



GEOLOGIC RECONNAISSANCE OF THE WOKKPASH PARK PROPOSAL AREA  
(94K)

By A. Legun

A mineral potential reconnaissance of the Wokkpash Park Proposal Area was conducted. The area, which encloses the watershed of Wokkpash Creek, is located 32 kilometres due south of Mile 400 on the Alaska Highway (Fig. 55). Access is by the Racing River road, which eventually ends at the site of the former Churchill Copper mine. A trail enters the Wokkpash Valley near the road's intersection with Wokkpash Creek.

Wokkpash Creek and its tributaries were examined by air and on foot. Traversed tributaries include Plug, Fusilier, Stepped, Forlorn, and several unnamed creeks. The area south of Wokkpash Lake and high ground of the drainage divide encompassing the valley were not examined on foot due to access problems and time constraints.

Rock exposure is very good except in the main valley which has a glacial fill. Rocks were examined for evidence of the following types of regional mineralization:

- (1) Lead-zinc in breccias of Devonian limestone (Robb Lake type).
- (2) Disseminated copper in Proterozoic quartzites.
- (3) Copper veins associated with gabbroic dykes that cut Proterozoic rocks (Churchill mine type).
- (4) Copper in Ordovician limestones and sandstones of the Ketchika Group.

Devonian limestones and Proterozoic quartzites were examined at several locales but it was not possible to check dyke contacts or Ordovician limestones because these rocks are restricted to small areas in remote and rugged locations.

The regional geologic map of Taylor and Stott (1973) was used as a stratigraphic guide. On a local scale some map unit boundaries are incorrectly positioned on the map. For example, Proterozoic quartzites underlie Plug Creek and the Proterozoic/Paleozoic contact, which is marked by a quartzite fragment regolith, is exposed on Fusilier Creek; only Paleozoic carbonate units are indicated on Taylor and Stott's map.

No metallic mineral showings were found. Agmatitic breccias occur in Devonian limestones in Forlorn gorge and Stepped Creek but barren calcite comprises the entire breccia matrix. No galena and sphalerite were found and fluorite was noted only once. Proterozoic quartzites are often rusty weathering but only disseminated pyrite was noted on fresh surfaces; there was no hint of copper. Analyses of these and other rocks of interest are given in the accompanying table.

ANALYTICAL RESULTS FOR SELECTED ROCK SPECIMENS  
FROM THE WOKKPASH PARK PROPOSAL AREA  
(94K)

LOCATION	FORMATION	ROCK TYPE	Au ppm	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Co ppm	Ni ppm	Mo ppm
Upper Wokkpash Creek	Tuchodi	quartzite	---	---	50	12	110	2	13	<3
Plug Creek	?	pyritic shale	---	---	27	11	8	3	14	<3
Fusilier Creek	Proterozoic/ Paleozoic contact	quartzite breccia to conglomerate (regolith)	<0.3	<10	---	---	---	---	---	---
Stepped Creek	Stone/Dunedin	breccia	---	---	26	5	6	<2	6	<3

Rocks of the proposal area are dominantly clean platformal carbonates and quartzites; there is little evidence of subsequent alteration. The area does, however, display a striking interplay of geology and scenery (Plate VII). Erosion developed hoodoos in glacial fill that line Wokkpush gorge in soldierly fashion for several kilometres. They are impressive in terms of number, size, and 'gravity defying' suspended boulders. Forlorn gorge is very narrow, only 10 to 20 metres wide at the base, but a very deeply incised canyon in limestone; it is reminiscent of Maligne canyon in Jasper Park. The canyon is accessible for at least half its length because the creek gradient is surprisingly low. On the upper levels of Stepped Creek, a creek disappears at the thrust contact between Proterozoic quartzites and Paleozoic carbonates. Apparently during early summer meltwater flow reaches and fills a downstream depression or sink hole and forms a shallow lake that is visible on air photographs. By late summer, lake waters have drained underground through one or more 'swallow holes'. This drainage apparently emerges as springs in a permanent lake that is down valley; it has considerable outflow volume but no surface inflow.

In conclusion, no mineral showings were found during a reconnaissance of several stratigraphic intervals of interest in the north half of the park proposal area. Striking hoodoos and a previously unknown disappearing lake and creek were discovered during the course of field studies.



Plate VII. Stepped Creek, Wokkpush Park Proposal Area.