Update on bedrock mapping in the Kluane Ranges, southwest Yukon

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Introduction

The Kluane Ranges project is a multi-year bedrock mapping project focusing on Late Paleozoic to Cenozoic rocks south of the Alaska highway in southwest Yukon (Fig. 1). The Kluane Ranges is an area with very high mineral potential associated with several different deposit types. The goals of the Kluane Ranges project are to provide detailed 1:50 000-scale mapping of the area and to better understand complex stratigraphic (Fig. 2) and structural relationships. Mapping in 2004 and 2005 covered the area west of Burwash Landing (Fig. 1; Israel and van Zeyl, 2004; Israel et al., 2005).
Reconnaissance mapping in 2006 took place in two localities over a combined four week period. One week was spent examining the relationships between Wrangellia and the Alexander terrane in the Outpost Mountain area (Fig. 3) and three weeks mapping within the Koidern River area (Fig. 4).

Stratigraphy

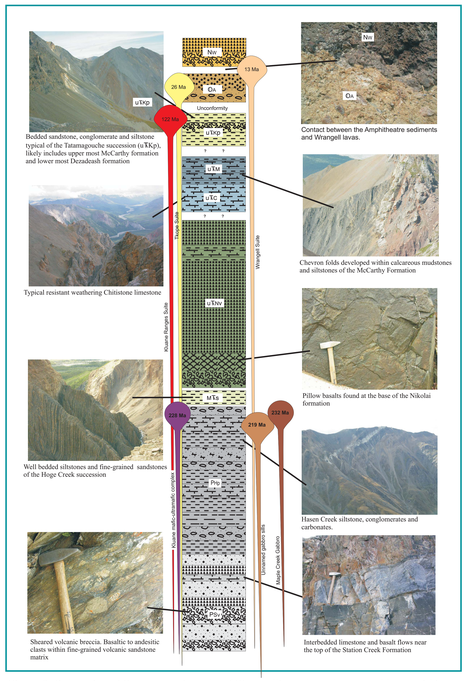


Figure 2. Paleozoic to Miocene stratigraphy of Wrangellia and overlap assemblages within the Kluane Ranges.

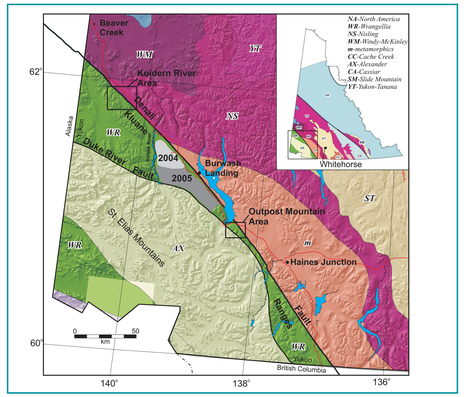


Figure 1. Terrane map of southwest Yukon, location of 2004-2005 mapping shown in grey. Location of reconnaissance mapping in the Outpost Mountain and Koidern River areas indicated by boxes (Figures 3 and 4). Inset map: Tectonic terranes of the Yukon.

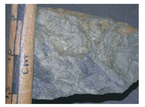
Mineral Potential

Several different deposit types found within the Kluane Ranges makes the area a highly prospective belt of rocks. The main targets in the belt are Late Triassic Kluane mafic-ultramafic intrusions that are associated with several known showings including the Wellgreen and Canalask Ni-Cu-PGE deposits. The mafic-ultramafic intrusions are found within the Station and Hasen Creek formations and appear to be more mineralized where they intrude sulphide rich sediments of the Hasen Creek formation. Massive sulphide mineralization found within the Ultra claims (Klondike Star Mineral Corporation) is a clear indication for VMS style mineralization within the Kluane Ranges. Several showings and prospect, including skarn mineralization and Cu-Ag quartz veins are related to Early Cretaceous diorite and granite intrusions of the Kluane Ranges suite.

Massive sulphide ore from the Welllgreen deposit.

Malachite and azurite staining associated with pyrite and chalcopyrite within fractures found near MINFILE 115F-038.

Malachite, pyrite and chalcopyrite within quartz veins in granodiorite of the Kluane Ranges suite from a new showing within the Koidern River area.



Massive sulphide mineralization from a boulder on the Ultra claims near Telluride Creek, Outpost Mountain area.

VMS style mineralization in outcrop on the Ultra Claims (photo courtesy of Klondike Star Mineral Corp.)

MINFILE	NAME	STATUS	DEPOSIT TYPE	COMMODITY
115B-007	Outpost	Unknown	Unknown	
115B-012	Kul	Prospect	Gabbroid Cu-Ni	Gypsum-Cu
115B-008	Telluride	Drilled Prospect	VMS	Cu-Zn-Pt-Pb-Pd-Ag
115F-037	Koidern	Unknown	Unknown	
115F-038	Liberty	Showing	Cu-Au Qtz veins	Cu-Au-Pb
115F-039	Quebec	Anomaly	Unknown	
115F-040	Duensing	Unknown	Unknown	
115F-041	Cats and Dogs	Showing	Gabbroid Cu-Ni	Cu-Ni-Pt-Au-Pd
115F-042	Mexico	Showing	Cu-Skarn	Cu
115F-058	Down	Unknown	Unknown	
115F-103	Harjay	Unknown	Unknown	

Figure 5. MINFILE descriptions from the Outpost Mountain and Koidern River areas (Deklerk and Traynor, 2005).

Outpost Mountain Area

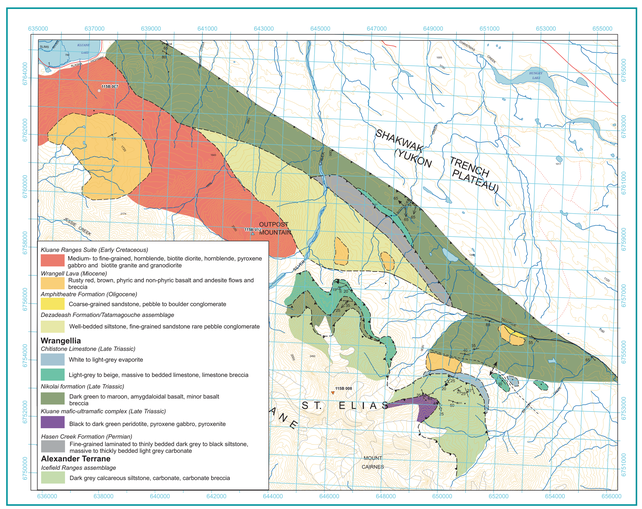


Figure 3. Preliminary bedrock geology map of the Outpost Mountain area, part of NTS 115B-16. MINFILE descriptions in Figure 5 (Grid is UTM Zone 7 NAD 83).

Koidern River Area

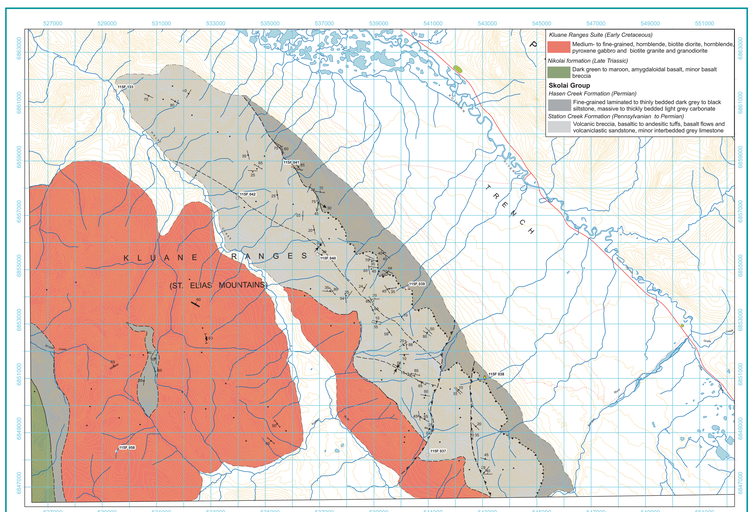


Figure 4. Preliminary bedrock geology map of the Koidern River area, part of NTS 115F-16. MINFILE descriptions in Figure 5 (Grid is 1km UTM Zone 7 NAD 83).

Summary

- **Preliminary mapping completed within the Outpost Mountain and Koidern River areas**
- **The Kluane Ranges are a highly prospective region with mineralization related to several different deposit types**
- **Determining the stratigraphic and structural relationships is crucial to targeting mineral exploration**

Acknowledgments

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References

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Israel, S. and van Zeyl, D., 2004. Preliminary bedrock geology of the Quill Creek area (parts of NTS 115G/5, 6, 12), southwest Yukon (1:50 000 scale), Yukon Geological Survey, Open File 2004-20

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