

LATERITE GEOCHEMICAL MAP OF THE WESTERN YILGARN CRATON

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The project aims to establish a geochemical atlas for the Western Yilgarn Craton, by multi-element analysis of lateritic residuum, lag derived from lateritic residuum and lateritic detritus found in colluvium. This will provide baseline data which can be used to identify major geochemical trends and provinces, both in residual and depositional terranes that could assist mineral exploration and lead to the discovery of new mineral deposits.

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To date, approximately 3000 samples (Figure 1) have been analysed and results for approximately 2000 samples from the southwest quadrant have been published (Cornelius *et al.* 2006).

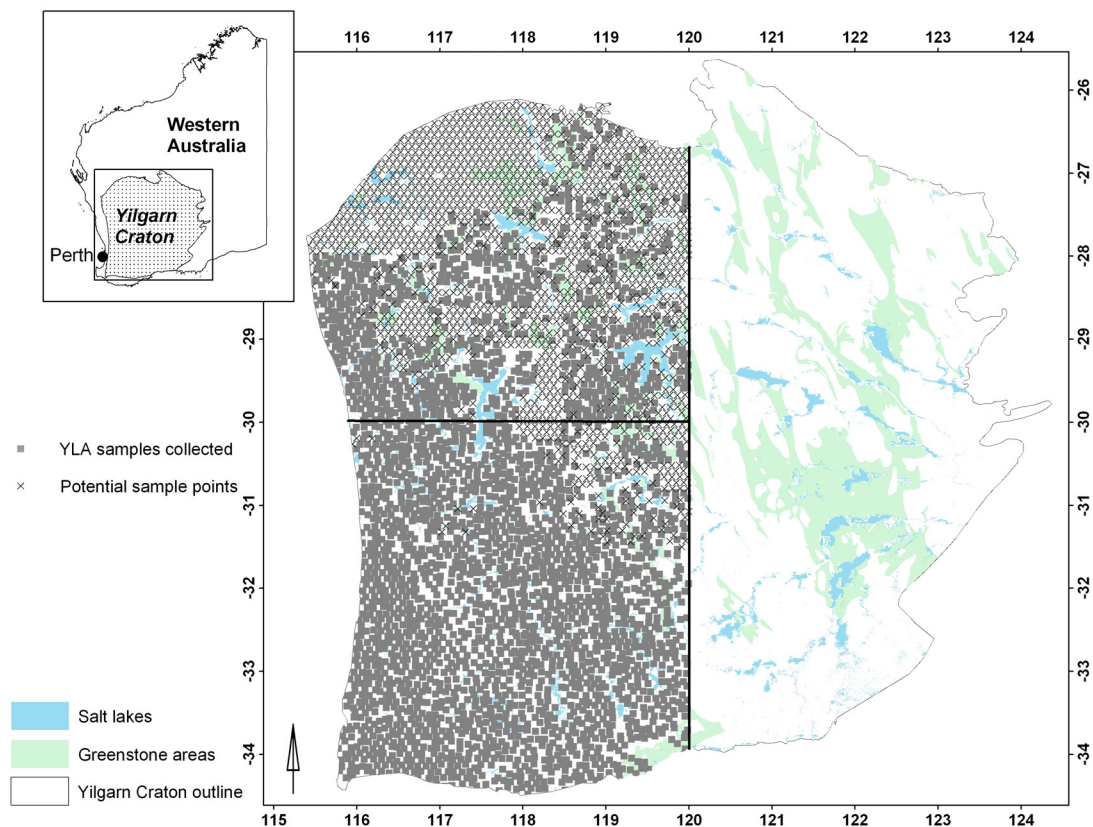


Figure 1. Locations of samples analysed from the western Yilgarn Craton.

Sampling is ongoing in the NW quadrant. Representative samples from various parts of the western Yilgarn and samples both with an unusual and a typical geochemical composition will undergo mineralogical investigation. The project will be completed in 2007.

Highlights of the data set are:

1. Increased Au abundances in the NE part of the southwestern Yilgarn Craton cluster around known gold deposits; their extent may mean more widespread mineralization in some of these areas, *e.g.*, at Westonia.
2. A chalcophile element index (CHI6* of Smith & Perdrix 1983) illustrates potential for Au and base metal mineralization in the westernmost part of the Yilgarn Craton, *e.g.*, near Bridgetown.
3. A pegmatophile index (PEG4* of Smith *et al.* 1987) shows a regional NW trend north of the Saddleback greenstone belt.
4. Multivariate statistical analysis indicates the potential for mafic-ultramafic remnants outside known greenstone belts.
5. A regional Hg anomaly trends NW over more than 500 km from Wongan Hills in the north to Jerramungup in the south and, further to the east-northeast, along the Proterozoic of the Albany-Fraser Province. The Hg anomaly may be associated with meta-sediments in gneiss.
6. Element ratios indicate different granite populations, *e.g.*, high-Ca and low-Ca granites.

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