



**LEGEND**

- QUATERNARY**
- Ap** Alluvial plain; flat to undulating, commonly meander scoured, typically organic silty sand accumulations on top of sand and gravel. Placer mining has altered the morphology in part.
  - Al** Alluvial terrace; flat to undulating, minor channelling, gravel and sand on top of elevated bedrock terraces. Parts of the terraces have been stripped.
  - At** Alluvial fan; sloping aggregate of sorted and unsorted sediment from tributary streams. Composed of mixture of alluvial and colluvial deposits merging with other deposits.
  - Gt** Glaciofluvial terrace; flat to undulating, braided channel patterns, composed of loose overlying sand and gravel. Ventifacts and sand wedges present.
  - Im** Ridged moraine, parallel linear ridges presumably composed of till. Identification based solely on airphoto interpretation.
  - Cb** Colluvial blanket, unsorted mixture of angular rock debris and sediment which covers much of the valley sides. May include some tributary alluvial fan sediments.
- PROTEROZOIC-PALEOZOIC**
- gr** Granite, weakly foliated granite, and granite porphyry. Quartz-feldspar pegmatite contains muscovite, tourmaline, and garnet. Apatite dikes present locally in hornfels.
  - hf** Hornfels, calcisilicate; purplish to brown fine grained rocks with green vein selvages. Biotite spotted locally.
  - sc** Schist, mica schist, biotite-quartz-feldspar schist; brown and grey fine grained well foliated and crystallized rocks, includes minor grey phyllite. Grades into foliated quartzite.
  - qz** Quartzite, micaceous quartzite, foliated quartzite; tan to brown, white to grey and rarely orange. Grades into schist.
  - lm** Limestone, crystalline limestone; grey to white, sometimes shows cross bedding and laminations.
  - gn** Gneiss (orthogneiss?); banded felsic and mafic varieties, gradational into schists. Commonly well linedated and foliated.
  - am** Amphibolite; dark to medium green, coarse to medium grained foliated varieties. Locally contains red garnets and fine disseminated sulphide.
  - ga** Gabbro; dark green unfoliated to weakly foliated, medium to coarse grained.
  - px** Pyroxenite; very dark green to black, magnetic, sometimes with carbonate alteration.
- MINERAL OCCURRENCES<sup>1</sup>**
- \* 4. Maisy May (Working Target)
  - \* 107. Superstar (Working Target)
  - \* 111. Pilot (Working Target)
  - \* 144. Fletcher (Working Target)
- <sup>1</sup> Numbered with Yukon MINFILE reference numbers

- SYMBOLS**
- Geological contact (defined, approximate, assumed)
  - Outcrop
  - Float
  - Terrace scarp
  - Pingo (open-system)
  - Thermokarst depression
  - Moraine ridge
  - Meltwater channel
  - Abandoned channel
  - Mineral occurrence
  - Quartz vein

**SURFICIAL GEOLOGY AND GEOMORPHOLOGY DESCRIPTIVE NOTES**

This preliminary map is based on 1992 mapping and airphoto interpretation. Black Hills Creek and Maisy May Creek drainage basins were mapped by inspection of mining cuts, soil pits and sporadic natural exposures.

This area of the Koroide Plateau is largely unglaciated. However, outwash from a pre-McConnell glaciation occurs in Stewart River valley at the mouth of Black Hills Creek. Stewart River valley itself was mapped entirely by airphoto interpretation with very little ground checking. The most extensive glaciation extended across the mouth of Black Hills Creek (Hughes et al. 1969). A thick and extensive glacial terrace extends across the mouth of Black Hills Creek and is tentatively correlated to pre-Field glaciation based on presence of ventifacts, sand wedges, soil development and relative location of Field outwash in McQuesten map area (Morrison and Smith, 1987).

Open-system pingos are also present within Black Hills Creek drainage. Their distribution relative to glacial limits has been identified by Hughes (1966).

The narrow to moderately wide valley of Black Hills Creek is dominated by alluvium. Alluvial plain refers to the modern floodplain and low-lying valley flats. Alluvial terraces refer to those which are commonly lying on elevated bedrock benches on Black Hills Creek merge with the valley side colluvium. Benches above the present valley floor have been partially mined in the past. They consist of gravel overlying an elevated bedrock surface. A thin capping of silt and sand overlies the gravel deposits.

Placer gold occurs within the alluvial terraces and alluvial plain deposits. It is typically fine-grained, flat, bright and inclusion free. Other heavy minerals include magnetite, red garnet, hematite, pyrite and rare galena and sphalerite. Barite is suspected as its presence was noted by the placer miner on Childs Gulch in pebbles.

A high level feature seen on airphotos and topographic maps on the east side of Black Hills Creek appears to be part of an ancient channel system. It was not checked during field work but isolated channel remnants are indicated on airphotos.

The bedrock in the valley bottoms belongs to the Yukon-Tanana tectonic terrane; an assemblage of metamorphosed sedimentary and igneous rocks. Mica schists and amphibolites share an igneous origin. Areas stripped by mining activities expose hornfels and calcisilicate schist associated with tourmaline bearing granite pegmatite. Ultraviolet lamping of pit floors on benches revealed rare schistose bearing quartz vein material (sp. on the striped bench at Mills Creek where it is associated with red garnet). Galena and sphalerite were noted in white quartz vein material being mined on Maisy May creek in float and in a creek bottom outcrop (Pb). Barite pebbles were reported by a placer miner on Childs Gulch.

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1150/11	1150/10	1150/9
1150/6	1150/7	1150/8
1150/3	1150/2	1150/1

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**SURFICIAL GEOLOGICAL MAP OF BLACK HILLS CREEK (1150/7) AND PARTS OF 1150/2, 1150/6, AND 1150/10 STEWART RIVER, YUKON**  
1:50,000 SCALE

by  
Edward A. Fuller  
Canada/Yukon Mineral Development Agreement  
Geoscience Office

Copies of this map, the accompanying report (in Yukon Exploration and Geology, 1992), and Yukon Mintile may be obtained at Canada Map Office, Exploration and Geological Services Division, Indian and Northern Affairs Canada, 200 Range Road, Whitehorse, Yukon Y1A 3V1 (403-667-3204; FAX: 403-668-2176).