WONAWINTA Zn-Pb-Ag PROSPECT, COBAR DISTRICT, NEW SOUTH WALES

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LOCATION

The Wonawinta Prospect is located approximately 85 km S of Cobar at 32°12’30”S; 145°45’50”E; Nymagee 1:250 000 sheet (SI55-02).

DISCOVERY HISTORY

Geopeko Ltd initially identified the prospect in 1989, following a regional stream sediment sampling program. Subsequent rock chip sampling, RAB drilling, lag sampling and percussion drilling have all confirmed the mineralization. Minor gossanous limestone occurs just to the N of Wonawinta. However, at the time of discovery, there was no known mineralization within the Wonawinta area and no evidence of old workings. Triako Resources Ltd acquired the prospect in 2003.

PHYSICAL ENVIRONMENT

The prospect lies within an area of broad valleys, approximately 5 km wide, and gently undulating hills between low ridges. Generally, topography reflects the underlying lithology. The ridges are sandstones of the Mulga Downs Group, the gently undulating land between is underlain by sandstones and siltstones of the Winduck Group (Gundaroo Sandstone) and the broad valleys by Winduck Group limestone (Booth Limestone) and Silurian granite beneath thin to moderately thick colluvial and alluvial cover. However, the main Wonawinta prospect is poorly defined within an area covering approximately 3.5 x 1 km. The Wonawinta prospect is coincident with a weak saddle within the broad valley with drainage to the NNW and the SSE.

The climate is semi-arid and has an average annual rainfall of approximately 350 mm distributed throughout the year. Vegetation includes Bimble Box (*Eucalyptus populnea*), Red Box (*E. intertexta*), White Cyprus Pine (*Callitris glaucophylla*) and various drought resistant shrubs and grasses (MacRae, 1989). Land use is sheep grazing and limited wheat cropping.

GEOLOGICAL SETTING

Wonawinta lies near the western margin of the Palaeozoic Cobar Basin, within a sequence of Early Devonian calcareous and siliciclastic shelf-facies sediments of the Winduck Group. These sediments unconformably overlie the Middle Silurian Thule Granite and are disconformably overlain by Early Devonian to Carboniferous fluvial medium to coarse-grained sandstones (Mulga Downs Group; MacRae, 1989). The Winduck Group has three units: the basal Buckambool Sandstone, the Sawmill Tank Siltstone and the Gundaroo Sandstone (MacRae, 1989). The Gundaroo Sandstone contains the Booth Limestone Member. Only the Gundaroo Sandstone and Booth Limestone occur at Wonawinta, and mineralization is mainly within the Booth Limestone.

Several E-verging, NNW trending, asymmetric folds have deformed the rocks with shallow plunges to the NNW and SSE. The anticlines have shallow to moderately dipping western limbs (~30°) and moderate to steeply dipping eastern limbs (probably >70°). Low-grade mineralization has been identified across approximately 20 km of strike of subcropping Booth Limestone.

REGOLITH

The main mineralization at Wonawinta lies beneath a veneer of colluvial and alluvial sediments within a broad (approximately 5 km wide) NNW trending valley (Figure 1). Bounding the valley to the E and W are low rocky ridges of Mulga Downs sandstone rising to 30-80 m above the valley floor. Within the valley, subtle undulations (<20 m) reflect subcropping Gundaroo Sandstone.

In general, colluvium and alluvium increase in thickness from N to S with outcropping, slightly weathered limestone just N of Wonawinta. The main oxide mineralization is covered by 0.5-3 m of red colluvium on Cenozoic cream to light grey clay and medium to coarse grained alluvial sand, overlying highly weathered limestone. The clay and sand layer varies in thickness (<1-8 m) over the Booth Limestone and Silurian granite but is absent on the Gundaroo Sandstone.

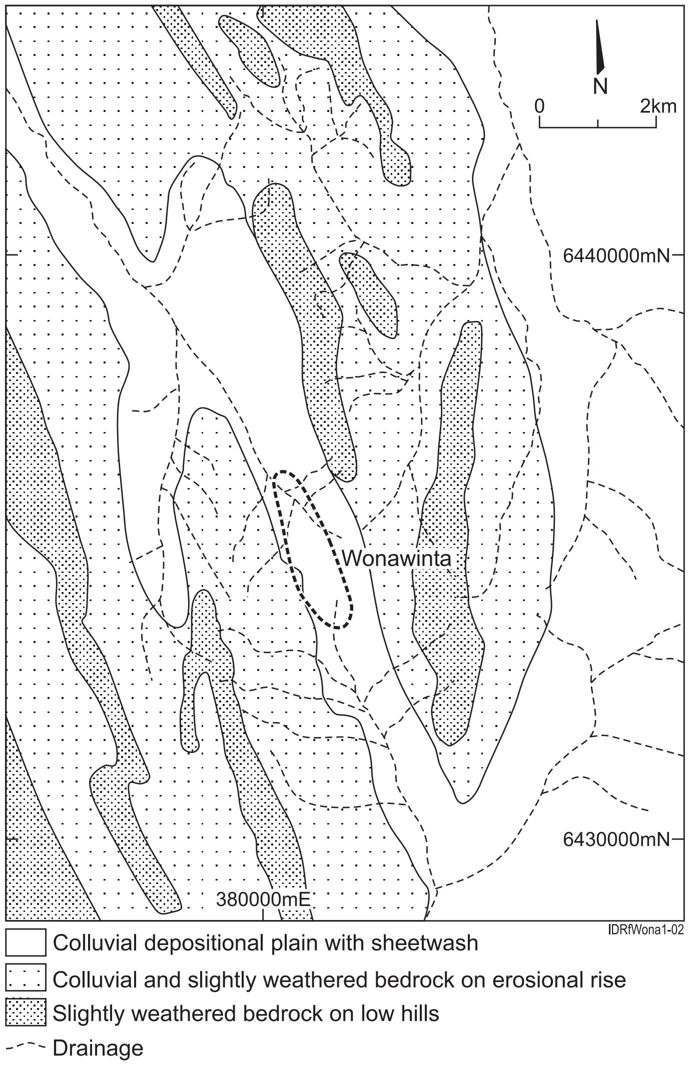

Figure 1. Local regolith geology of the area surrounding the Wonawinta prospect showing the dominant landform features and the distribution of colluvial material and weathered bedrock

The matrix-supported colluvium contains medium to coarse-grained, subrounded quartz and ferruginous lithic fragments within a calcified ferruginous clay and silt matrix. Larger fragments (>20 mm) of weathered ferruginous lithic fragments and silcrete occur in places toward the colluvium base.

The alluvium consists of matrix-supported, light- to medium-grey, weakly consolidated, medium to coarse grained, subrounded quartz in a matrix of silt and clay. A minor, greenish grey, weakly goethitic silty clay occurs at the base of the alluvial layer in some parts. In others, the alluvium is absent and weathered bedrock directly underlies thin colluvium or outcrops to the N of Wonawinta.

MINERALIZATION

Several types of mineralization have been identified at Wonawinta. The primary sulphides are sphalerite, galena and trace to minor pyrite in a gange of dolomite and calcite. Best primary grades (Figure 3) include 1 m @ 16.8% Zn, 3.2% Pb and 230 ppm Ag from 79 m (PWRC24) and 12 m @ 5.2% Zn from 35 m (PWRC26). Primary mineralization is associated with reef facies dolomitic limestone and with colloform and vuggy vein fill textures. The primary mineralization is generally subeconomic but is poorly defined by current drilling.

Oxide mineralization consists of smithsonite and dolomite within ferruginous clay. Best intersections include 10 m @ 14.8% Zn from 2 m including 6 m @ 21.9% Zn, 112 ppm Ag from 2-8 m (PWRC13). High Hg contents, reaching 700 ppm, are associated with the oxide mineralization which strikes for >250 m.

There is a supergene blanket of Ag-rich mineralization at the interface between ferruginous and manganiferous clay, derived from highly weathered limestone, and the underlying weak to moderately weathered limestone. In places, this blanket extends over the subcropping Silurian granite. Intersections in the Ag-rich supergene blanket include 9 m @ 195 ppm Ag from 48 m (WONP3).

REGOLITH EXPRESSION

Reconnaissance stream sediment samples, with an initial density of 1 sample per 3-5 km^2, were analysed for Cu, Pb, Zn, As, Bi, Sb, Fe and Mn. Three samples were collected at each site which included a <180 µm (-80#) fraction, an magnetic (maghemite) Fe-pisolith fraction and a 5 kg bulk sample for bulk cyanide leachable gold (BLEG) determination. The -80# fraction is uniformly low in base metals, with only weakly elevated As and Sb in some samples. The magnetic fraction has significantly elevated Zn (up to 1500 ppm), Pb, As, Bi, Sb and Fe near Wonawinta. Manganese is uniformly distributed in both the -80# and magnetic fractions. BLEG results in the stream sediments are generally very low. The anomalous soil samples occur over a 20 km strike of subcropping Booth Limestone (Allan, 1991).

Rock chip samples from outcropping Booth Limestone, to the N of the main Wonawinta mineralization, are anomalous in Zn (to 8700 ppm), Pb (to 6900 ppm), As (to 1.65%) and Sb (to 189 ppm). An additional 9 km of strike of subcropping Booth Limestone is anomalous in Zn-Pb-As in rock chips (Allan, 1993). Regional lag samples from an approximately 500x500 m grid, are anomalous in Zn (to 1790 ppm), Cd (to 3.9 ppm) and Bi (to 5.8 ppm) near the mineralized Booth Limestone (Sugden *et al*., 1996).

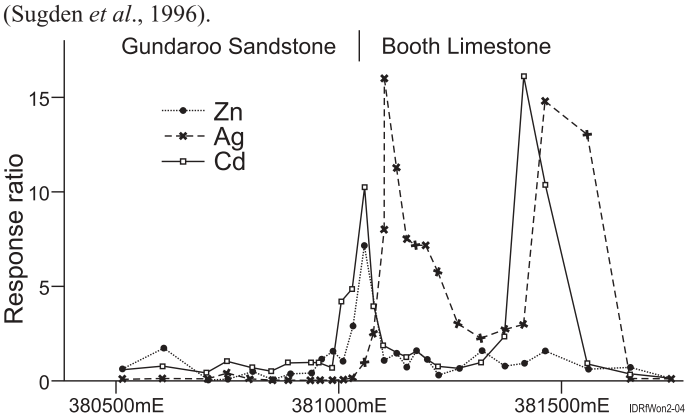

Figure 2. Partial leach soil sampling across Wonawinta on local grid line 10400N showing response ratio values for Zn, Ag and Cd. Response ratios are calculated by dividing by the batch median. Surface projection of Gundaroo Sandstone and Booth Limestone indicated.

A line of soil samples, from across the western limb of the Wonawinta Anticline was analyzed by partial leach. This shows anomalous Zn, Cd and Ag coincident with the up-dip projection of the top of the Booth Limestone (Figure 2). The calcareous nature of the soils resulted in neutralization of the leach for several samples and post-leach pH values were required to determine whether neutralization had occurred.

Weathered bedrock samples from RAB drilling on a 50x500 m grid, were analysed for Cu, Pb, Zn, Ag, As, Fe, Mn, Bi and Sb. A coherent Zn anomaly >1000 ppm, over a strike of >10 km, is coincident with the up-dip projection of the Booth Limestone (Figure 3). Smaller zones of >1.0% Zn occur, including several coincident with the known Wonawinta mineralization. Lead is similar to Zn (although less; Zn:Pb ~2:1); Cu, As and Ag were less coherent.

In summary, the Wonawinta mineralization has a strong geochemical signature in both the weathered bedrock and residual/colluvial soils. The most effective indicator elements are Zn and, to a lesser extent, Pb, As, Bi, Sb and Fe in the magnetic fraction of stream sediments. Although a significant geochemical anomaly identifies the Booth Limestone, it does not provide a vector to the best mineralization. It is difficult to determine the extent of geochemical dispersion as the Wonawinta

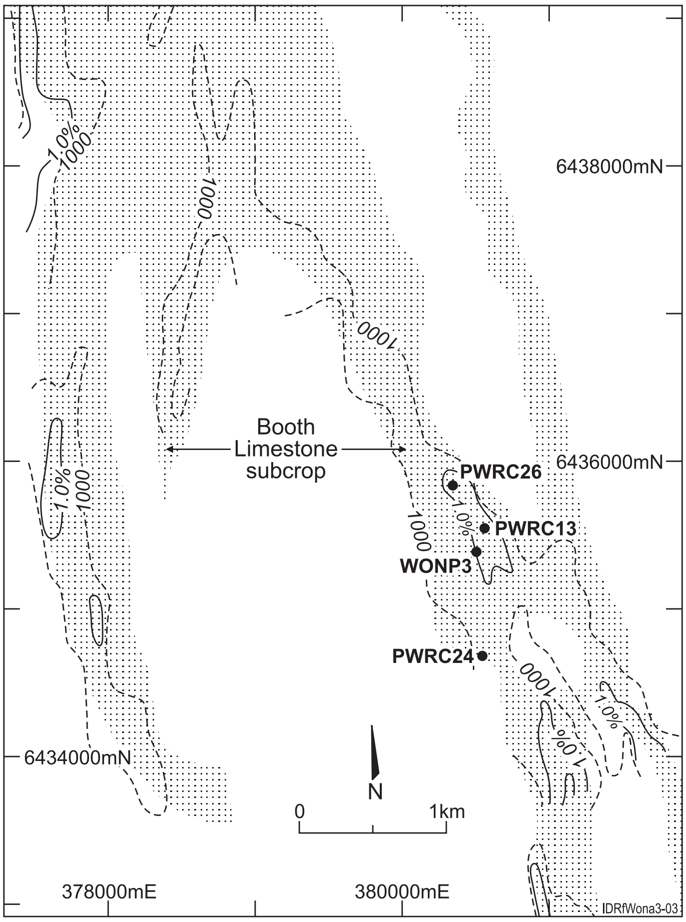

Figure 3. Distribution of maximum Zn (1000 ppm and 1.0% contours) in weathered bedrock from RAB drilling. Shaded area indicates distribution of Booth Limestone. The main Wonawinta area is in the SE quadrant.

mineralization is currently poorly constrained.

REFERENCES

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Sugden, S.P., Houston, M.J., and Kitson, S.E., 1996. Combined annual report for the period ending 16th January 1996. EL 3255 Lachlan Downs, EL 3256 Thule and EL 4516 Wiralong. CRA Exploration Pty Ltd, 55pp. (Unpublished).

SAMPLE MEDIA - SUMMARY TABLE

Sample medium	Indicator elements	Analytical methods	Detection limits (ppm)	Background (ppm)	Threshold (ppm)	Max anomaly (ppm)	Dispersion distance (m)
Stream sediments (magnetic)	Zn	Unknown	Unknown	60	485	1500	>1000?
	Pb	Unknown	Unknown	16	54	165	>1000?
	As	Unknown	Unknown	23	50	60	>1000?
Lag	Zn	ICP	5	13	42	1790	?
	Pb	ICP	5	17	41	600	?
	Cd	ICP	0.1	<0.1	0.2	3.9	?
	Bi	ICP	0.2	0.2	0.7	5.8	?
Soil - partial leach	Zn	ICP-MS	0.005	0.45	1	4.9	<100?
	Cd	ICP-MS	0.001	0.0185	0.044	0.306	<100?
	Ag	ICP-MS	0.000025	0.00025	0.0023	0.0064	<100?

Lag: Zn, Pb by ICPAES after HF/HNO_3/$HClO_4$/HCl digestion
Cd, Bi by ICPAES after HCl with oxidant, solvent extraction
Partial leach: WAMAM method (Amdel)