

The Northern Rocky Mountains are underlain by a broad belt of sedimentary rocks which are deformed by moderate folds and a stack of north-west-verging imbricate thrusts or reverse faults. The predominant stratigraphic and structural trend is northwest. Two large anticlinal culminations dominate this belt in the Tuchodi Lakes area. The Muskwa Anticlinorium exposes rocks as old as Middle Proterozoic (Helikian) called the Muskwa Assemblage, which consists of a 6000-metres thick succession of dolomitic and limy carbonates and coarse to fine-grained siliciclastics. The Muskwa Assemblage is also exposed in the core of the Tuchodi Anticline to the east, a smaller and less thrust-faulted structure.

The main phase of folding and thrusting took place in the Jurassic to Tertiary, but the Muskwa Assemblage was initially folded and fractured by steep faults in the Proterozoic. These faults and fracture systems trend from northeast to northwest, and many are marked by quartz-carbonate veins which may be mineralized with chalcopyrite, and less commonly pyrite and bornite. At this time or slightly later, numerous diabase or gabbroic dikes were intruded along the same structural systems such that mineralized veins very commonly occur along the margins of or very close to dikes. This association has been useful for exploration as the dikes tend to stand out from the sedimentary country rocks physically and geophysically.

Most of the documented veins are small and discontinuous, and high grade copper mineralization is generally erratic. The most important area is between Yedhe Creek and Delano Creek, which includes the **Magnum** mine (094K 003), formerly of Churchill Copper Corporation and the only deposit brought to production. It produced 14,673 tonnes of copper between 1970 and 1975; inferred reserves at the time of mine closure were 90,710 tonnes grading 3 per cent copper. Five kilometres to the northwest is the **Eagle** or Davis-Keays deposit (094K 012), an extensive area of mineralized veins which underwent surface and underground development at the same time as the Magnum, but which did not produce ore; semi-proven reserves in 1971 were 1,119,089 tonnes grading 3.43 per cent copper. Another heavily explored area was south of Churchill Peak, centred on the **Bronson** prospect (094K 027) which is noteworthy for its high copper content and for anomalous values of silver and gold, metals which are generally very low in this region.

An angular unconformity separates these Proterozoic rocks from Lower Cambrian to Triassic sedimentary rocks which were subsequently deposited on the passive continental margin of Ancestral North America. In most of the map area, the Devonian was characterized by platformal carbonate deposition. The Lower and Middle Devonian Stone and, particularly, Dunedin formations host minor stratabound or vein-like bodies of barite of various sizes, in limestone or dolostone. Small amounts of massive or disseminated sphalerite and galena may be present in the barite, and rarely fluorite. A number of showings were examined in a narrow belt on the east flank of the Tuchodi Anticline, but nothing economic has been found. The barite itself was the target at the **Mile 397** (094K 004) and **Nonda Creek** (094K 001) showings.

In the southwestern corner of the map area, southwest of the Muskwa Anticlinorium and across the major Gundahoo Thrust, Paleozoic rocks form part of the Kechika Trough, a more basinal succession characterized by shales and siltstones and only minor carbonate. The Devonian Earn Group here is dominantly carbonaceous shale and contains intervals of stratiform lead-zinc-barite mineralization, formed by sedimentary exhalative activity in starved, fault-controlled sub-basins. This area is in the northwest of the Gataga mineral district, which includes the Stronsay or Cirque deposit 80 kilometres to the southeast. By far the most important occurrence is the **Driftpile Creek** developed prospect (094K 066), in which at least two sulphide-rich zones have been recognized. In 1980, indicated reserves were reported to be 18,145,000 tonnes averaging 2.38 per cent combined lead-zinc. Recent work has considerably refined understanding of the stratigraphy and structure of the deposit.

SELECTED REFERENCES

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- Preto, V.A. 1971: Lode copper deposits of the Racing River-Gataga River area; *B.C. Ministry of Energy, Mines and Petroleum Resources* Geology, Exploration and Mining in British Columbia 1971, pages 75-106.
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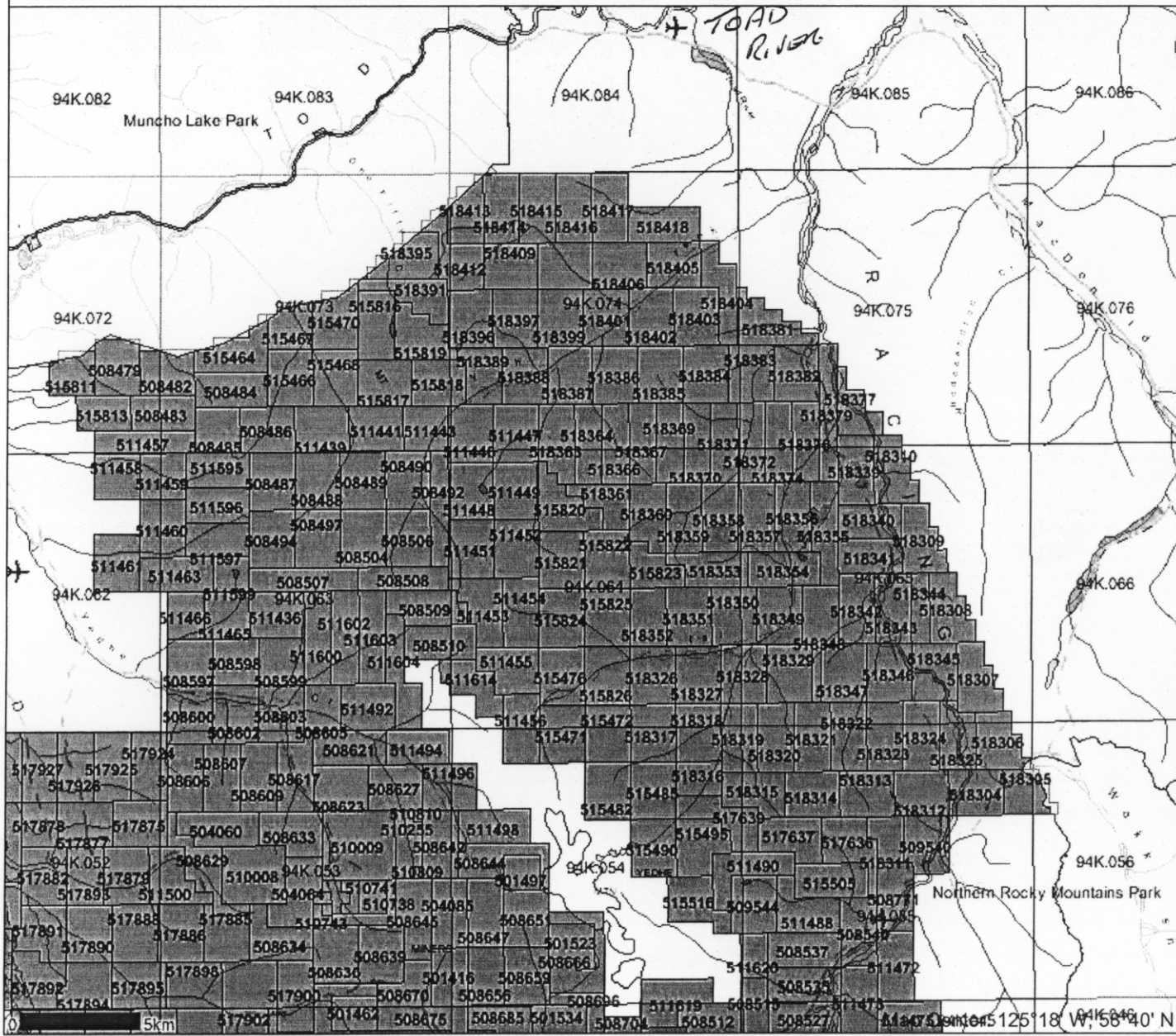
NTS
94K
"TUCHODI
LAKES"

TOAD
RIVER
XXXXXX
94K/2E 94K002

NTS → 94K/Ww

Map created Thu Jul 28 08:28:45 PDT 2005

Legend



Cu targets
(Habitat)

- Indian Reserves
- National Parks
- Parks
- Mineral Tenures
- Reserves (Sites)
- Placer Claim Designation
- Placer Lease Designation
- No Staking Reserve
- Conditional Reserve
- Release Required Reserve
- Surface Restriction
- Recreation Area
- Others
- BCGS Grid
- Annotation (1:250K)
- Transportation - Points (1:250K)
- Airfield
- Anchorage - Seaplane
- Ferry Route
- Heliport
- Seaplane Base
- Air Field
- Airport
- Air Feature - Condition Unknown
- Airport Abandoned
- Transportation - Lines (1:250K)
- Ferry Route
- Aerial Cableway
- Road (Gravel Undivided) - 1 Lane
- Road (Gravel Undivided) - 3 Lanes
- Road - Paved,lanes,2or More,Divided
- Road (Paved Undivided) - Not Elevated - 1 Lane
- Road (Paved Undivided) - Not Elevated - 2 Lanes
- Road - Paved,lanes,3or More,Undivided
- Road (Unimproved)
- Road - Loose,access,Dry Weather
- Road (Winter Road)
- Road - Paved,lanes,2,Undivided
- Road - Paved,lanes,2,Undivided,U/C
- Road - Paved,Divided,access,Non Standard
- Track - Car/VTractor
- Causeway (Railway)
- Cut (Roadway)
- Trail
- Tunnel
- Bridge
- Rail Line - Narrow Gauge - Single Track
- Rail Line (Multiple Track)
- Rail Line (Single Track)
- Rail Line - Abandoned Track
- Cable - Telephone
- Cable - Underwater

Scale: 1:250,000

DO NOT USE FOR NAVIGATION

5km

Map Center 5125°18' W, 58°40' N

