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Geological Survey of Canada Open File 3446
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U.S. Geological Survey Open File Report 97-161
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Sheet 3 of 7, Version 1.0

Prepared in collaboration with:
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Geological Committee of Russia
Alaska Division of Geological and Geophysical Surveys

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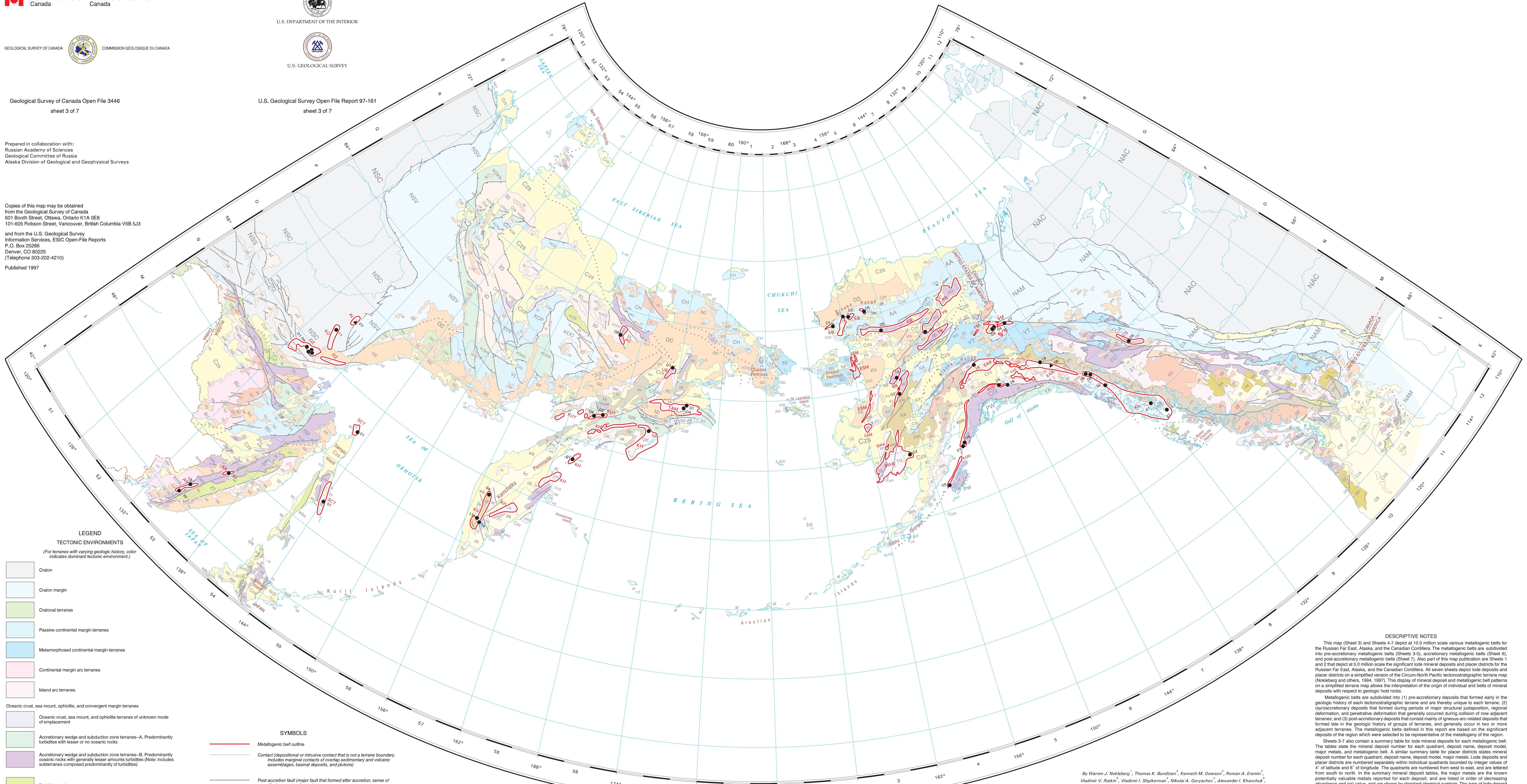

LEGEND

TECTONIC ENVIRONMENTS

(For terranes with varying geologic history, color indicates dominant tectonic environment.)

- Craton
- Craton margin
- Cratonal terranes
- Passive continental margin terranes
- Metamorphosed continental margin terranes
- Continental margin arc terranes
- Island arc terranes

Oceanic crust, sea mount, ophiolite, and convergent margin terranes

- Oceanic crust, sea mount, and ophiolite terranes of unknown mode of emplacement
- Accretionary wedge and subduction zone terranes--A. Predominantly turbidites with lesser or no oceanic rocks
- Accretionary wedge and subduction zone terranes--B. Predominantly oceanic rocks with generally lesser amounts turbidites (Note: includes subterranes composed predominantly of turbidites)
- Turbidite basin terranes
- Metamorphic terranes

POST-ACCRETIONARY CENOZOIC AND MESOZOIC SEDIMENTARY AND IGNEOUS OVERLAP ASSEMBLAGES

(For overlap assemblages with a long age span, the color of the youngest major unit is shown)

- Quaternary and late Tertiary
- Cenozoic (Quaternary and Tertiary)
- Middle Tertiary
- Early Tertiary and Late Cretaceous
- Cretaceous
- Early Cretaceous and Late Jurassic
- Jurassic

Note: Refer to sheets 1 and 2 for map units list

SYMBOLS

- *Metallogenic belt outline*
- *Contact (depositional or intrusive contact that is not a terrane boundary. Includes marginal contacts of overlap sedimentary and volcanic assemblages, basinal deposits, and plutons)*
- *Post-accretion fault (major fault that formed after accretion; sense of displacement unknown)*
- *Post-accretion thrust fault (sawteeth point toward upper plate)*
- *Post-accretion strike-slip fault (arrows denote relative strike-slip displacement)*
- *Fault bounding terrane (dotted where concealed beneath overlap assemblages or basinal deposits. Sense and age of net displacement unknown)*
- *Thrust or reverse fault bounding terrane (dotted where concealed. Sawteeth point toward upper plate)*
- *Strike-slip fault bounding terrane (dotted where concealed. Arrows denote relative displacement)*

DEPOSIT MODELS

- ▲ DEPOSITS IN CARBONATE AND CHEMICAL-SEDIMENTARY ROCKS
- ● DEPOSITS RELATED TO MAFIC AND ULTRAMAFIC ROCKS

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Pre-accretionary metallogenic belts: podiform Cr, gabbroic Ni-Cu, zoned mafic-ultramafic PGE deposits, hornblende peridotite Cu-Ni, anorthosite-hosted apatite Ti-Fe, serpentinite-hosted asbestos, and associated deposits

MINERAL DEPOSIT AND METALLOGENIC BELT MAPS OF THE RUSSIAN FAR EAST, ALASKA, AND THE CANADIAN CORDILLERA

Scale 1:10 000 000

Kilometres 250 0 250 500 750 Kilometres

Lambert Azimuthal Equal Area Projection
Center of projection: 70°N, 165°W
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Terrane and overlap assemblage base map adapted and simplified from Nokleberg and others (1994, 1997)

Digital cartography by T.D. West, Geoscience Information Division, Natural Resources Canada and W.J. Nokleberg, U.S. Geological Survey

Electrostatic plot produced by the Geoscience Information Division, Natural Resources Canada

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

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DESCRIPTIVE NOTES

This map (Sheet 3) and Sheets 4-7 depict at 10.0 million scale various metallogenic belts for the Russian Far East, Alaska, and the Canadian Cordillera. The metallogenic belts are subdivided into pre-accretionary metallogenic belts (Sheets 3-5), accretionary metallogenic belts (Sheet 6), and post-accretionary metallogenic belts (Sheet 7). Also part of this map publication are Sheets 1 and 2 that depict at 5.0 million scale the significant lode mineral deposits and placer districts for the Russian Far East, Alaska, and the Canadian Cordillera. All seven sheets depict lode deposits and placer districts on a simplified version of the Circum-North Pacific tectonostratigraphic terrane map (Nokleberg and others, 1994, 1997). This display of mineral deposit and metallogenic belt patterns on a simplified terrane map allows the interpretation of the origin of individual and belts of mineral deposits with respect to geologic host rocks.

Metallogenic belts are subdivided into (1) pre-accretionary deposits that formed early in the geologic history of each tectonostratigraphic terrane and are thereby unique to each terrane; (2) (syn)accretionary deposits that formed during periods of major structural juxtaposition, regional deformation, and penetrative deformation that generally occurred during collision of now adjacent terranes; and (3) post-accretionary deposits that consist mainly of igneous-arc-related deposits that formed late in the geologic history of groups of terranes, and generally occur in two or more adjacent terranes. The metallogenic belts defined in this report are based on the significant deposits of the region which were selected to be representative of the metallogeny of the region.

Sheets 3-7 also contain a summary table for lode mineral deposits for each metallogenic belt. The tables state the mineral deposit number for each quadrant, deposit name, deposit model, major metals, and metallogenic belt. A similar summary table for placer districts states mineral deposit number for each quadrant, deposit name, deposit model, major metals. Lode deposits and placer districts are numbered separately within individual quadrants bounded by integer values of 4° of latitude and 6° of longitude. The quadrants are numbered from west to east, and are lettered from south to north. In the summary mineral deposit tables, the major metals are the known potentially valuable metals reported for each deposit, and are listed in order of decreasing abundance and (or) value, and are shown by standard chemical symbols. The type of lode deposit is an interpretation that was made by examining the summary of the deposit and then classifying the deposit using the deposit models previously described. A metallogenic belt is defined as geologic unit (area) that either contains or is favorable for a group of coeval and genetically-related, significant lode and placer deposit models.

Additional detailed information on detailed descriptions of lode deposits and placer districts are available in U.S.G.S. Open- File Report 96-513-A which contains a tabular data base of significant metalliferous lode mineral deposits and placer districts of the Russian Far East, Alaska and the Canadian Cordillera (Nokleberg and others, 1996).

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NUMBER	DEPOSIT NAME	DEPOSIT MODEL	MAJOR METALS
AC	Aluchin Metallogenic Belt of Podiform Cr Deposits (Middle Paleozoic or older), Central Part of Russian Northeast		
Q58			
08	Teleneut	Podiform Cr	Cr, Ni
AL	Algama Metallogenic Belt of Stratiform Zr Deposits (mid-Cretaceous), Northern Part of Russian Southeast		
O53			
07	Algaminskoe	Carbonate-hosted Zr (Algoma type)	Zr, W
AR	Ariadny Metallogenic Belt of Zoned Mafic-Ultramafic Ti Deposits (Late Jurassic), Southern Part of Russian Southeast		
L53			
03	Katenskoe	Zoned mafic-ultramafic Ti	Ti
19	Ariadnoe	Zoned mafic-ultramafic Ti	Ti
30	Koksharovskoe	Zoned mafic-ultramafic Ti	Ti
CS	Cassiar Asbestos Metallogenic Belt of Serpentinite-Hosted Asbestos Deposits (mid- Cretaceous?), Northern British Columbia		
O09			
05	Cassiar (Mount McDame)	Serpentine-hosted asbestos	Asbestos, jade
DZ	Dzhugdzhur Metallogenic Belt of Anorthosite-hosted, Apatite Ti-Fe Deposits (Early and Middle Proterozoic), Northern Part of Russian Southeast		
N53			
01	Bogidenskoe	Anorthosite apatite Ti-P	Ti, P
02	Gayumskoe	Anorthosite apatitie Ti-P	Ti, P
03	Maimakanskoe	Anorthosite apatite Ti-P	Ti, P
04	Dzhaninskoe	Anorthosite apatite Ti-P	Ti, P
EAR	Eastern Alaska Range Metallogenic Belt of Gabbroic Ni-Cu Deposits (Late Triassic), Southern Alaska		
P06			
15	Fish Lake	Gabbroic Ni-Co	Cr, Ni
P07			
18	Wellgreen	Gabbroic Ni-Cu	Ni, Cu, PGE
19	Bullion Creek	Strataform gypsum	Gypsum
ESM	Eastern Seward Peninsula and Marshall Metallogenic Belt of Podiform Cr Deposits (Late Jurassic?), Northwestern Alaska		
FM	Fortymile Alaska Metallogenic Belt of Podiform Cr and Serpentinite-Hosted Asbestos Deposits (Cretaceous?), East-Central Alaska		
Q07			
04	Eagle C3	Podiform Cr(?)	PGE
05	Slate Creek (Fortymile)	Serpentine-hosted asbestos	Asbestos
07	Clinton Creek	Serpentine-hosted asbestos	Asbestos
KB	Kobuk Metallogenic Belt of Podiform Cr Deposits (Jurassic), Northern Alaska		
Q03			
01	Iyikrok Mountain	Podiform Cr	Cr
Q04			
06	Asbestos Mountain	Serpentine-hosted asbestos	Asbestos, jade, asbestos, talc
R04			
01	Avan	Podiform Cr	Cr, PGE
02	Misheguk Mountain	Podiform Cr	Cr, PGE
05	Siniktanneyak Mountain	Podiform Cr	Cr, Ni, PGE
KH	Koryak Highlands Metallogenic Belt of Zoned Mafic-Ultramafic PGE Deposits (Upper Cretaceous), East-Central Part of Russian Northeast		
O58			
01	Karagin group	Gabbroic Cu	Cu, Zn, Au, Pt, Ni, Co
P59			
10	Snezhnoe	Zoned mafic-ultramafic Cr-PGE	Cr, PGE
KL	Klukwan Duke Metallogenic Belt of Mafic-Ultramafic Ti-Fe-Cr-PGE Deposits (mid-Cretaceous), Southeastern Alaska		
N08			
01	Union Bay (Cleveland Peninsula)	Zoned mafic-ultramafic Cr-PGE	Fe, V, Ti, Cr, PGE
N09			
37	Duke Island	Zoned mafic-ultramafic Cr-PGE	Cr, PGE
O08			
05	Klukwan	Zoned mafic-ultramafic Fe-Ti	Fe, PGE, Ti, V
06	Haines	Zoned mafic-ultramafic Fe-Ti	Fe, Ti
32	Funter Bay	Gabbroic Ni-Cu	Cu, Ni, Co
KO	Kondyor Metallogenic Belt of Zoned Mafic-Ultramafic PGE-Cr Deposits (Jurassic?), Northern Part of Russian Southeast		
O53			
11	Kondyor	Zoned mafic-ultramafic Cr-PGE	Pt
KOD	Kodiak Island and Border Ranges Metallogenic Belt of Podiform Cr Deposits (Early or Middle Jurassic), Southern Coastal Alaska		
O05			
06	Red Mountain	Podiform Cr	Cr
07	Claim Point	Podiform Cr	Cr
09	Halibut Bay	Podiform Cr	Cr
P06			
25	Bernard Mountain, Dust Mountain	Podiform Cr	Cr, PGE
26	Spirit Mountain	Gabbroic Ni-Cu	Ni, Cu, Co, Ag
KUY	Kuyul Metallogenic Belt of Podiform Cr, PGE and Associated Deposits (Middle or Late Jurassic), East-Central Part of Russian Northeast		
P58			
03	Talov	Podiform Cr	Cr
04	Tikhorechen	Podiform Cr	Cr
KV	Kvinumsky Metallogenic Belt of Hornblende Peridotite Cu-Ni Deposits (Early Cretaceous), Southern Kamchatka Peninsula		
N57			
04	Shanuch	Hornblendite peridotite Cu-Ni	Ni, Cu, Co, Au, Pt
13	Kvinum	Gabbroic Cu-Ni	Ni, Cu, Co, Au, Pt
14	Kuvalorog	Hornblendite peridotite Cu-Ni	Ni, Cu, Co, Pt
SCT	Schmidt and Terpeniya Peninsulas Metallogenic Belt of Podiform Cr Deposits (Late Cretaceous), Sakhalin Island, Southeastern Part of Russian Far East		
M55			
01	Russkoe	Podiform Cr	Cr
N54			
01	Yuzhno-Tominskoe	Podiform Cr	Cr
SWA	Southwestern Alaska Metallogenic Belts of Zoned Mafic-Ultramafic PGE Deposits (Late Triassic and Jurassic?), Southwestern Alaska		
O04			
02	Kemuk Mountain	Zoned mafic-ultramafic	Fe, Ti, PGE
TAM	Tamvatney-Mainits Metallogenic Belt of Podiform Cr Deposits (Late Jurassic and Early Cretaceous), East-Central Part of the Russian Northeast		
P60			
01	Chirynai	Podiform Cr	Cr, PGE
04	Krassnaya Gora	Podiform Cr	Cr, PGE
UB	Ust-Belaya Metallogenic Belt of Podiform Cr Deposits (Early Paleozoic), Northeastern Part of Russian Northeast		
Q59			
07	Ust-Belaya	Podiform Cr	Cr, PGE
YR	Yukon River Metallogenic Belt of Podiform Cr Deposits (Jurassic), West-Central Alaska		
P04			
02	Mount Hurst	Podiform Cr	Cr, PGE
Q04			
13	Kaiyuh Hills (Yuki River)	Podiform Cr	Cr
Q05			
07	Caribou Mountain, Lower Kanuti River, Holonada	Podiform Cr	Cr

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