

# **NWBC's Golden Triangle – Description of BCGS Age Dating Errors on NTS Map Sheet No's 104B-10, 11, 14 and 15 and a New Structural Interpretation for the Area North of the Former Snip Mine Based on Detailed Airborne Magnetic Survey Data**

*Some of the information outlined in this memo was originally presented in a memo dated 4th May 2022. This update includes a more detailed description of the age dating errors identified on the BCGS maps that cover an overlooked area north of the Iskut River (immediately north of the former Snip Mine) and provides a new structural interpretation based on available airborne magnetic surveys and new information published by Seabridge Gold. Funding was provided by Goldrea Resources (CSE: GOR) and Tana Resources (CSE: TANA).*

## **1.0 Summary**

Exploration work in northwest British Columbia's Golden Triangle is generally focused on Jurassic Age Hazelton Group rocks and Triassic Age Stuhini Group rocks typically in close proximity to Jurassic aged felsic intrusions. Historically, the former Snip Mine area and a 3 – 5-kilometer-wide ESE trending structural corridor known as the Bronson Corridor (both located on the south side of the Iskut River) have been one of the primary exploration areas in the Golden Triangle. Goldrea Resources Cannonball - King Project and Tana Resources Double T Project are located on the North side of the Iskut River approximately 15 kilometers north of the former Snip Mine.

In 2015, Jeff Kyba and Joanne Nelson recognized that most of the known gold, copper – gold and polymetallic deposits in the Golden Triangle occur within two kilometers of this stratigraphic contact, called it the “Red Line” and published updated geological maps to guide ongoing exploration work.

Figure 1 and 2 show the regional geology and a zoomed in view of the current study area. Figure 3 is a compilation of the available airborne magnetic survey data. Figure 4 presents a new structural interpretation for the study area based on available airborne magnetic and age dating data.

As shown in Figure 2 there are several gold, copper gold and polymetallic occurrences localized along the ESE trending Bronson Corridor. This corridor straddles Kyba and Nelson's Red Line and these occurrences have been the focus of extensive exploration work.

In 2016, Seabridge Gold (“Seabridge”) acquired Snip Gold Resources which controlled the claims covering most of the western part of the Bronson Corridor including the Bronson Slope porphyry copper deposit and the former Johnny Mountain mine site (collectively referred to as the Iskut Project). Skeena Resources (“Skeena”) owns the Snip Mine and Skeena and Imperial Metals / Chris Graf control most of the Bronson Corridor to the east of the Iskut Project.

Ongoing exploration work by Seabridge on the Iskut Project between 2016 and 2022 identified a second porphyry target called Quartz Rise near the historic Johnny Mountain Mine and identified a “Quartz Magnetite Breccia Pipe” within the historic Bronson Slope resource area. In May of 2023 Seabridge Gold announced plans for an extensive follow up drill program at Bronson Slope and an extensive drill program at a third porphyry copper gold target referred to as the Snip North Prospect located on the north side of the Iskut River.

The press releases issued by Seabridge since 2016 regarding the Iskut Project have stated that the rocks that host the Bronson Slope, Quartz Rise and Snip North prospects are “strikingly similar” to the rocks that host the KSM copper-gold deposits (one of the world's largest undeveloped gold deposits) located approximately 50 kilometers to the east southeast of the former Snip Mine.

**On December 14, 2023 Seabridge Gold announced positive results from the 2023 drill program at Snip North and reported that all of the known porphyry copper - gold targets within the Iskut Project (referred to as Snip North, Bronson Slope and Quartz Rise) are localized along a north east trending structural corridor (see press release dated December 14, 2023). Seabridge also controls the KSM**

Project and it is interesting to note that the KSM, Snowfield, Treaty Creek and Brucejack deposits also form a broad, NE trending corridor.

The results of an airborne magnetic survey compilation funded by Goldrea and Tana in 2021 Von Einsiedel, Carl A. and Polutnik, R. (2021) confirmed that there are several gold, copper gold and polymetallic prospects on the Goldrea and Tana claims which are spatially related to a NE trending graben structure called the Newmont Lake graben. More importantly, the study identified a previously unrecognized, 3 to 5 kilometer wide, ESE trending structural corridor (now referred to as the Cannonball corridor) located within the Goldrea and Tana claims which appears to offset the Newmont Lake graben several km to the south east. As shown in Figure 1 - 4, the offset extension of the Newmont Lake graben clearly represents a possible extension of the NE trending structural corridor reported by Seabridge.

The age dating data used for preparation of this memo includes results of ongoing compilation of age dating studies published by the BC Geological Survey (BC Geological Studies 2004 & 2005 to 2020) and two new age dates published by Enduro Metals Corp. (see press releases dated January 18, 2021 and February 9, 2021). The available data clearly disputes the Devonian age rock units shown on the current BCGS maps and confirms that Jurassic and Triassic aged rocks are present within at least some of the areas that are currently mapped as being Devonian in age. Although it is not shown on the current BCGS maps, Kyba and Nelson's Red Line clearly extends through the current study area.

The current BCGS maps covering the north side of the Iskut River incorrectly show that the rock units underlying possible extensions of the NE trending structural corridor reported by Seabridge consist primarily of Devonian aged meta-sediments, volcanics and intrusive rocks. Available age dates and lithological descriptions of the rock units that were dated confirm that Hazelton and Stuhini Group rocks and Early Jurassic felsic intrusions are present within the Newmont Lake graben. A review of historic reports indicates that very little exploration work and only a handful of shallow drilling programs have been carried out within the study area north of the Iskut River. The area of interest lies at the junction of four 1:50,000 Map Sheets produced by the National Topographic Systems from Natural Resources Canada: Mapsheet 104B/10, 11, 14, and 15.

Even though these maps represent continuous geological units, the areas were mapped in detail at different times (the east was unmapped prior to 2010) and so correlations across the map sheets have not been rectified. To the west, sheet 104B/14 shows a zone of Carboniferous age Verrett graphic granite (lithology code "Cvgg"), but to the east on sheet 104B/15 the unit is logged as being a Lower Devonian Granite ("LDg"). This type of discrepancy can be seen in several other rock units that straddle the suture between map sheets, demonstrating the need for further scrutiny and caution when using historical mapping data through this region, and why more recent age-dating samples may not reflect the assumed age of underlying units.

Although the overall extent of Stuhini and Hazelton Group rocks and Early Jurassic felsic intrusions within the Newmont Lake graben has not yet been determined, confirmation that these important rock units are present within a possible extension of the structural corridor that hosts the Snip North, Bronson Slope and Quartz Rise prospects has significant implications for the exploration potential of the current study area north of the Iskut River.

## **2.0 Background on the Golden Triangle**

The Golden Triangle, in northwestern British Columbia, Canada, is renowned for its rich geological endowment and mineral wealth. This region encompasses the Stikine Terrane, characterized by a complex interplay of tectonic forces that have shaped its diverse and mineral-rich landscape. The Golden Triangle has gained prominence as one of the world's premier mineral exploration and mining districts, attracting attention for its prolific deposits of precious and base metals.

Geologically, the Golden Triangle is situated at the convergence of several key tectonic plates, including the North American, Pacific, and Kula plates, resulting in a dynamic geological setting that has given rise

to a multitude of mineralized systems. This unique geological environment has fostered the formation of world-class mineral deposits, with gold, silver, copper, zinc, and other valuable metals occurring in significant concentrations.

### **3.0 The Current Tenure**

Goldrea Resources Corp. and Tana Resources control many of the known copper and gold occurrences within the southern part of the Newmont Lake graben which is believed to be an extension of the northeast trending structural corridor reported by Seabridge Gold. Hanstone Resources (TSX:V-HANS) control parts of the western margins of this structural corridor and Enduro Metals (TSX:V ENDR.V) controls the entire Newmont Lake graben to the north of the Goldrea and Tana Resources claims and possible extensions of the east side of the graben.

## **4.0 Updating Our Understanding**

### **4.1 Age Dating of Lithologies**

Discrepancies in government age-dating of rock units within the Adrian-Cannonball and Double T tenure challenge established timelines. Hazelton-style mineralization, associated with Jurassic age intrusive rocks contradicts the indicated Devonian age which significantly impacts the potential of these occurrences.

A 222-ma age from volcanic rocks within the Goldrea claims immediately east of the graben challenges the 1994 Carboniferous to Permian classification aligning instead with the Triassic-Jurassic Stuhini Group. Notably, the 222-ma age date was reportedly collected from volcanic rocks classified as "Devonian Tuffs". A 188-ma age date reported by Enduro in 2021 from a felsic intrusion within the Newmont Lake graben approximately 5 kilometers north of the Goldrea claims also demonstrates that intrusions comparable to the Early Jurassic aged intrusions that host the KSM porphyry deposits are present within this corridor.

The geological evolution of this part of the Golden Triangle suggests the accretion of the North American continent, followed by rifting and extensional tearing. The western boundary of the Newmont Lake graben (referred to as the McLymont Fault) plays a crucial role in structurally and temporally linking mineral zones. The secondary structure, trending northwest to southeast, accompanies the first-order rift, providing an extensional tear for later intrusions.

Dating evidence suggests temporal links to known intrusions, supporting the continuation of the northeast trending corridor of porphyry copper prospects reported by Seabridge Gold. Geophysical surveys and magnetic data corroborate structural features, indicating a clear association between mineralization events and dilational features.

In conclusion, ongoing work by Seabridge Gold, Goldrea (and Tana Resources) and Enduro Metals in this part of the Golden Triangle suggests there may be structural, geological, and temporal comparisons that link the known occurrences in this part of the Golden Triangle (i.e. the Cannonball Target, Juice Box Target, Adrian Vein, King- Mist Zone and North Zone occurrences).

### **4.2 Structural Corridors**

As mentioned above, advances in understanding and structural modeling of the mineralized zones in the project area are being assisted by the continual updating of the regional dataset.

The basic model is the existence of a northwest to southeast trending graben, bounded on the west by the extensional McLymont Fault. The deep setting of the fault has created pathways for upwelling fluids forming localized epithermal fields, such as the King and Adrian Veins.

The extensional nature also allows magma to move closer to the surface under the floor of the graben. The heat drives the epithermal systems, but the movement of magma can form cupolas of material that are represented as arcuate to circular anomalies in geophysical surveys and geological mapping exercises.

This appears to be what is happening at the Cannonball target where copper and gold rich mineralization has been discovered within and around the margins of one of these circular features.

The Newmont Lake graben structure appears to be offset by the ESE trending later faults which appear to have offset the graben by up to 5km in a left-lateral movement. Two of these exist in the area – one known as the Bronson Corridor in the south, and the newly interpreted second structure to the north (tentatively referred to as the Cannonball Corridor). The meeting points between these intersecting structures appear to host some of the more prevalent mineralization in the area. The Cannonball-target is an example of this where the anomaly occurs in the zone where the eastern graben-bounding fault intersects the newly discovered shear zone. Similarly, the Snip Mine is found in the southern (offset) extension of the McLymont Fault near the cross-cutting Bronson-and Sky Fault structures.

News releases issued by Seabridge Gold on May 30th and December 14th, 2023, seems to indicate that their work is starting to prove up the same ideas and add significance to mineral potential in the area. They state that “regional geophysical surveys and surface geology continue to confirm a district scale structural feature that connects Quartz Rise, Bronson Slope and Snip North targets.”.

They go on to mention further deeper drilling along Bronson Slope, which [sic] “...last year discovered a large, steeply plunging quartz-magnetite breccia pipe with clear indications of being sources from hydrothermal eruptions out of an intrusion. The copper and gold concentrations within and on the margins of this breccia pipe are evidence the source intrusion could host a significant mineral system.”

## **5.0 Conclusions**

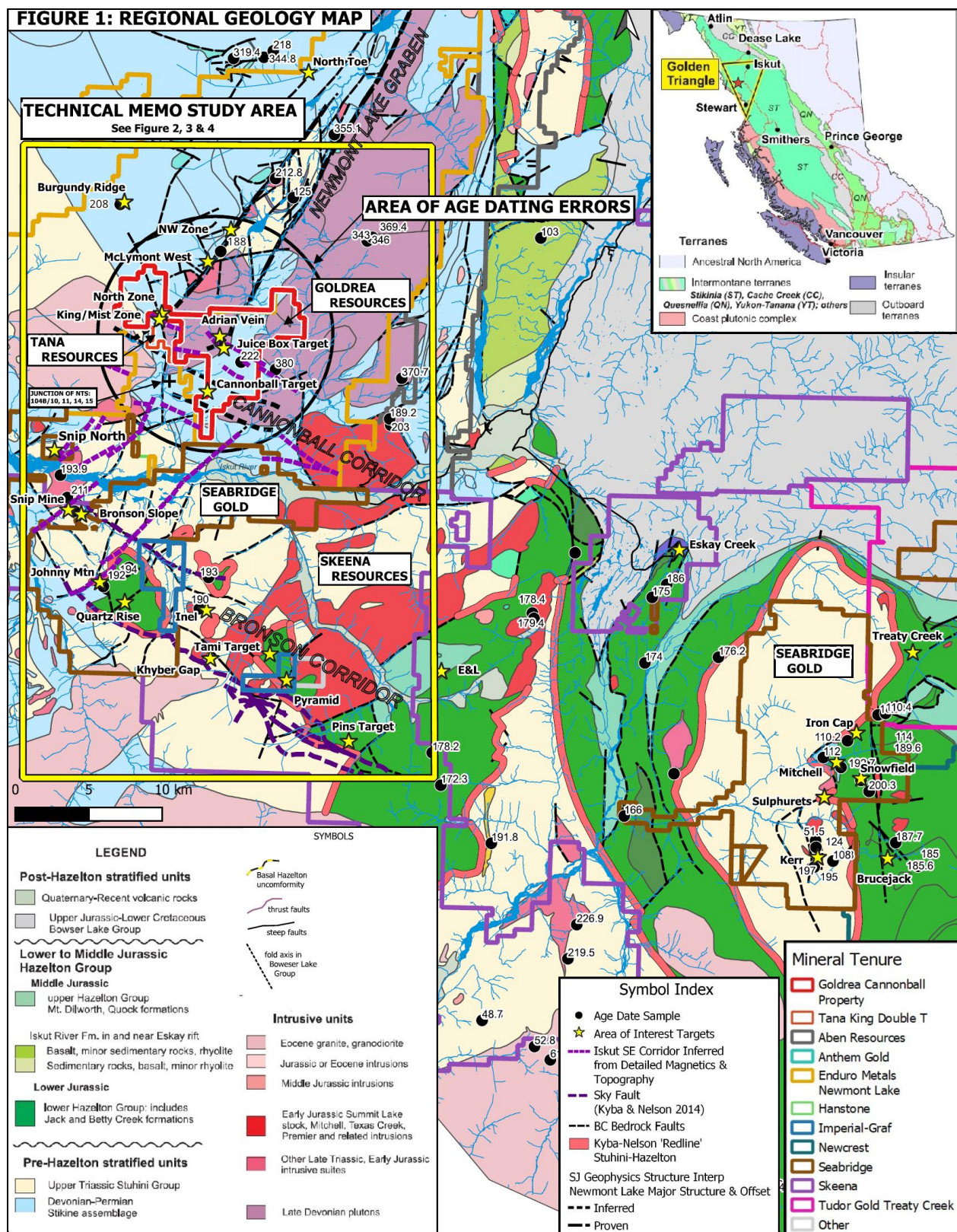
Goldrea Resources Corp.'s Adrian-Cannonball – King Project and Tana Resource Double T Project, cover multiple high-grade gold, copper gold and polymetallic targets within a contiguous 5,400 ha. land package. The mineral claims cover most of the known occurrences within the projected extension of the northeast trending corridor reported by Seabridge Resources. They also cover most of the known gold, copper and polymetallic occurrences localized along the ESE trending structural corridor that was identified from the airborne magnetic survey compilation in 2021.

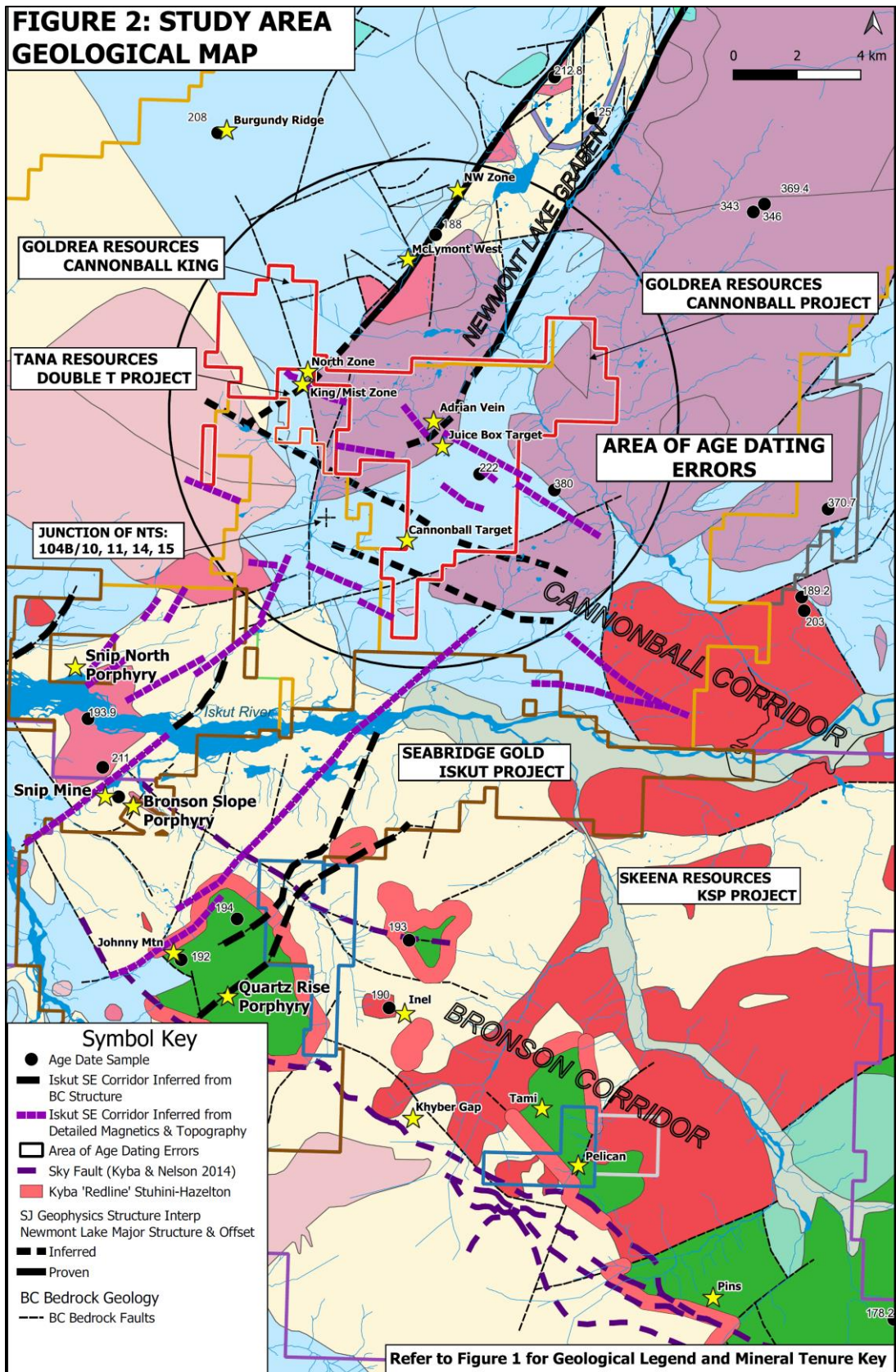
The age dating of lithologies within the Adrian-Cannonball tenure presents discrepancies challenging established timelines. Hazelton-style mineralization linked to the Jurassic age contradicts the initially labeled Devonian age, prompting a revaluation and enhancing the area's prospectivity. Magee's observations question the accuracy of geological representations, emphasizing the crucial role of the McLymont Fault in structurally and temporally linking mineral zones.

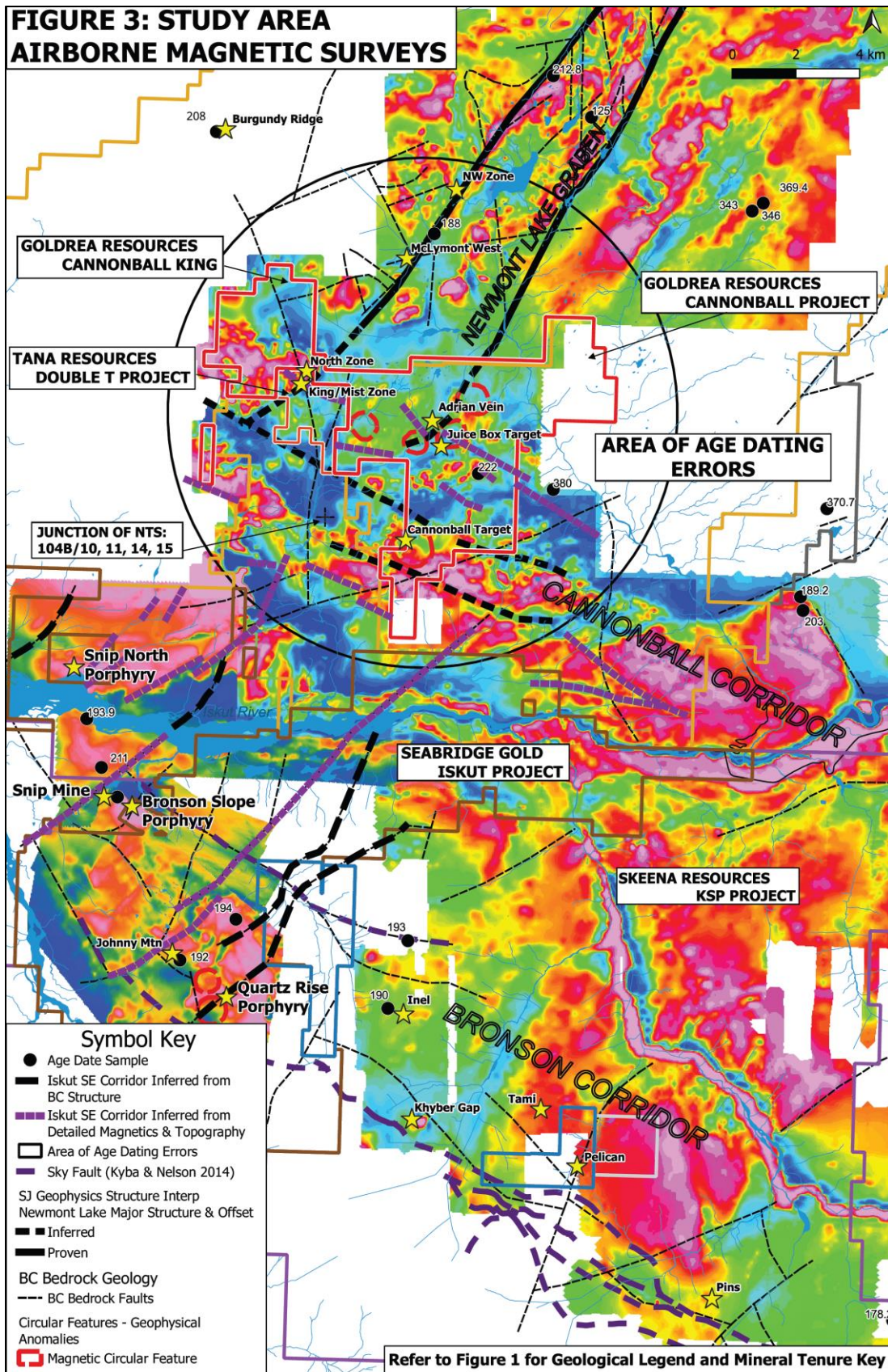
Copper and gold occurrences localized along northeast trending structural corridors in close proximity to offsetting ESE trending faults, provide insights into the geological processes driving mineralization events.

Recent advances in understanding structural complexities, including the identification of circular magnetic features associated with copper and gold rich mineralization, align with promising exploration targets like Cannonball, Juicebox, and Adrian.

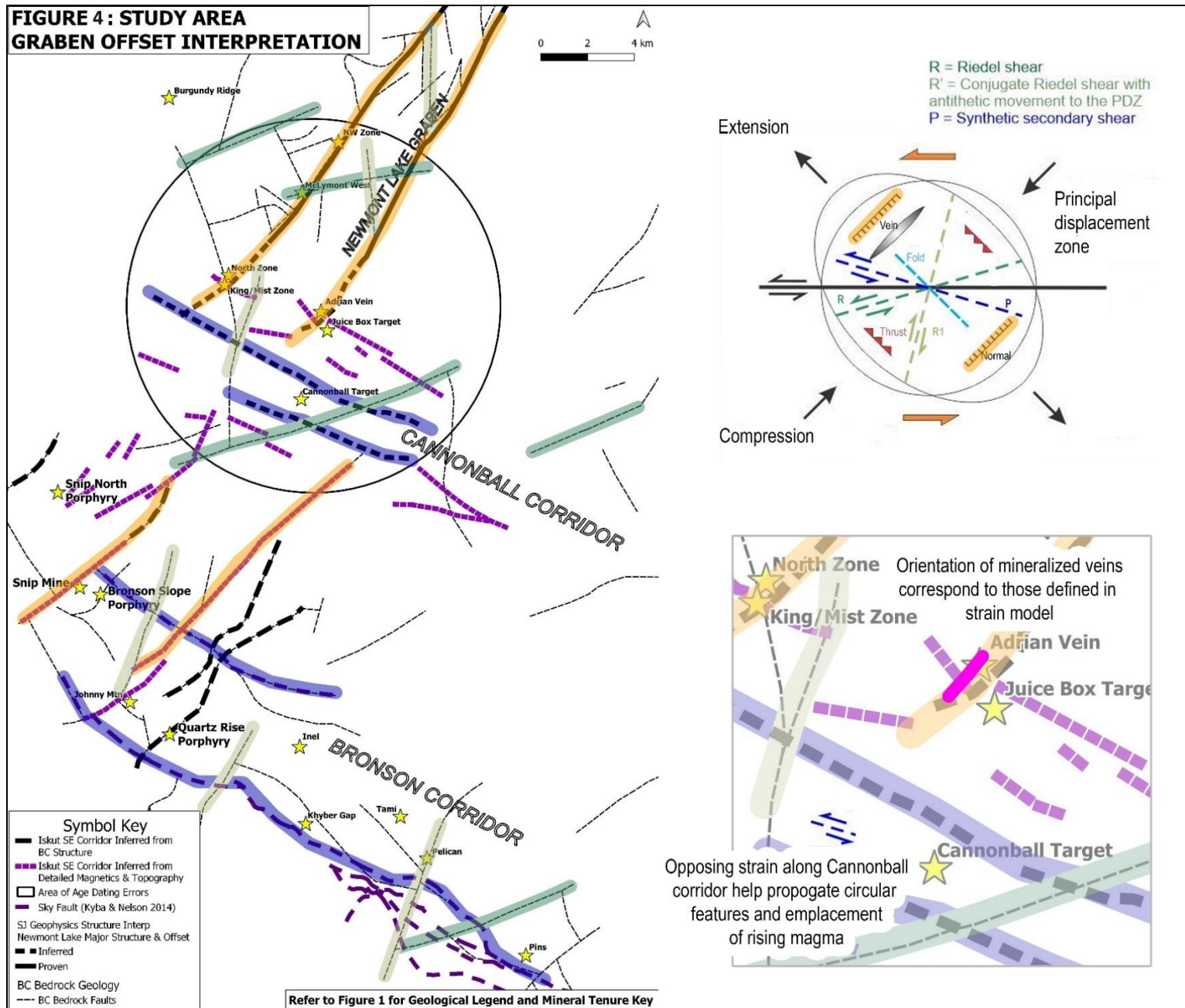
Seabridge Gold's findings further substantiate the significance of district-scale structural features, adding value to the mineral potential of this part of the Golden Triangle.







**FIGURE 4 : STUDY AREA  
GRABEN OFFSET INTERPRETATION**



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