



SOUTHWESTERN FACIES (105-07,10,15)	UPPER PALEOZOIC NORTHEAST OF HESS RIVER (105 - 09,10,15,16) (southwest part of area)	UPPER PALEOZOIC NORTHEAST OF HESS RIVER (105 - 09,10,15,16) (northeast part of area)	SOUTHEASTERN FACIES (105-0/8,9)	COMBINED UNITS
<p>DEVONIAN</p> <p>LOWER TO MIDDLE DEVONIAN</p> <p>DM MISFORTUNE FORMATION: chert, dark grey to black; minor black shale; whitish weathering</p> <p>SILURIAN</p> <p>SS STEEL FORMATION: argillite, rusty green to buff; minor black shale and chert; and prominent bed of bright orange weathering dolomite</p> <p>ORDOVICIAN</p> <p>ELMER CREEK FORMATION: (u) chert and siliceous shale; black, granitic; (l) chert, siliceous argillite, grey, upper part subdivided; minor limestone</p> <p>CAMBRIAN TO SILURIAN</p> <p>LOWER CAMBRIAN TO SILURIAN</p> <p>CSoc OLD CABIN FORMATION: basic volcanics, breccias, lapilli tuff, flows, silt, dykes; minor sedimentary rock units</p> <p>CAMBRIAN</p> <p>CSu GULL LAKE FORMATION: argillite, buff, green; minor units of shale, chert, quartzite, limestone and volcanics; rocks (C) Old Cabin Tergite; basic volcanics, breccias, lapilli tuff, flows, silt, dykes; minor sedimentary rock units</p> <p>PROTEROZOIC AND CAMBRIAN</p> <p>UPPER PROTEROZOIC TO LOWER CAMBRIAN</p> <p>PCns MARCHILLA FORMATION (PCns - PCns) Anorthead Lake Member: argillite, mafic and pale green; minor quartzite, conglomerate, limestone. Lower Cambrian in map area</p> <p>PCns Senoah Member: argillite, grey green buff; minor, thick units of quartzite and quartzite conglomerate; also minor units of limestone and silty limestone</p> <p>PROTEROZOIC</p> <p>UPPER PROTEROZOIC</p> <p>PA ALGAE LAKE FORMATION: limestone, amonaceous limestone, minor dolomite, argillite, breccia; upper part resistant; lower part recessive, thin bedded</p> <p>PY HUSEYU FORMATION: quartzite, calcareous quartzite; thick bedded; thin beds argillite, argillaceous limestone (upper part present immediately west of map area)</p>	<p>DEVONIAN</p> <p>UPPER DEVONIAN</p> <p>DTH THOR HILLS FORMATION: shale; black, rusty with 10-30% brown sandstone; (sh) slate; (u) siliceous shale (u) Conglomerate Member; with chert pebbles</p> <p>MIDDLE TO UPPER DEVONIAN</p> <p>DM MISFORTUNE FORMATION: chert, dark grey to black; (u) shale; black, siliceous, white weathering; (l) shale; rusty black</p> <p>LOWER TO MIDDLE DEVONIAN</p> <p>DH HALSTONE FORMATION: limestone; classic, grey-buffy grey, unroofed, dolomite with well sorted, calcareous shale; black; minor breccia and conglomerate</p> <p>ORDOVICIAN AND SILURIAN</p> <p>OSM MARMOT FORMATION: volcanics, basic tuffs, and breccia</p> <p>DEVONIAN AND SILURIAN</p> <p>UPPER SILURIAN TO LOWER DEVONIAN</p> <p>SDS SAPPER FORMATION: limestone, silty, buff weathering; shale; black; includes volcanic units south of map area</p>	<p>CARBONIFEROUS</p> <p>PENNSYLVANIAN</p> <p>FOURWAY GROUP (Ch-Ch)</p> <p>CF FOURWAY FORMATION: calcarenite, calcillite; siliceous, white; minor quartzite</p> <p>MISSISSIPPIAN</p> <p>CKC KEELE CREEK FORMATION: shale; black calcareous; with limestone</p> <p>CHT HERITAGE TRAIL FORMATION: quartzite; minor shale</p> <p>HAWTHORNE FORMATION: (u) shale with limestone; (l) shale with quartzite</p> <p>DEVONIAN</p> <p>UPPER DEVONIAN</p> <p>DTH THOR HILLS FORMATION: sandstone; quartzite, brown (u) sandstone</p> <p>DSh SHILOH FORMATION: siliceous shale; siliceous, black, white weathering; (u) shale; black; minor argillite</p> <p>MIDDLE TO UPPER DEVONIAN</p> <p>DM MISFORTUNE FORMATION: shale; siliceous shale; black (u) shale; black, siliceous, white weathering; (l) shale; rusty black</p> <p>LOWER TO MIDDLE DEVONIAN</p> <p>DH HALSTONE FORMATION: limestone; grey cliff-forming; chert with well sorted calcareous</p>	<p>DEVONIAN AND SILURIAN</p> <p>UPPER SILURIAN TO LOWER DEVONIAN</p> <p>SDS SAPPER FORMATION: limestone, silty, buff weathering; shale; black; includes volcanic units south of map area</p> <p>ORDOVICIAN AND SILURIAN</p> <p>LOWER ORDOVICIAN TO LOWER SILURIAN</p> <p>OSD DUO LAKES FORMATION: shale; black, granitic; minor thin bedded limestone</p> <p>CAMBRIAN AND ORDOVICIAN</p> <p>UPPER CAMBRIAN TO LOWER ORDOVICIAN</p> <p>CSu GULL LAKE FORMATION: argillite, buff, green; minor units of shale, chert, quartzite, limestone and volcanics; rocks (C) Old Cabin Tergite; basic volcanics, breccias, lapilli tuff, flows, silt, dykes; minor sedimentary rock units</p> <p>CAMBRIAN</p> <p>MIDDLE CAMBRIAN</p> <p>CH HESS RIVER FORMATION: shale; black, calcareous, marked variation in thickness; minor limestone; locally all chert</p> <p>CAMBRIAN</p> <p>LOWER TO MIDDLE CAMBRIAN</p> <p>CSu GULL LAKE FORMATION: argillite, buff, green; minor units of shale, chert, quartzite, limestone and volcanics; rocks (C) Old Cabin Tergite; basic volcanics, breccias, lapilli tuff, flows, silt, dykes; minor sedimentary rock units</p> <p>PROTEROZOIC AND CAMBRIAN</p> <p>UPPER PROTEROZOIC TO LOWER CAMBRIAN</p> <p>PCns MARCHILLA FORMATION (PCns - PCns) Anorthead Lake Member: argillite, mafic and pale green; minor quartzite, conglomerate, limestone. 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NOTABLE UNCONFORMITY - Lower Devonian (Halstone) breccia rests directly on Lower Silurian (Duo Lakes) strata

LOWER PALEOZOIC NORTHEAST OF HESS RIVER (105 - 09,10,15,16)

ORDOVICIAN AND SILURIAN

LOWER ORDOVICIAN TO LOWER SILURIAN

OSD DUO LAKES FORMATION: shale; black, granitic; minor thin bedded limestone

CAMBRIAN AND ORDOVICIAN

UPPER CAMBRIAN TO LOWER ORDOVICIAN

CSu GULL LAKE FORMATION: argillite, buff, green; minor units of shale, chert, quartzite, limestone and volcanics; rocks (C) Old Cabin Tergite; basic volcanics, breccias, lapilli tuff, flows, silt, dykes; minor sedimentary rock units

CAMBRIAN

MIDDLE CAMBRIAN

CH HESS RIVER FORMATION: shale; black, calcareous, marked variation in thickness; minor limestone; locally all chert

CAMBRIAN

LOWER TO MIDDLE CAMBRIAN

CSu GULL LAKE FORMATION: argillite, buff, green; minor units of shale, chert, quartzite, limestone and volcanics; rocks (C) Old Cabin Tergite; basic volcanics, breccias, lapilli tuff, flows, silt, dykes; minor sedimentary rock units

PROTEROZOIC AND CAMBRIAN

UPPER PROTEROZOIC TO LOWER CAMBRIAN

PCns MARCHILLA FORMATION (PCns - PCns)
 Anorthead Lake Member: argillite, mafic and pale green; minor quartzite, conglomerate, limestone. Lower Cambrian in map area but ranges into Proterozoic in other parts of Selwyn Basin

PCns Senoah Member: argillite, grey, green, buff; minor thick units of quartzite and quartzite conglomerate; also minor units of limestone and silty limestone

Outcrop in covered area

Geological boundary (defined, approximate, assumed)

Stylized geological boundary

Constant elevation hachure

Bedding top unknown (horizontal, inclined, vertical, overturned)

Bedding top unknown (inclined, vertical)

Cleavage (inclined, vertical)

Minor fold (with attitude of axial plane and plunging)

Normal fault (solid circle indicates downthrown side; defined, approximate)

Thrust or reverse fault (teeth indicate upthrown side; defined, approximate)

Strike slip fault (arrow indicates relative movement)

Anticline (upright, overturned arrow indicates plunging)

Syncline (upright, overturned arrow indicates plunging)

Monoclinal bend (anticlinal)

Graben (dike (Cretaceous))

Yield

Boundary across which geological units are combined

Stratigraphic facies boundary

Stratigraphic section or traverse, available from author on request

Line of section

Stratigraphic occurrence with major element or composition indicated

Fossil, microfossil (GSC catalogue number; abbreviated age (e.g. Dfa - Late Devonian, Famennian))

Microfossil observed but not collected; (graptolites, spongy material, p-vascular plant material, (fossil) fossils; abbreviated age (e.g. Dfa - Late Devonian, Famennian))

Microfossil collection label but sample barren of conodonts

NOTES

1. Section 4 - Fossils (ascending order)
 C-084570 - F mO, C-084569 - F mO, C-085202 - MF Barron, C-085028 - MF C, C-084571 - F mO, C-084572 - F mO, C-084573 - F mO, C-084574 - F mO, C-084575 - F mO, C-084576 - F mO

2. Section 6 - Fossils (ascending order)
 C-085203 - MF Barron, C-085204 - MF Barron, C-085205 - MF Barron, C-085206 - MF Barron, C-085027 - MF C mO, C-084523 - F mO

Compiled from ground traverses by M.P. Cooke (1975, 1980, 1982, 1984, 1985) with assistance by Fred Gibson (1970), Brian Fisher (1980), Hans Smit (1983), and Craig Hart (1980). Helicopter support was given by Northern Mountain Helicopters (1970, 1983, 1984, 1985). Kestring Helicopters and La Verendrye Helicopters (1980). Expedition was provided by Ross River Services. The understanding of the geology was greatly assisted by discussions with J.G. Abbot (DIAND), S.P. Goulet, W.D. Goodfellow (GSC), E. Debevoise, B. Robertson (Canadian Nuclear), K. Taylor (Hudson's Bay Mining), R. Baker, P. Hubert, G. McArthur (Huron-Cook), and D. Rhodes (Comox). Fossil determinations are by B.S. Horford, A.W. Norm, T.T. Lyons, W.H. Fry (GSC), and R.C. Tappin (Georgetown, Texas). Digitizing and initial drafting by M. Deuling and P.J. Neelands.

Digital cartography by S.D. Orzok, Geological Survey of Canada (Calgary)

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Digital data map at the same scale from Geomatics Canada, Natural Resources Canada, modified for publication by the Geological Survey of Canada

Copies of the topographical edition of this map may be obtained from the Canada Map Office, Natural Resources Canada, Ottawa, Ontario, K1A 0S9

Approximate magnetic declination 1996, 30°23' East, decreasing 14.5' annually

Elevations in metres above mean sea level

MAP 1900A
 GEOLOGY
HAILSTONE CREEK
 NORTHWEST TERRITORIES-YUKON TERRITORY

Scale 1:50 000 - Echelle 1:50 000

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 Cooke, M.P.
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1900A