

Geological Time Slices Ddhaw Ghro SMA - Selwyn Basin

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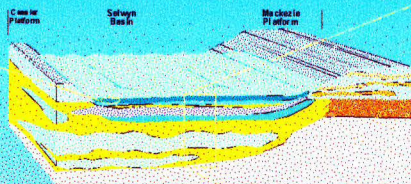
Cambrian 541 - 495 Ma
Ordovician 495 - 447 Ma
Silurian 447 - 417 Ma
Devonian 417 - 374 Ma
Carboniferous 374 - 299 Ma
Permian 299 - 252 Ma
Triassic 252 - 201 Ma
Jurassic 201 - 145 Ma
Cretaceous 145 - 66 Ma
Paleocene 66 - 56 Ma
Eocene 56 - 34 Ma
Oligocene 34 - 23 Ma
Miocene 23 - 5 Ma
Pliocene 5 - 1.8 Ma

Paleozoic

Passive Margin Sedimentation in Selwyn Basin



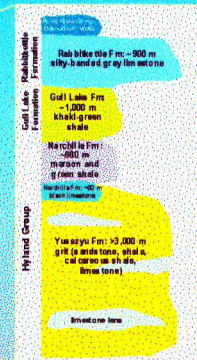
Orange weasling, browned, grey calcareous shale forms the lower part of Road River Group rocks of Ordovician to Devonian age in southeastern Ddhaw Ghro.



From Late Precambrian (~500 million years ago) to Middle Devonian (~390 million years ago), Selwyn Basin was a region of low relief in the western North American margin where sediments derived from the continent (from the west) accumulated. At the same time, shallow water carbonate sedimentation took place in two higher standing blocks: Cassiar Platform to the west, and Mackenzie Platform to the east.

Medium- to coarse-grained clastic sediments of Late Precambrian Yueszyu Formation deposited in a submarine fan. Size, shape, and water depth of the fan are unknown. Early Cambrian Narchilla Formation shales and Early to Middle Cambrian Gui Lake Formation shales, siltstones and limestones were deposited in relatively deeper water, possibly as turbidites.

In the Ddhaw Ghro area, a mid-Paleozoic rock unit, named Nogold Unit overlies rocks of the Road River Group. Usually, Nogold Unit rocks are identical to rocks of Hyland Group (Yueszyu and Narchilla Formations), and only fossil ages distinguish them. Nogold Unit is not known to occur elsewhere in Selwyn Basin.

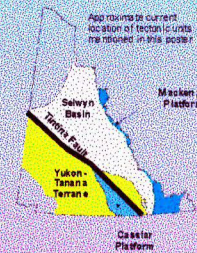


Stratigraphic section of Paleozoic regional rock units in Selwyn Basin.

Earn Basin



Dark grey to black grit of Earn Group from resistant dark peaks at Ddhaw Ghro SMA.



Approximate current location of tectonic units mentioned in this poster.

In Early Carboniferous time (~340 million years ago) a major tectonic shift occurred in the North American margin. A thick accumulation of westerly- and northerly-derived sediments were deposited as black shales, chert, siltstone, conglomerate, and chert of Earn Group. Earn Group sediments filled Selwyn Basin, and drowned Cassiar and Mackenzie platforms. Volcanism occurred locally in Selwyn Basin and Cassiar Platform.

Mesozoic

Collisions, deformation, and magmatism

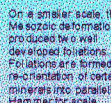
McArthur Batholith
A batholith is a large body of intrusive rock. McArthur Batholith is a granitic mass that controls the topographic, landscape and drainage patterns in Ddhaw Ghro. The McArthur Batholith introduced the first igneous rocks of Selwyn Basin and the overlying Earn Group rocks in mid-Cretaceous time (approximately 110 million years ago).



Mesozoic deformation produced large to a small scale folds and compressional faults.



Large scale fold in southeast Ddhaw Ghro SMA. Black limestone of Ordovician-Devonian age is folded. Dog for scale.



On a smaller scale, the Mesozoic deformation produced well developed foliations. Foliations are formed by re-orientation of silicate minerals into parallelism. Hammer for scale.

Middle Jurassic to Cretaceous collisions of island arcs and possible continental blocks from the west marked the end of passive margin sedimentation, and triggered tectonic inversion of Selwyn Basin. In mid-Cretaceous time, in two events of magmatism a flooded the Selwyn Basin. The 112 to 108 million year old Cassiar-Arviit Suite produced McArthur Batholith, as well as several smaller intrusions. The 95 to 86 million year old Tay River Suite intrusions from the rocks to the South Fork volcanic rocks, which crop out to the south east of Ddhaw Ghro. The 81-5 million year old Tombstonia Suite formed large to small intrusions within related volcanic rocks. Together, the three intrusive suites form the Tintina Gold Belt.

Cenozoic

Extension and strike-slip displacement



In Eocene time (approximately 50 million years ago) Tintina Fault developed into a major crustal break that extends from Alaska to northern British Columbia, where it becomes the Northern Rocky Mountains Fault, and through a series of fault plays shifts farther to the east. Approximately 450 km of strike slip displacement occurred along Tintina Fault since Eocene time. This means that the area that used to be just south of Dawson City is now in the Fairbanks area of Alaska. Tintina Fault runs along the southwestern part of Ddhaw Ghro SMA. The rocks south of Tintina Fault are part of the displaced Yukon-Tanana Terrane, which represents a series of superimposed Paleozoic volcanic arcs that formed somewhere off the margin of North America and collided with the North American continent in Mesozoic time.

