

Carboniferous Epithermal Gold Deposits in the Khundii Metallogenic Province, Southwest Mongolia

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Systematic exploration by Erdene Resource Development Corp. since 2005 in an underexplored region of southwestern Mongolia resulted in the discovery of three deposits with defined resources, including two epithermal gold deposits and one porphyry Mo-Cu deposit (Zuun Mod), plus several prospects and advanced projects that collectively form the newly defined Khundii ('Valley') metallogenic province. The first gold production from the Bayan Khundii gold deposit is planned for Q3 2025.

The province lies within a Carboniferous Trans-Altai island arc terrane, part of the Central Asian Orogenic Belt. The erosion level preserves the tops of epithermal deposits, and in some areas, the tops of porphyry deposits.

The Altan Nar Au-polymetallic deposit was discovered in 2011 and is characterized by veins of coarse crystalline quartz-adularia (309.7 ± 0.5 Ma) and Ca-, Mg-, Mn-, and Fe-carbonate gangue hosting coarse galena, low-Fe sphalerite and minor zones with chalcopyrite.

The Bayan Khundii gold deposit was discovered in 2015 while prospecting ~16 km SE of Altan Nar. Results from an initial drilling program included the intersection of a 7-m interval averaging 27.5 g/t Au commencing at 14 m depth. Discovery of the Khar Mori Au prospect was announced in early 2021, ~3.5 km north of Bayan Khundii, with one drill hole reporting 45 m of 5.97 g/t Au from 10 m depth. Later in 2021, drilling discovered wide zones of disseminated gold at Ulaan Southeast (up to 258 m at 0.98 g/t Au from 92 m depth), 300 m west of Bayan Khundii. The epithermal quartz-adularia-Au veins (336.8 ± 0.5 Ma) of Bayan Khundii have colloform bands with minor pyrite and occur within an envelope of illite alteration at Bayan Khundii. The illite overprints earlier, partly eroded porphyry-related lithocap alteration, including residual quartz and pyrophyllite \pm dickite \pm diasporite-kaolinite.