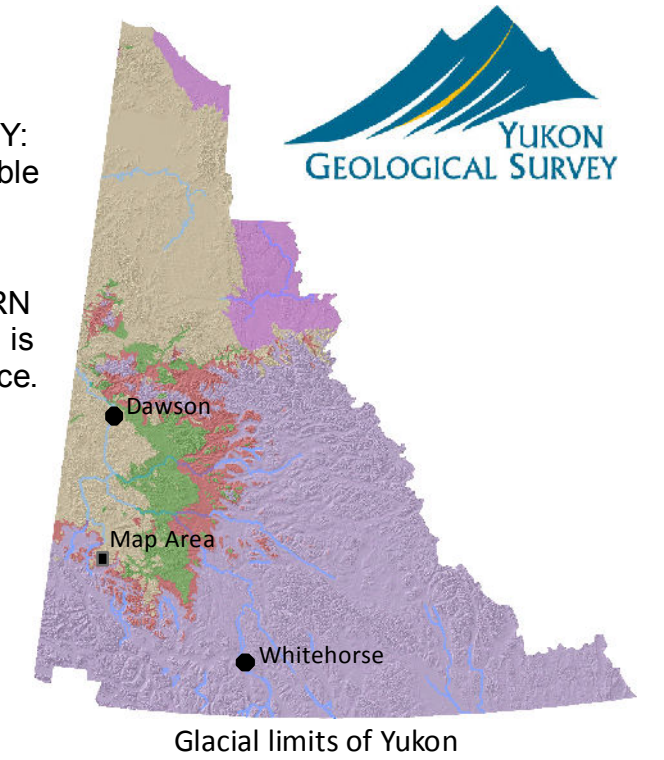
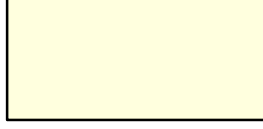









Upper Grayling Creek Fluvial Deposit Map and Placer Potential

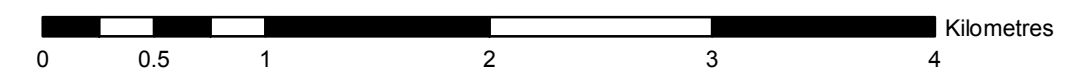
By Jeffrey Bond and Panya Lipovsky



Glacial limits of Yukon

-  HIGH LEVEL FLUVIAL BENCHES - EARLY PLEISTOCENE TO TERTIARY: Bench gravel is buried under colluviated silt and weathered bedrock of variable thickness.
-  INTERMEDIATE AND LOW LEVEL FLUVIAL BENCHES AND MODERN FLUVIAL DEPOSITS - LATE PLEISTOCENE TO HOLOCENE: Bench gravel is buried under colluvium whereas fluvial plains and fans are exposed at surface. Some intermediate level benches may be glaciofluvial in origin.
-  REID GLACIAL LIMIT (120,000 YEARS AGO)
-  GLADSTONE GLACIAL LIMIT (60,000 YEARS AGO)
-  MCCONNELL GLACIAL LIMIT (15,000 YEARS AGO)
-  REID MELTWATER CHANNEL (120,000 YEARS AGO)
-  GLADSTONE MELTWATER CHANNEL (60,000 YEARS AGO)
-  MCCONNELL MELTWATER CHANNEL (15,000 YEARS AGO)

This map is a derivative publication from Bond and Lipovsky (2015 a, b) that shows the distribution of fluvial deposits at the headwaters of Grayling Creek in southwest Yukon. High-level benches were mapped in the drainage that pre-dates the first glaciation (Reid 120 ka). The benches therefore have a pre-glacial origin and may date to the Tertiary. The Cordilleran Ice Sheet reached the southern edge of the drainage basin and meltwater cut channels through the pre-glacial deposits. This process resulted in a base-level change in upper Grayling Creek and a new lower level was established for the modern creek. Reconnaissance sampling of the creek bars from the mouth of the drainage near the Donjek River to this area consistently showed low-grade placer gold concentrations. It is speculated that the placer gold originates from the pre-glacial (Tertiary?) benches and was distributed downstream by glacial meltwater flows. No testing has occurred on the benches or on bedrock in the valley bottom. Initial testing should focus on the modern fluvial gravel, high-level targets and narrow tributaries that dissect the benches or enter Grayling Creek from the north. Additional testing should target Grayling Creek within the downstream diversions and in reaches where the channel becomes unconfined (Fig. 1).



Brochure 2015-1

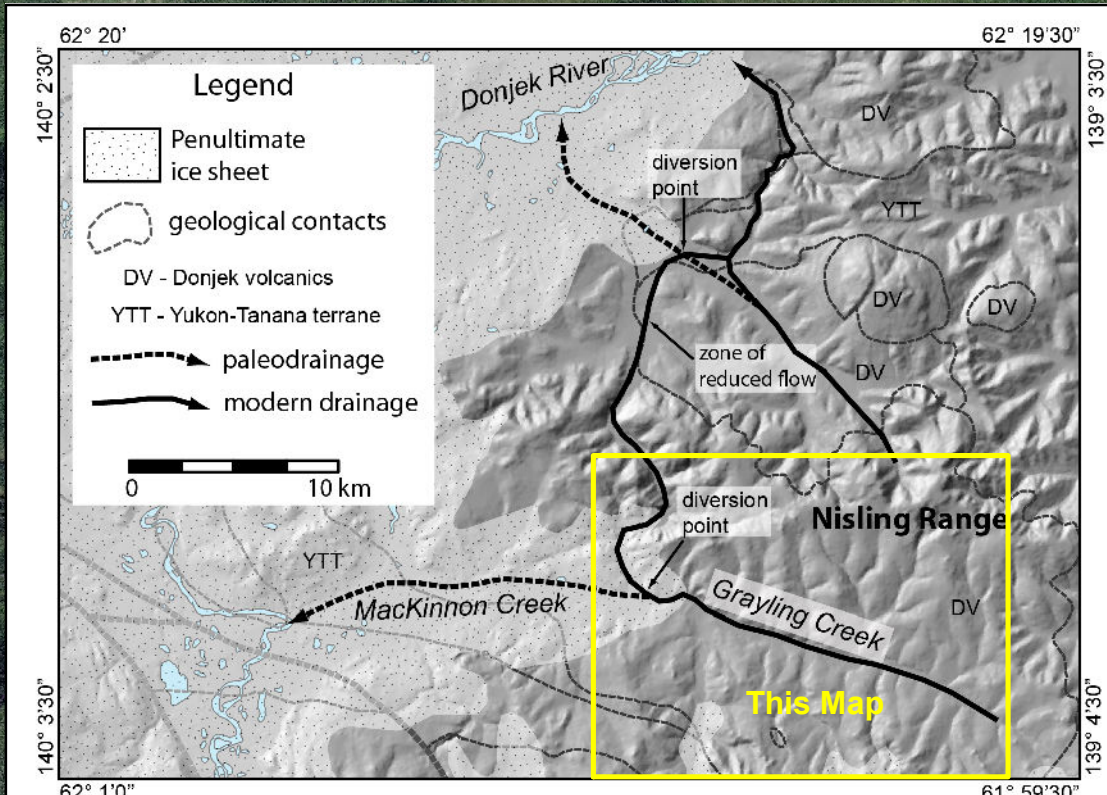


Figure 1: Grayling Creek was diverted northward when the Reid ice sheet blocked the westward drainage of paleo-Grayling Creek (presently named MacKinnon Creek). Two diversion points indicate the location of ice dams responsible for the deflection of Grayling Creek (Bond et al., 2008). A zone of reduced paleo-flow, which may have placer potential, is identified between the diversion points. General bedrock geology for the surrounding area is after Murphy et al., 2007. Preservation of paleo-Grayling Creek deposits in MacKinnon Creek will be challenging to locate. The valley morphology is sufficiently altered suggesting ice and meltwater erosion may have redistributed or buried pre-existing placers. Exploration in the paleo-drainage should focus near the glacial limit where ice erosion was limited.

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