertson RS and Brown AD, 2005. Prospectivity analysis of Bimbowrie Station, Curnamona Province, South Australia – Interim Report. South Australia. *Primary Industries and Resources South Australia. Report Book* 2005/12.
- CRAE, 1992. Regolith map, Kalabity EL 1864. CRAE Report 19076.
- Crooks AF 2002. Regolith mapping of the Mingary 1:100 000 map area, Curnamona Province. *PIRSA. MESA Journal* 25, 42–45.
- Dawson MW, 2000. *The geology of the Kalkaroo area*. BSc (Honours) thesis. University of New England, School of Environmental and Rural Science, Armidale.
- Debenham SC, Jones GI and Hill SM, 2001. *Triple chance regolith-landform map (1:25 000)*. CRC LEME, Canberra/ Perth.
- Earl KL, Thomas M, Foster KA and Hill SM, 2002. *The Flying Doctor Catchment regolith-landform map (1:10 000 scale)*. CRC LEME, Canberra/Perth.
- Foster KA, Hill SM, Brachmanis J and Roach IC, 2008. *Wahratta 1:25,000 regolith-landform map. Second edition.* CRC LEME, Perth.
- Foster KA, Shirtiff GJ and Hill SM, 1999. Regolith-landform map (1:25 000) scale). CRC LEME), Canberra/Perth.
- Gibson DL, 1999. Explanatory notes for the Broken Hill and Curnamona Province 1:500 000 regolith landform maps. *CRC LEME Open File Report* 77.
- Gibson DL, 2001. Wonnaminta regolith-landforms 1:100 000 scale map. CRC LEME, Perth/Canberra.
- Hill SM, 2000. *The regolith and landscape evolution of the Broken Hill Block, Australia*. PhD thesis, Australian National University, Canberra.

- Hulme KA and Hill SM, 2006. *Pinnacles (Pine Creek) regolith-landform map (1:10 000) scale)*. CRC LEME, Perth/ Canberra.
- Lau IC, 2004. White Dam 1:30 000 Regolith-Landform Map: in Lau, IC 2004. *Regolith-landform and mineralogical mapping of the White Dam Prospect, eastern Olary Domain, South Australia, using integrated remote sensing and spectral techniques.* PhD thesis, University of Adelaide, School of Earth and Environmental Sciences.
- Lawie DC, 2001. *Exploration geochemistry and regolith geology over the northern part of the Olary Domain, South Australia.* PhD thesis. University of New England, School of Environmental and Rural Science, Armidale.
- Lewis AC, Foster KA and Hill SM, 2002. *Mount Gipps regolith-landform map (1:25 000)*. CRC LEME, Perth/ Canberra.
- Maly BER, 2000. Regolith-landform and landscape evolution of Quongdong West, Broken Hill, NSW: sediment characteristics and architecture of the Northern Murray Basin. BSc (Hons) Thesis, University of Canberra.
- Senior AB, Debenham SC and Hill SM, 2002. Pinnacles regolith-landform map (1:25 000). CRC LEME, Canberra.
- Skwarnecki MS, Shu L and Lintern MJ, 2001. Geochemical dispersion in the Olary District, South Australia: investigations at Faugh-a-Ballagh Prospect, Olary Silver Mine, Wadnaminga Goldfield and Blue Rose Prospect. *CRC LEME Open File Report* 113.
- Wittwer PD, 2004. Geology and geochemistry of regolith carbonate accumulations of the southwestern Curnamona *Province, SA: Implications for mineral exploration.* BSc (Hons) Thesis, University of Adelaide, School of Earth and Environmental Sciences.