EXPLANATION

QUATERNARY

Pleistocene to Holocene and Holocene

- **Qb** — Breach deposits
- **Qa** — Alluvium
- **Qf** — Fans + cones
- **Qls** — Landslides
- **Qc** — Colluvium
- **Qt** — Stream terrace
- **Qtm** — Marine terrace

Pleistocene

- **Qg** (Qg1, Qg2, Qg3, Qg4) — Glacial moraines. Qg may include Tertiary gravels in Juniper & Kavik Rivers area
- **Qgf** — Glacial fluvial deposits
- **Qgb** — Gubik Fm unconsolidated silt, sand, gravel.

Qu — Unconsolidated deposits undifferentiated

UNCONFORMITY

TERTIARY

T — Poorly consolidated marine to non-marine (?) tan and gray siltstone, mudstone sandstone and conglomerate. Miocene or Pliocene fossils at Carter Creek, locality 1

UNCONFORMITY

CRETACEOUS

Upper Cretaceous

Kcp — Sandstone, siltstone, salt and pepper sandstone with wood fragments and coal. Weathers gray to brown. Probably in part equivalent to Prince Creek Formation

Kp — Pyroclastic rocks. Silicified tuff and bentonitic shale; minor silty shale. Weathers red and green. Locally includes underlying black organic shale.

Kc — Sandstone and shale. Includes thin sandstone and conglomerate (similar to Ignek Sandstone) above the pyroclastic rocks, and organic shale below the pyroclastic rocks. Equivalent to upper member of the Ignek Formation of Keller et al 1961, and to part of the Colville Group

UNCONFORMITY

Lower Cretaceous

Kn — Nanushuk Group. Sandstone, wacke, siltstone and shale; thin to medium bedded; flutes, grooves and load casts; minor cross-beds. Weathers yellow and orange. Resistant quartzose sandstone beds shown by dots. Lower Cretaceous (mid-Albian) ammonites (Paragastroplites spurkeri) near Kekiktuk River, loc. 2. Inoceramus prisms locally abundant

Kl — Sandstone and shale. Equivalent to lower member of Ignek Formation of Keller et al, 1961

UNCONFORMITY

Lower Cretaceous (?)

Ki — Ignek sandstone. Subgraywacke and arenaceous sandstone; chert and quartz-pebble conglomerate; thin to medium beds; weathers gray to reddish brown. Probably equivalent to Kemik sandstone. Buchia of latest Jurassic or earliest Cretaceous age near Kavik River, locality 3

KJ — Pebbly shale. Pebbly silty shale, siltstone, sandstone and quartzite; thin bedded; weathers gray, tan, dark brown. Minor ironstone concretions and orange-weathering ironstone beds. Molluscan borings locally abundant

UNCONFORMITY

JURASSIC

Lower, Middle and Upper Jurassic

JK — Kingak Shale. Upper part: clay shale, silty shale and siltstone with rusty weathering ironstone beds; pyrite abundant locally. Middle and Upper Jurassic ammonites and pelecypods. Lower part: dark gray to black fissile paper shale; abundant large ironstone concretions. Lower Jurassic pelecypods and ammonites

JR — Kingak Shale and Shublik Formation undifferentiated

Middle and Upper Triassic

TRs / **TRk** / **TRss** — Shublik Formation. TRk: dark gray, fine-grained quartzitic sandstone and siltstone; locally calcareous or dolomitic; phosphatic nodules common. Uppermost Triassic fossils (Monotis ochotica ochotica; Gryphaea kellugui) on Fire Creek, locality 3. TRss: interbedded black calcareous siltstone and limestone. Middle and Upper Triassic fossils

DISCONFORMITY

PERMIAN

Upper Permian and Lower Triassic

TRPs — Sadlerochit Formation. Upper part: massive, cuesta-forming gray to tan quartzitic sandstone and conglomerate; siltstone and shale; limonite and pyrite; weathers rusty brown. Grades into shale and thickens to south. Lower Triassic ammonites and pelecypods. Lower part: massive dark gray quartzite and quartzitic siltstone; locally calcareous. Channel conglomerate at base locally. Upper Permian brachiopods.

UNCONFORMITY

MISSISSIPPIAN AND PENNSYLVANIAN

Upper Mississippian to mid Pennsylvanian

PMI / **Pw** / **Ma** — Lisburne Group. Pw: Wahoo Limestone. Fine-grained limestone; oolitic limestone; glauconitic limestone; weathers light gray and creamy. Mid or upper Pennsylvanian brachiopods in upper beds near Wahoo Lake, locality 6. Ma: Alapah Limestone; bioclastic limestone; dolomite; black chert. Weathers gray to dark gray. To south lower part is shaly and basal contact is obscure

PMI–MKy — Lisburne Group and Kayak Shale undifferentiated

Lower and Upper Mississippian

MKy — Kayak (?) Shale. Dark gray to black shale; local interbedded limestone.

MKt — Kekiktuk Conglomerate. Quartzite and quartz and chert pebble conglomerate; local anthracite coal

MKS — Siltstone. Dark gray phyllitic siltstone with laminae and knots of red weathering ferruginous siltstone; local anthracite coal. Distinguished only in southwestern part of quadrangle

MK — Shale and sandstone undifferentiated. Locally absent; locally not differentiated from Lisburne Group.

UNCONFORMITY

DEVONIAN(?)

DCS (Ds, Dc) — Calcareous siltstone; chert and shale. DCS: ferruginous, micaceous, calcareous siltstone, shale and thin cross-bedded sandstone; ferruginous silty limestone. Tentatively correlated with lower Upper Devonian limestone-siltstone of southern Brooks Range. Dc: thin to medium bedded chert; mostly black. Ds: black, noncalcareous phyllite, shale and siltstone

UNCONFORMITY

DEVONIAN

Middle Devonian

Dn — Nanook Limestone. Calcilutite and dolomite; minor shale. Top of basal red weathering shale and limestone indicated by ---- Middle Devonian corals in upper part at locality 4.

UNCONFORMITY ?

CAMBRIAN ?

Pzncp — Chart and phyllite. Dark gray to black phyllite; thin bedded glassy gray to black chert; minor red and green chert.

Ꞓu / **Ꞓc** / **Ꞓv** — Volcanic and carbonate rocks. Ꞓv: flows, tuffs, volcaniclastic rocks, agglomerate. Ꞓc: limestone and dolomite, partly oolitic. Lower Cambrian trilobites at Marsh Fork of Canning River, locality 7. Ꞓu: undifferentiated red, green, gray phyllite; graywacke, volcanic and carbonate rocks

PRECAMBRIAN (?)

pЄng / **pЄng?** — Quartz wacke and semi-schist in Neruokpuk Formation. Locally includes maroon and green phyllite and argillite. pzng?: orange-weathering quartz grit; chert; green argillite; minor volcanic rocks.

Pzn1 — Black limestone. Gray to black argillaceous to sandy limestone; slate; phyllite; siltstone and sandstone. Relation to other pre-Mississippian rocks uncertain.

SILURIAN (?)

SK — Kataktuvuk Dolomite. Dolomite; stromatolitic, pisolitic, cross-bedded; silty shale in lower part.

SILURIAN (?) OR OLDER

SO — Dolomite. Dolomite and dolomitic conglomerate with clasts of volcanic rocks; weathers orange and red. Less than 200 feet thick

Pzmsq — Slate and quartzite. Gray, green, maroon and brown slate; minor quartzite. In eastern Sadlerochit Mtns. and Old Man Creek. Stratigraphic position uncertain.

Reference: Keller, A.S., Morris, R.H., and Detterman, R.L., AGI, Geology of the Shavivrik and Saggavanirktok Rivers Region, Alaska: U.S. Geol. Survey Prof. Paper 303-D

IGNEOUS INTRUSIVE ROCKS OF UNCERTAIN AGE

mi — Mafic sills and dikes

gr — Romanzof Granite. Quartz monzonite and granite

ALTERED ROCKS AT GRANITE CONTACT

Schist / **altered schist** — Schist: probably sheared Mississippian clastic rocks of units MKy and MKt. Altered schist: mostly red-weathering highly pyritic quartzite of unit pЄng.

Contact — Dashed where approximate; queried where doubtful.

Fault — Dashed where approximate; queried where doubtful. U on upthrown side

Thrust fault — Sawteeth on upper plate

Axis of anticline showing plunge

Axis of syncline showing plunge

Inclined (25) — Overturned (25) — Vertical — Crenulated

Strike and dip of beds. Arrow indicates attitude from distant view or aerial photographs.

Overturned anticline

Overturned syncline

FA — Fold axis

10° — Lineation showing direction and amount of plunge

• 5 Fossil locality cited in Explanation

Location of measured section