

Update on the Finnis Lithium Project

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Core Lithium has been exploring the Finnis Lithium Project, located in the Bynoe Pegmatite Field just 15 km south of Darwin (Figure 1), since April 2016 and has now progressed the project through various stages of feasibility and approvals for mining development. The accompanying presentation will focus on the exploration success and various facets of the lithium-rich pegmatite deposits.

The lithium prospectivity of the field was touched on by the Northern Territory Geological Survey (Ahmad 1995, Frater 2005), who recognised the favourable granite geochemistry and documented the historic tin-tantalum production. Although no economic lithium grades were encountered at that stage because all mining and drilling had been shallow, there was enough circumstantial evidence to encourage Core Lithium to drill deeper at two of the main soft-rock prospects, Grants and BP33 (Figure 1). It quickly

became clear that grades greater than 1.5% Li₂O were present. During the last two years, these prospects have been elevated from discovery status to Inferred, then Indicated, and now Measured category Mineral Resources (Table 1). A number of other prospects have also been explored through to Mineral Resource status: Sandras, Carlton, and Hang Gong SW. The global resource is expected to grow well beyond 10 Mt in the coming years as further targets are tested and drilled to mineral resource definition-spacing.

The pegmatites range from narrow ‘veins’ to broad lozenge-shaped bodies up to 500 m long and 60 m wide, generally trending north-northeast, parallel to regional fabric. Core Lithium has now recognised a class of pegmatite in the district that is flat-lying to shallow dipping, such as those at Hang Gong, Booths, and Lees (Figure 1). These are expected to represent a growing percentage of the global resource going forward as they should have better extraction economics than steeper dipping bodies. They have now been traced >1 km along strike at Lees–Booths Link.

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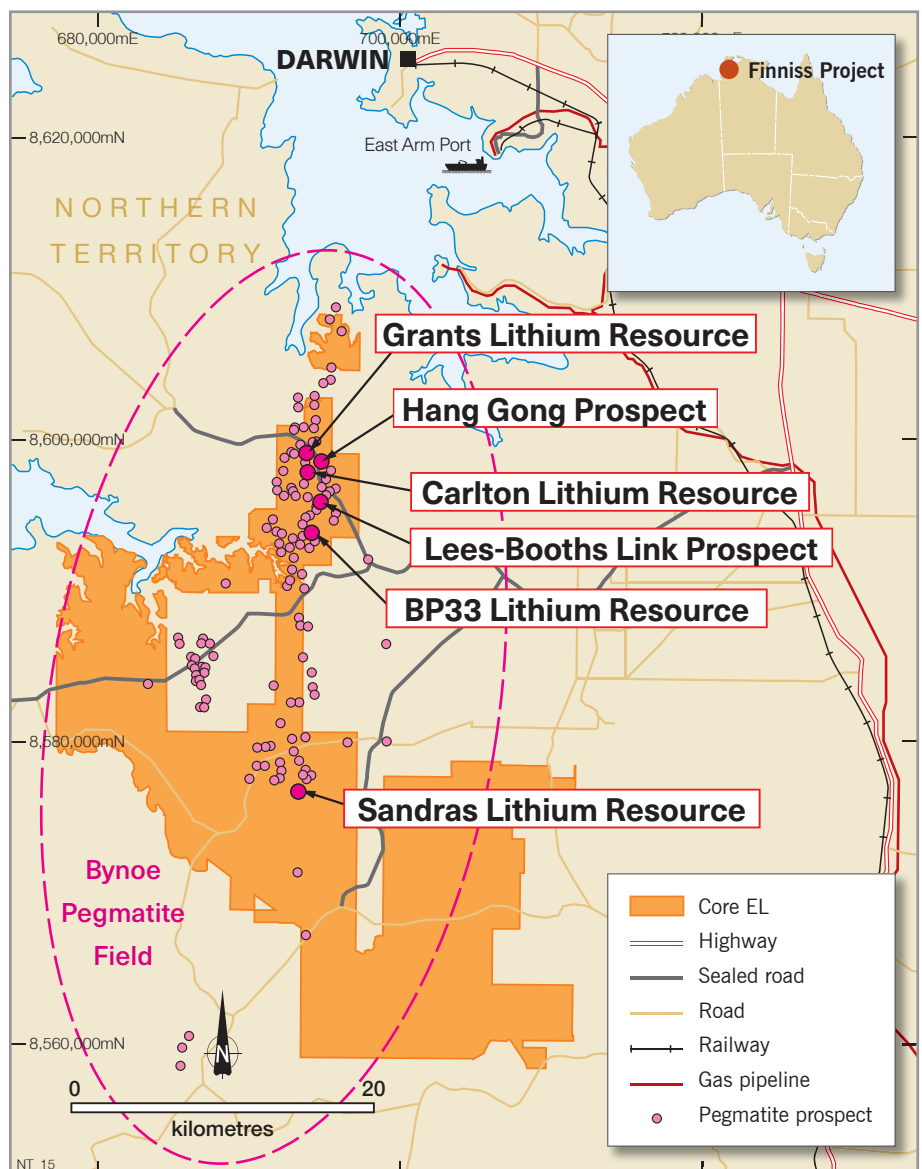


Figure 1. Core’s Finnis Lithium Project – tenure, deposits and prospects.

Table 1. Finnis Project Global Resource inventory (as at 23rd January 2019).

Mineral Resource Estimate for the Finnis Lithium Project 23rd January 2019 – 0.75% Li ₂ O cut-off (except Sandras = 0.6%)					
Deposit	Resource Category	Oxidation	Tonnes	Li ₂ O %	Contained Li ₂ O (t)
Grants	Measured	Fresh	1 090 000	1.48	16 100
	Indicated	Fresh	820 000	1.54	12 600
	Inferred	Fresh	980 000	1.30	14 000
	Total		2 890 000	1.48	42 700
BP33	Indicated	Fresh	630 000	1.39	9 000
	Inferred	Fresh	1 520 000	1.56	24 000
	Total		2 150 000	1.51	33 000
Sandras	Inferred	Fresh	1 300 000	1.0	13 000
	Total		1 300 000	1.0	13 000
Carlton	Inferred	Fresh	790 000	1.3	10 000
	Total		790 000	1.3	10 000
Hang Gong SW	Inferred	Fresh	1 140 000	1.2	14 000
	Inferred	Fresh	70 000	1.2	1 000
	Inferred	Fresh	210 000	1.0	2 000
	Total		1 420 000	1.2	17 000
Finnis Project	Total		8 550 000	1.33	115 700

Pegmatites at the Finnis Lithium Project outcrop as highly weathered, clay-quartz saprolite, close to the Tertiary weathering surface, which is now being slowly exhumed. There is no sign of the lithium-bearing mineral spodumene at any the 100-odd historic prospects due to weathering. In drill core, the fresh pegmatite is composed of extremely coarse-grained spodumene (20–30%), quartz, albite, microcline and muscovite (in decreasing order of abundance), along with accessory ambygonite, apatite, cassiterite, ilmenite, rutile, and rare columbite, tantalite, tourmaline (elbaite), fluorite, topaz and beryl. There is no lepidolite recognised. Spodumene can either occur intergrown with the other minerals (eg poikilitic) or as solitary, large inclusion-free crystals. This textural character varies from prospect to prospect, as does the colour. The grade distribution also varies between the deposits – at BP33 and Grants, the grade is very consistent; while at Hang Gong and Sandras, it is patchy. Garnet and andalusite are common in the Burrell Creek Formation host around the periphery of the larger pegmatites.

All of the 100-odd historic mines and prospects were found by surface prospecting; however, given the limited exposure of bedrock in the district, it is unfathomable that there are not hundreds more. A mere 1 m of laterite is enough to have concealed them from the old timers and various forms of modern surface exploration like remote sensing and soil geochemistry. New discoveries will need to come on the back

of innovative exploration techniques (largely geophysical) in what is largely a geophysically amorphous terrain.

Core Lithium has progressed to using auger geology to map shallow, concealed pegmatites that are identified in HyMapper and HyCam data; this exploration method has already led to the generation of five new large-scale targets to test in 2019.

Acknowledgements

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References

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