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# Intrusion Related Gold System Model to Guide Sorpresa Basin and Surrounds Exploration

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## Highlights

- The known geology, mineralisation and geological relationships in the Sorpresa Basin and surrounding area supports gold mineralisation as part of an Intrusion Related Gold System (IRGS). Knowing the genetic model ensures future exploration is efficient and effective by focussing on field work with the best opportunity to significantly impact results and deliver success.
- Recognising mineralisation occurrences in the Sorpresa area are part of an IRGS provides Rimfire the opportunity for re-evaluation of the Company's extensive dataset and stored samples to develop exploration strategies for the significant gold deposits often associated with these systems. This could have significant, and rapid, implications for exploration success within 5km of Sorpresa.

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Rimfire Pacific Mining NL (ASX: RIM, "the Company" or "Rimfire") provides an update on recent analysis of exploration data, with this work indicating that an Intrusion Related Gold System (IRGS) genetic model is most appropriate for explaining the multiple occurrences of predominantly gold mineralisation within the Sorpresa Basin and surrounding area (~5km). This recognition is a significant step forward in unlocking the potential indicated by positive gold assay results from exploration activities in the Sorpresa Basin and surrounding areas.

Previously Sorpresa and some of the surrounding mineralisation had been described as Low Sulphidation Epithermal and considered as part of a porphyry Cu / Au system. With both the broad geochemistry and mineralisation morphology associated with Sorpresa and the Fortuna Prospect best fitting the IRGS model the reinterpretation of past positive results from these and other surrounding prospects in context of an IRGS model creates new opportunities for gold discoveries with further exploration.

Rimfire now has the opportunity to rapidly leverage its extensive surface and drill hole dataset, and samples in storage, to re-evaluate past results in the context of the IRGS model. This could have significant, and rapid, implications for exploration success within 5km of Sorpresa.

The Sorpresa discovery and surrounding prospects are located within the Lachlan Transverse Zone and in relatively close proximity to the porphyry copper Cu / Au deposits of Northparkes which is one of the reasons this style of mineralisation has been a focus of Rimfire in this area. To date, significant gold mineralisation has been identified around the Sorpresa area but a clear link to a porphyry Cu-Au system has been difficult to establish in this area of the project. The IRGS model allows for a clear (but different) set of geochemical path finders to be applied, along with typical geophysical and geological features, that can vector exploration to what can be significant gold deposits of varied style (Figure 1).

Some significant features of IRGS Deposit types include:

- Gold grades of >1-2 g/t in disseminated systems and higher in vein systems.
- Gold deposit size ranges from small, +100k oz; to large +1 Moz; to mega +10 Moz (Figure 2)

A comparison of some key IRGS features and evidence from Sorpresa area is provided in Table 1.

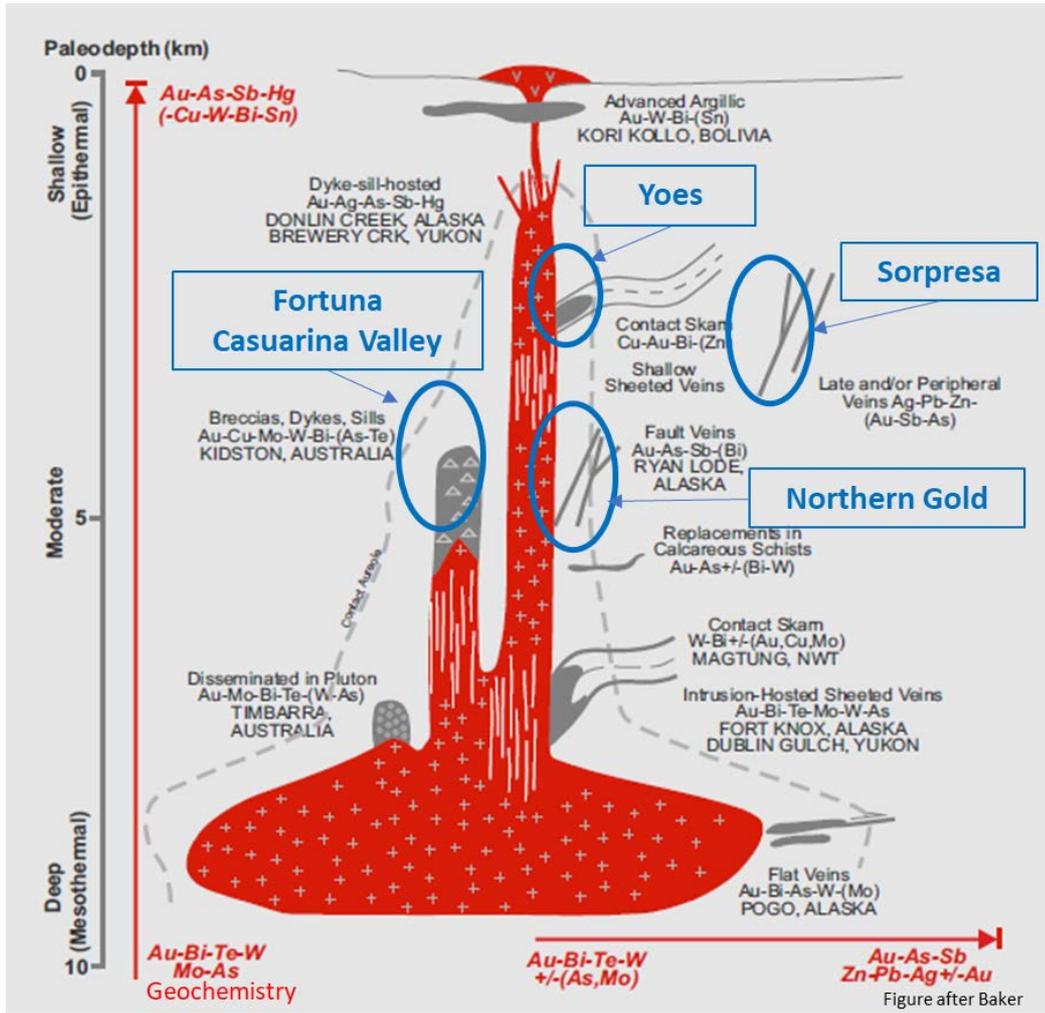
The current planned work in the Southern and Northern Project Areas where Rimfire interprets the presence of early Ordovician Volcanics, known elsewhere (Northparkes Cu/Au, Cadia Cu/Au and Cowal Au) to host significant porphyry system deposits, remains a primary focus. Exploration in these areas is at an early stage and both Cu-Au porphyry and Intrusion Related Gold System mineralisation models will influence the exploration strategy and assessment of future exploration results (Figure 3).

**Craig Riley, Managing Director at Rimfire states:**

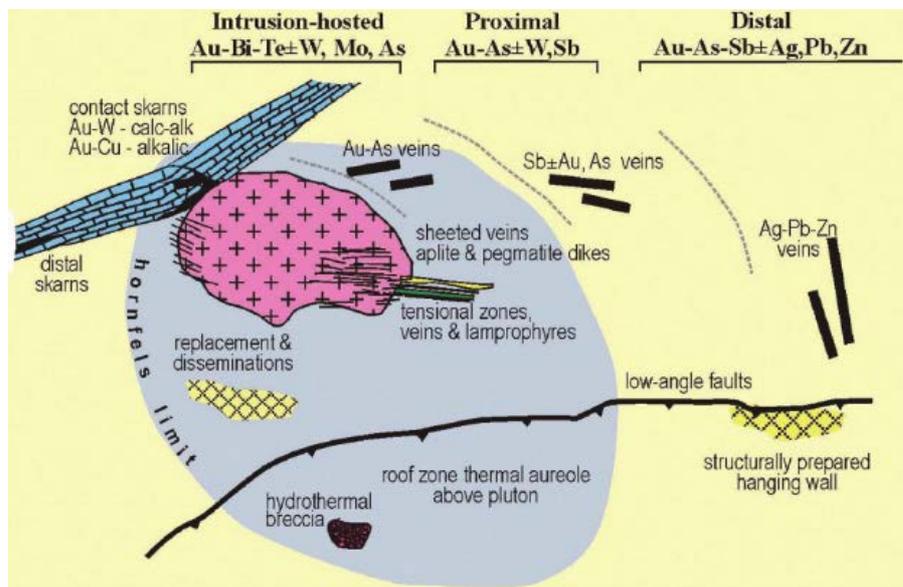
*“The recent work that supports the interpretation of gold mineralisation in the broader area around Sorpresa being part of an Intrusion Related Gold System. This is an exciting development as it reinforces that Sorpresa represents an occurrence of gold mineralisation near surface although the more significant opportunity is ongoing work in the area such to identify a zone with +1 Moz gold mineralisation which is one of the reasons explorers find IRGS systems attractive exploration targets.”*

**Craig Riley**  
**Managing Director and CEO**

Figure 1: IRGS Genetic Model and Conceptual Position of Some Rimfire Prospects



Schematic Intrusion Related Gold System (IRGS) model showing lateral and vertical zonation in mineralisation styles, and interpreted position of Sorpresa Prospects. (Modified from Lang et al, 2000)



General plan model of IRGS illustrating various mineralisation styles, locations and outward metal zoning. (Modified from Hart et al., 2002)

**Table 1: IRGS Indicators Evident in Vicinity of Sorpresa and Surrounding Area (< 5km)**

<b>Features of IRGS</b>	<b>Indicators at Fifield</b>
Tectonic setting: best developed in intrusions that were emplaced into ancient continental margins behind accretionary or collisional orogens and subduction-related magmatic arcs	Confirmed: Fifield characterised by continental Giralambone rocks to the west and arc volcanics to the east.
Timing: Mineralisation coeval with intrusion and typically emplaced over a short period	Confirmed: Dating indicates common age for sulphides from Sorpresa, a monzodiorite to the north east, plus porphyritic rhyolitic intrusives from within the Sorpresa resource and across the central area.
Mineralisation often emplaced during a late period of extension	Supported: 2016 drilling south west of Sorpresa confirmed interpreted ~E-W striking faults to have normal (extensional) displacement. The drilled fault cuts the late Siluro-Devonian Edols Conglomerate, and a similar interpreted fault cuts through the Sorpresa Resource area.
Driver of system are felsic ilmenite series plutons with low magnetic susceptibilities	Supported: Gobondery Granite considered ilmenite series plus felsic porphyritic dykes associated with mineralisation.
Evidence of rapid fractionation and fluid exsolution indicative of volatile saturation during crystallisation (aplite, felsite & pegmatitic dikes).	Supported: Felsite identified in several areas and pegmatitic dykes known to the north east of Sorpresa
Diverse Deposit Styles	Supported: Sorpresa = vein & fine disseminated Au with rhyolitic porphyritic dyke association, Yoes = skarn with low level Cu & Au, Golden Green = chlorite altered shear hosted Au, Fortuna = potential for breccia pipe or cupola hosted sheeted vein mineralisation
Metal indicators: significant copper lacking, sulphides low (<5%), intrusions low in iron, (pyrite, pyrrhotite, arsenopyrite rather than hematite, magnetite), gold typically fine grained, tin and tungsten associated with granites. Metal assemblages are gold-dominant with anomalous Bi, W, As, Te and/or Sb, and typically have non-economic base metal concentrations (base metals increase in distal positions)	Supported: Copper very rare/low level in past exploration results, drilling typically encounters low level pyrite, pyrrhotite, arsenopyrite but not hematite, magnetite. Gold in Sorpresa resource very fine grained and noted as a reason the area was not identified by historic miners. Cassiterite (tin) panned from surface samples around Sorpresa and mentions of Scheelite (tungsten) identified in the area by past explorers. As and Sb recognised with Au at Sorpresa (Bi, W & Te not regularly assayed)
Zoning	Confirmed: Sorpresa (south end Au, As, Sb +Ag > north end Ag, Pb, Zn, +Au, As) and indicated by peripheral base metals in Auger and Aircore samples around Fortuna

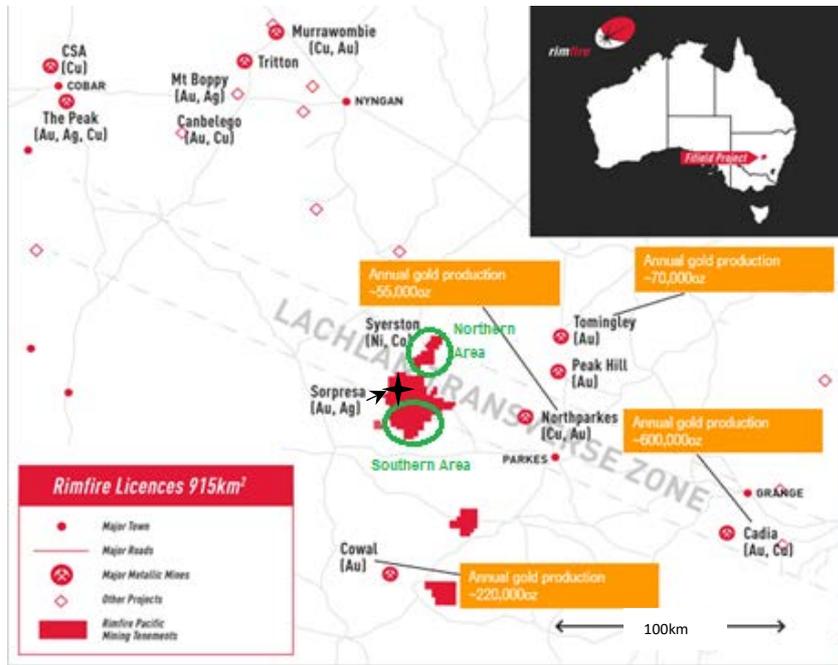
Note: above comparison based on available data and should be considered indicative at this stage



**ABOUT RIMFIRE**

Rimfire Pacific Mining (RIM) is an ASX listed resources exploration company with its major focus at Fifield in central NSW, located within the Lachlan Transverse Zone (LTZ). In 2011 the Company made a greenfields discovery, named “Sorpresa”, announcing a JORC Inferred & Indicated Maiden resource in 2014. The information provided in “About Rimfire” is available to view on the company’s website: [ASX Announcements](#).

Figure 3: Location Plan Rimfire Exploration Licences and Project Areas



Rimfire is exploring for a major copper / gold or gold mineralised system such as at Northparkes (Cu/Au) or Cowal (Au) on 915km<sup>2</sup> of Exploration Licences 100km west of Parkes in central NSW. Multiple prospects with potential for further gold discoveries exist in the area around Sorpresa which are part of Rimfire’s 681km<sup>2</sup> contiguous tenements. Rimfire also holds two exploration licences covering 234km<sup>2</sup>; located 40 to 60kms south of the Fifield Project, in a prospective area now part of a moratorium associated with the MinEx Cooperative Research Centre program ([minexcrc.com.au](#))

**Competent Persons Declarations**

The information in the report to which this statement is attached that relates to Exploration and Resource Results is based on information reviewed and/or compiled by Todd Axford who is deemed to be a Competent Person and is a Member of The Australasian Institute of Mining and Metallurgy. Mr Axford has over 23 years’ experience in the mineral and mining industry. Mr Axford is employed by Geko-Co Pty Ltd and is a consulting geologist to the Company. Todd Axford has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Todd Axford consents to the inclusion of the matters based on the information in the form and context in which it appears.

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