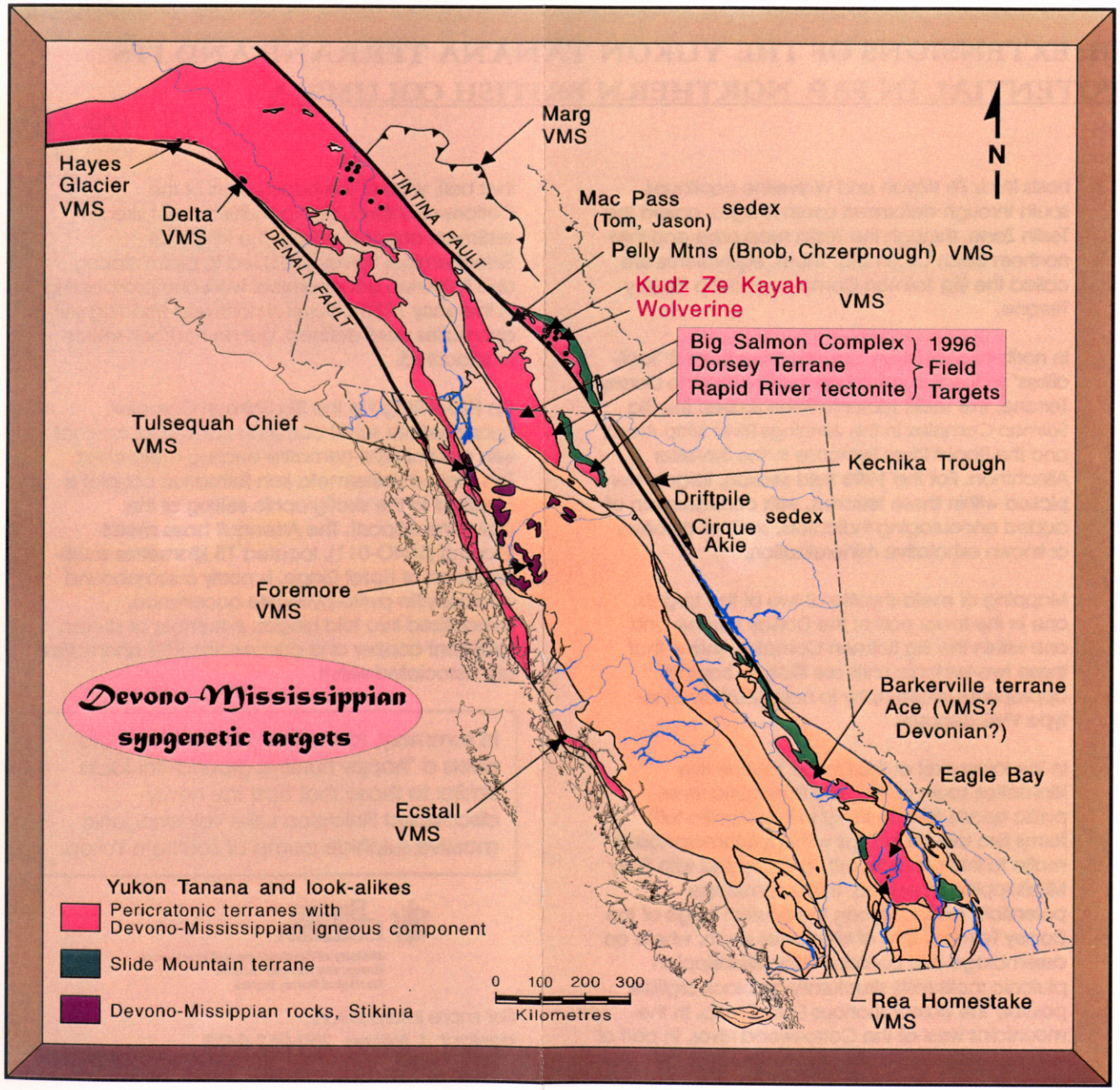

Last seen heading south...

Extensions of the Yukon Tanana Terrane and its volcanogenic potential in far northern British Columbia

LAST SEEN HEADING SOUTH: EXTENSIONS OF THE YUKON TANANA TERRANE AND ITS VOLCANOGENIC POTENTIAL IN FAR NORTHERN BRITISH COLUMBIA

1040/15

Kudz Ze Kayah and Wolverine are two exciting new volcanogenic massive sulphide discoveries in the Finlayson Lake area of the southern Yukon. Cominco's *Kudz Ze Kayah*, found in 1994, has reserves of 11.3 million tonnes of 6% Zn, 1% Cu, 1.3% Pb, 125 g/tonne Ag and 1.3 g Au. Westmin/Atna's *Wolverine* now has a geological inventory of 5.311 million tonnes of 1.81 g/tonne Au, 359.1 g Ag, 12.96% Zn, 1.41% Cu and 1.53% Pb, with plenty of room for more tonnage.

The host geologic province for these Early Mississippian, high-precious metal-VMS deposits is part of the Yukon Tanana Terrane and consists of meta-rhyolites, marine metasedimentary rocks and intermediate to mafic metatuffs.. Besides the crucial Early Mississippian rocks that host the volcanogenic massive sulphide deposits, the terrane is characterised by pre-Mississippian continentally-derived siliciclastic metasediments, Early Mississippian intrusions that are coeval and probably cogenetic with the volcanic stratigraphy, Pennsylvanian and Permian limestone, Permian volcanic and plutonic rocks, and cross-cutting Early Jurassic plutons. This capsule geologic history provides a "thumbprint" of the terrane that can be used to help identify its correlatives.

In the Finlayson Lake area, these rocks form a belt, shaped like a new moon, girdled by oceanic rocks of the Anvil Range Assemblage, northeast of and cut off by the Tintina Fault. Restoration of 450 kilometres of dextral strike slip motion on the Tintina Fault suggests that the rock package that hosts Kudz Ze Kayah and Wolverine continues south through deformed assemblages, called the Teslin Zone, through the Teslin map area and into northern British Columbia. There, equivalents are called the Big Salmon Complex and the Dorsey Terrane.

In north-central British Columbia the closest "look-alikes" to the Yukon-Tanana Terrane are the Dorsey Terrane, the Teslin Tectonic Zone (called the Big Salmon Complex in the Jennings River Map Area), and the Rapid River Tectonite in the Sylvester Allochthon. For the 1996 field season, targets were picked within these terranes, with consideration of added encouraging indicators, such as rhyolites or known exhalative mineralization.

Mapping of meta-rhyolite at two of the targets, one in the lower part of the Dorsey Terrane and one within the Big Salmon Complex, shows that these two tectonic units are likely to contain appropriate stratigraphy to host KZK/Wolverine-type VMS deposits.

In the lower part of the Dorsey Terrane five kilometres south of the Little Rancheria River, pyritic quartz-sericite schist (meta-rhyolite tuff) forms two tabular bodies within metamorphosed mafic to intermediate tuff, interbedded with Early Mississippian limestone. This assemblage potentially extends along the eastern edge of the Dorsey Terrane, tens of kilometres south, where an assemblage that contains Early Mississippian plutonic rocks rests structurally on black argillite, possibly the autochthonous Earn Group, in the mountains west of the Cottonwood River. In part of that belt, west of the headwaters of the Cottonwood River, strong multielement stream sediment anomalies from the Regional Geochemical Survey (RGS) led to claim staking and follow-up geochemical work and prospecting in the early 1980's. Several northwest-trending soil anomalies were defined, but no bedrock source was located.

On Hazel Ridge in the Big Salmon Complex, quartz-sericite schist occurs in transitional contact with piedmontite-hematite-bearing meta-chert. This meta-rhyolite/meta-iron formation couplet is identical to the stratigraphic setting of the Wolverine deposit. The Arsenault base metal showing (104O-011), located 15 kilometres south-southeast of Hazel Ridge, is partly a stratabound chalcopyrite-pyrite-pyrrhotite occurrence, remobilized into fold hinges. A number of stream sediment copper and copper-zinc RGS anomalies are associated with it.

In summary, far northern British Columbia offers a "happy hunting ground" for rocks similar to those that host the newly-discovered Finlayson Lake volcanogenic massive sulphide camp of southern Yukon.

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