

Montana Bureau of Mines and Geology  
Open File No. 511

Preliminary Geologic Map of the Ringling  
30' x 60' Quadrangle, Central Montana

Compiled and mapped by Catherine McDonald, David A. Lopez  
Richard B. Berg, and Richard I. Gibson

2005

To view a full scale version of this map, [click here](#).

For the text files with the map information, [click here](#).

[Digital data link](#)

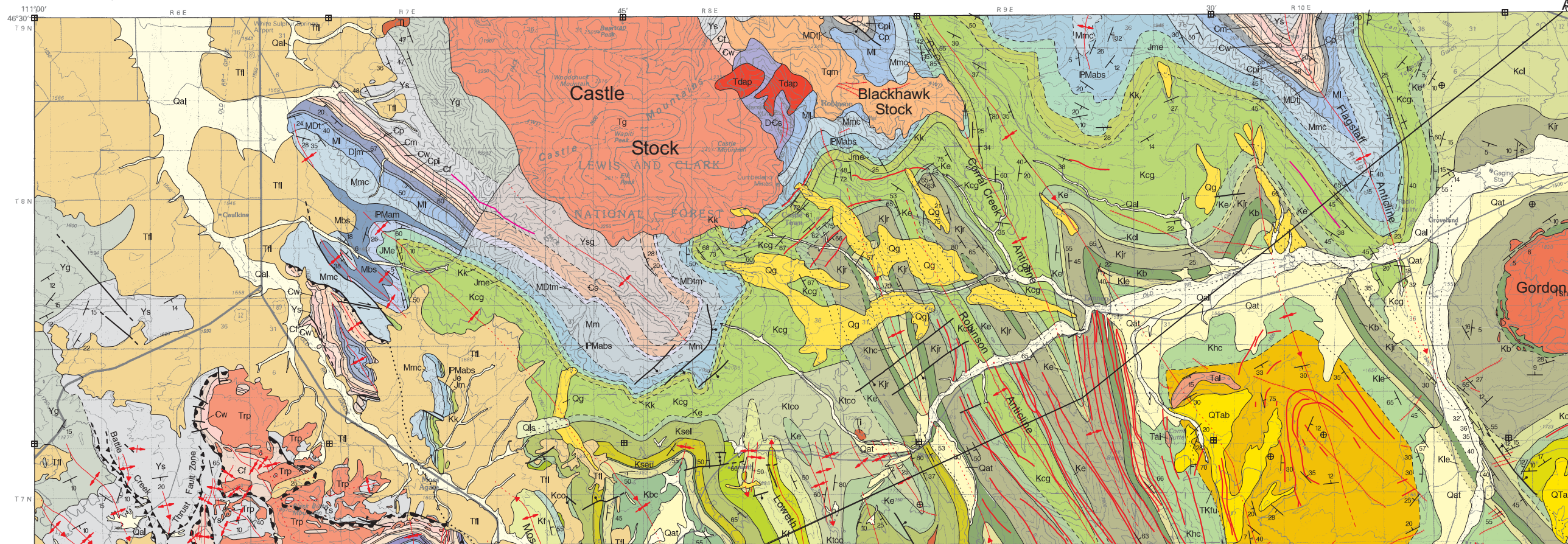
Note— This map was originally published at a scale of 1;100,000 but the page sizes have been modified to fit the average printer capabilities (8½ x 14; legal size paper). There is a an eighth inch overlap on these pages. A full sized colored print of this map can be ordered from the **MBMG Publication Sales Office, 1300 West Park Street, Butte, MT, 59701-8997.**

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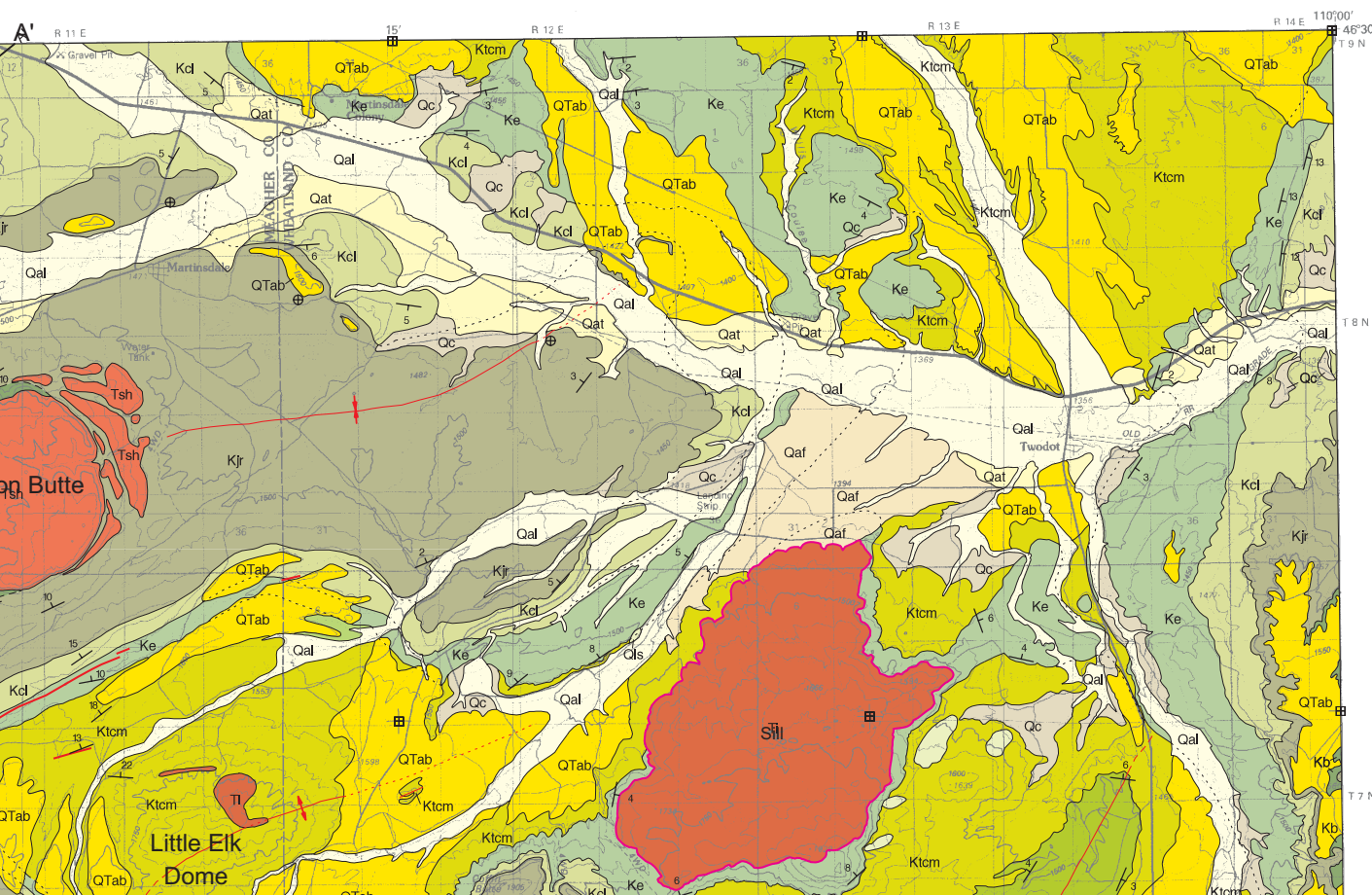
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### RINGLING, MONTANA







### MAP UNITS

Qal	Alluvium of modern channels and flood plains
Qta	Talus deposit
Qrg	Rock glacier deposit
Qc	Colluvium
Qls	Landslide deposit
Qaf	Alluvial fan deposit
Qat	Alluvium of alluvial terrace
Qg	Glacial deposit, undivided
QTgr	Gravel
QTab	Alluvium of braid plains
QTba	Basaltic
Tbr	Breccia
Trp	Rhyolite of Black Butte Mountain
Tqm	Quartz monzonite
Tqmd	Quartz monzodiorite
Tdg	Diorite and gabbro
Tdap	Dacite porphyry
Tai	Alkalic Intrusive
Tsh	Shonkinite
Tg	Granite
Ti	Intrusive rocks, undivided
Til	Fort Logan Formation
Tile	Lebo Member of Fort Union Formation

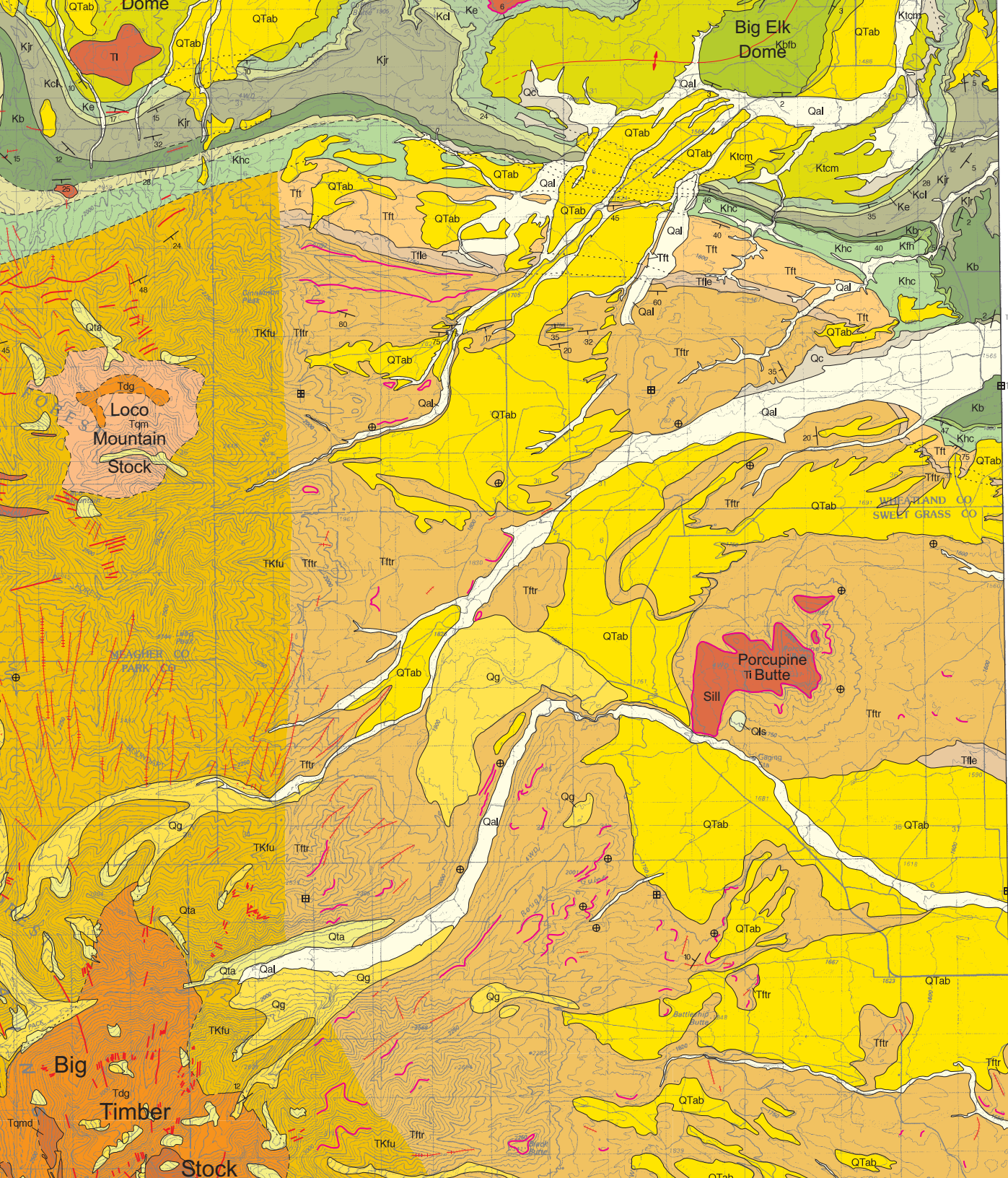
### MAP SYMBOLS

	Contact: dashed where approximately located; dotted where concealed
	Fault: unknown sense of movement; dotted where concealed
	Reverse or thrust fault: teeth on upthrown block; dashed where approximately located; dotted where concealed
	Indian Creek décollement—A plane of sliding on which locally intensely folded post-Precambrian rocks were thrust eastward into the Crazy Mountains Basin off the southeast margin of the Big Belt Mountains in late Paleocene time (Skipp and Hepp, 1968)
	Anticline: showing trace of axial plane and plunge direction where known; dotted where concealed
	Asymmetric anticline: showing trace of axial plane; dotted where concealed, shorter arrow on more steeply dipping limb
	Strike and dip of inclined bed
	Strike and dip of overturned bed
	Horizontal bed
	Vertical bed
	Dike (Ti): shown in red on map









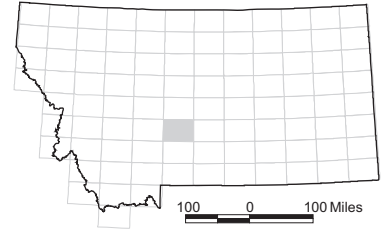
- Tt
- Tt
- Tttr
- TKlu
- Kho
- Kbc
- Khc
- Kle
- Kfh
- Kb
- Kseu
- Kset
- Ksel
- Kjr
- Kcd
- Ke
- Ktc
- Ket
- Kco
- Ktco
- Keco
- Kf
- Ktcm
- Kbf
- Kmt
- Kcg
- Kk
- Jm
- Je
- Jme
- Pq
- PMam
- PMabs
- Mbs
- Mmc
- Ml
- Mm
- MDt
- Dj
- MDj
- Djm

- Dike (Ti): shown in red on map
- Dikes/Sills (Ti): shown in red on map
- Sills (Ti): shown in magenta on map

100K Quad index

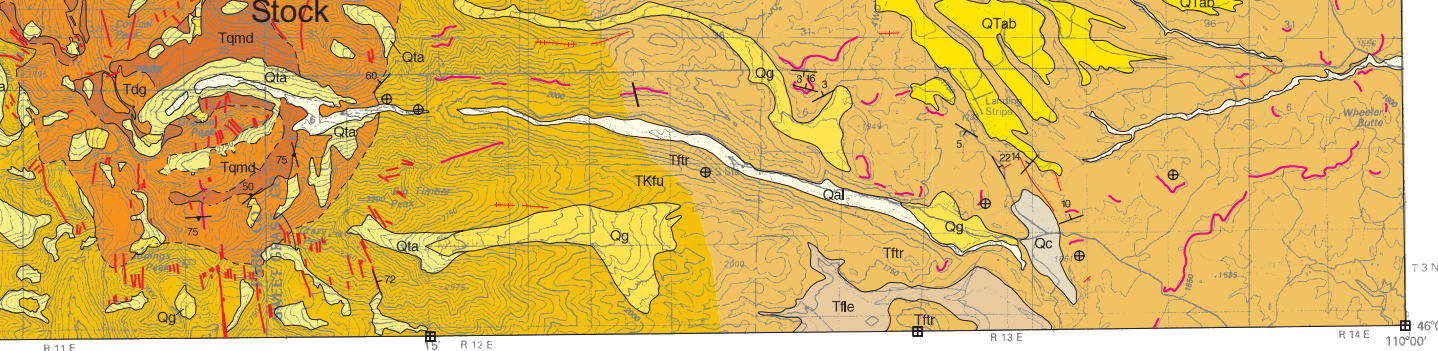
CANYON FERRY DAM	WHITE SULPHUR SPRINGS	BIG SNOWY MOUNTAINS
TOWNSEND	RINGLING	HARLOWTON
BOZEMAN	LIVINGSTON	BIG TIMBER

MONTANA





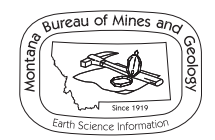
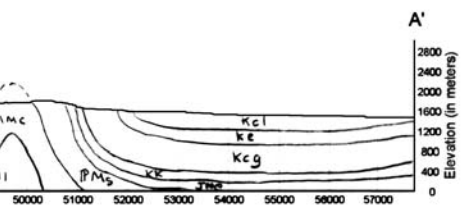




- Djm Jefferson and Maywood Formations, undivided
- MDtm Three Forks Formation, Jefferson Dolomite and Maywood Formation
- DCmsr Maywood and Snowy Range Fms, undivided
- DCs Sedimentary rocks, undivided
- Cpl Pilgrim Limestone
- Cp Park Shale
- Cm Meagher Limestone
- Cw Wolsey Shale
- Cf Flathead Formation
- Cs Sedimentary rocks, undivided
- Ygb Gabbro sill
- Ysm Spokane Formation, metamorphosed
- Ys Spokane Formation
- Yg Greyson Formation
- Ysg Spokane and Greyson Formations, undivided

**STRATIGRAPHIC UNITS NOT ON MAP OR IN TEXT**

- Kmok** Mowry Shale through Kootenai Formation
- Pre-K** Pre-Cretaceous sedimentary rocks, undivided
- PMs** Pennsylvanian and Mississippian sedimentary rocks, undivided
- DEs** Devonian through Cambrian sedimentary rocks, undivided
- Facies change
- Stratigraphic nomenclature change



Maps may be obtained from  
 Publications Office  
 Montana Bureau of Mines and Geology  
 1300 West Park Street, Butte, Montana 59701-8997  
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