

Montana Bureau of Mines and Geology
Open File No. 387

Geologic Map of the
Gardiner 30' x 60' Quadrangle,
South-Central Montana

Richard B. Berg, Jeffrey D. Lonn
and William W. Locke

1999

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

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

[Digital data link](#)

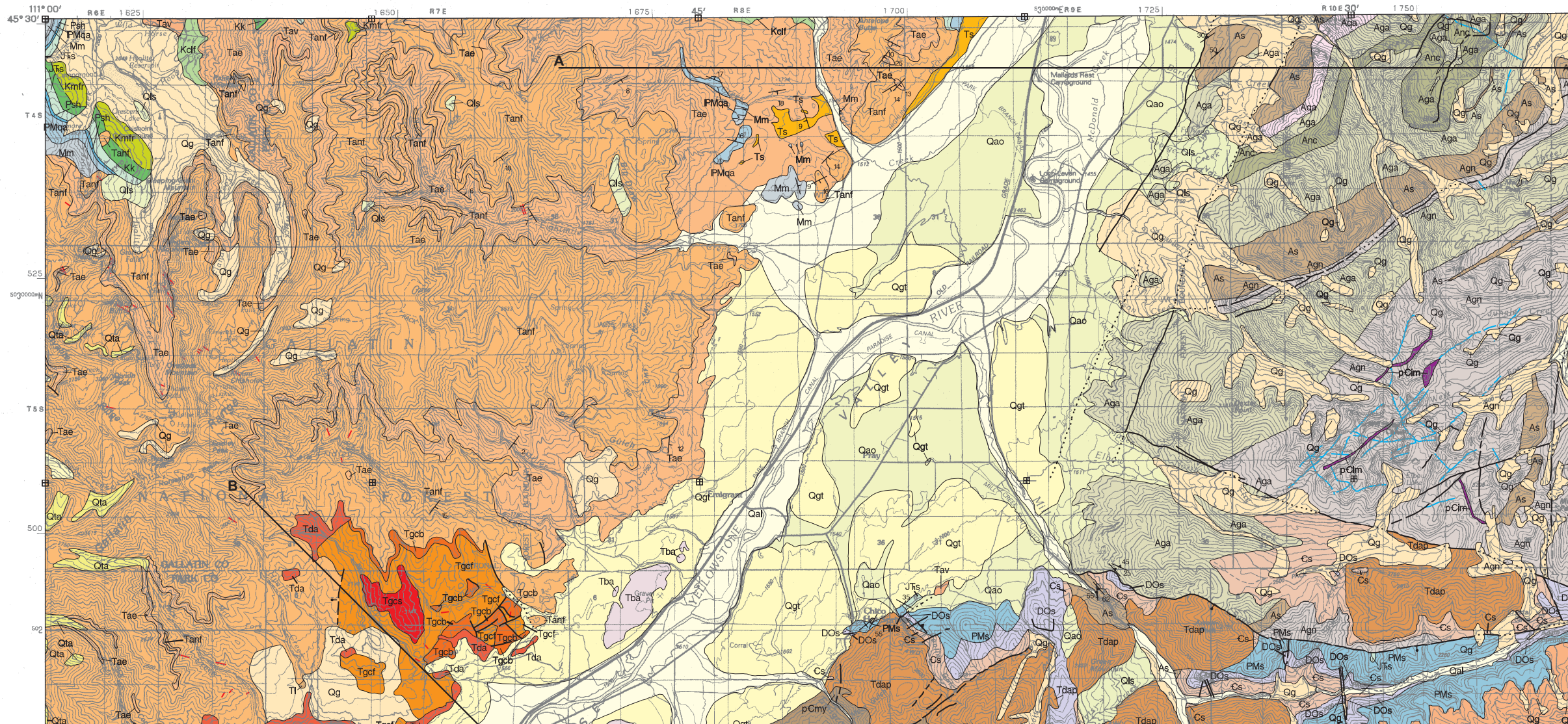
Note— This map was originally published at a scale of 1:100,000 but the page sizes have been modified to fit average printer capabilities (8½ x 14; legal size paper). There is a an eighth inch overlap on these pages. A full sized colored print of this map can be ordered from the **MBMG Publication Sales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

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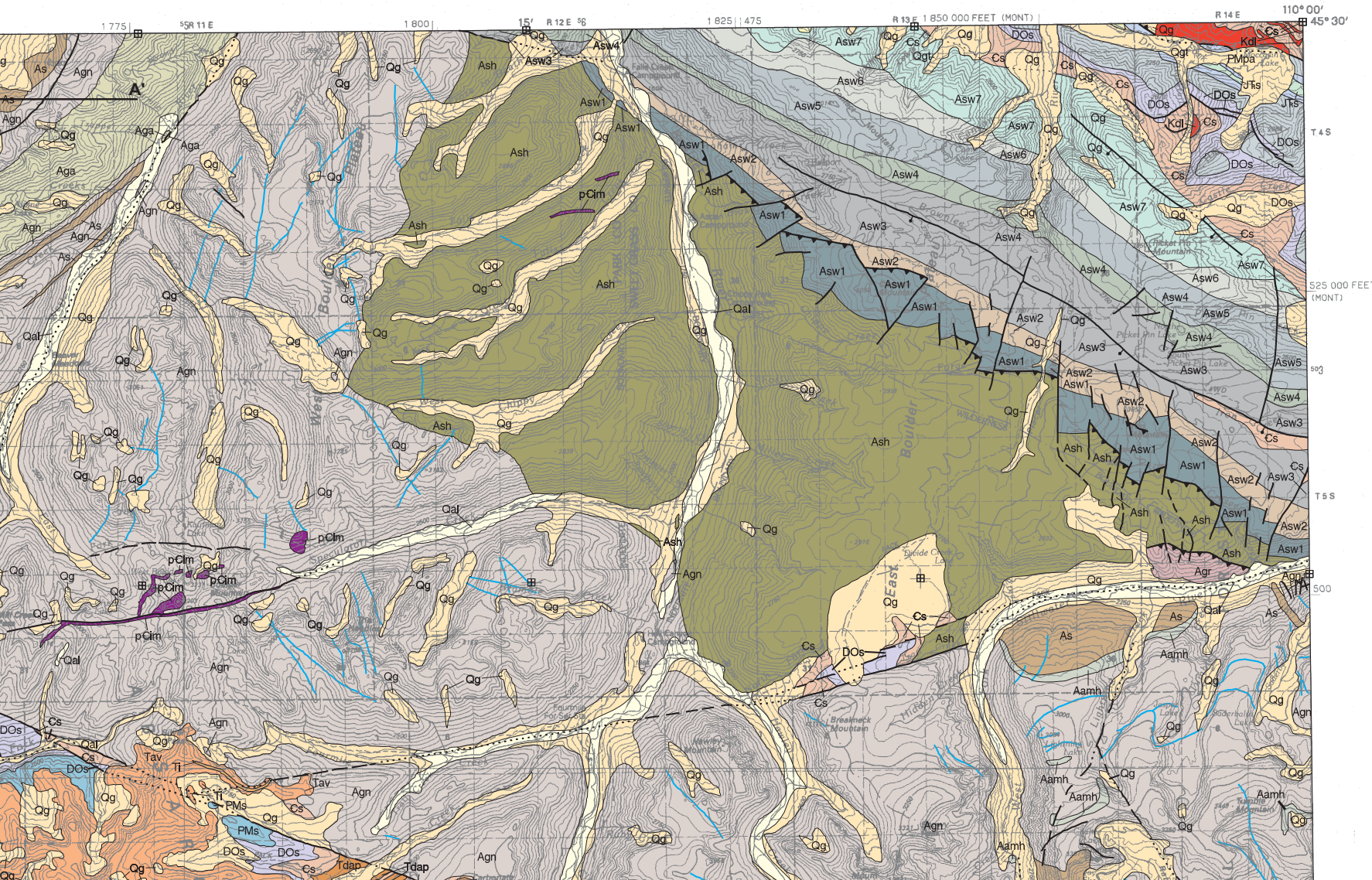
Email: pubsales@mbmg.mtech.edu

Open File MBMG 387, Plate 1 of 1
Geologic Map, Gardiner 30'x60' Quadrangle

GARDINER, MONTANA-WYOMING

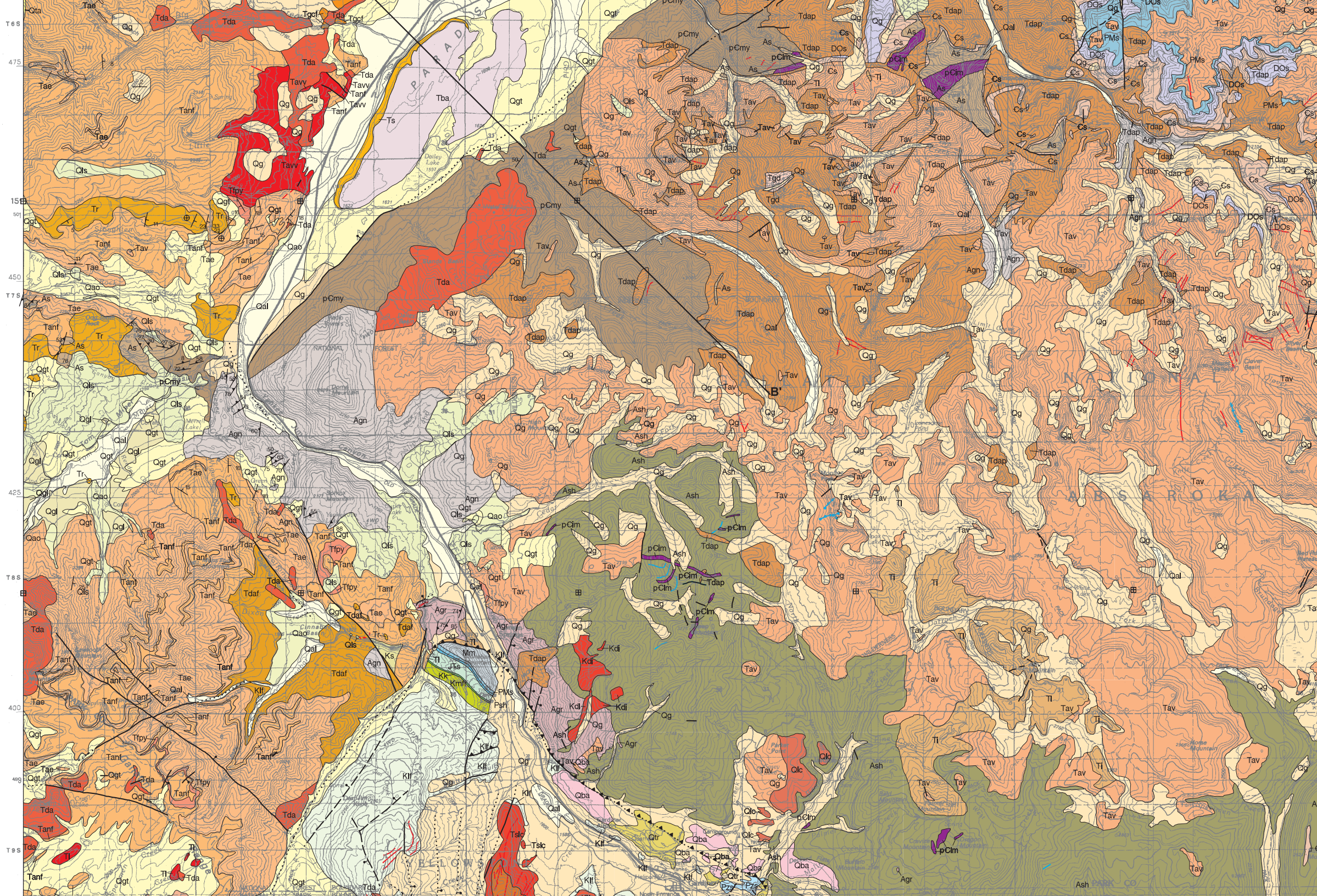


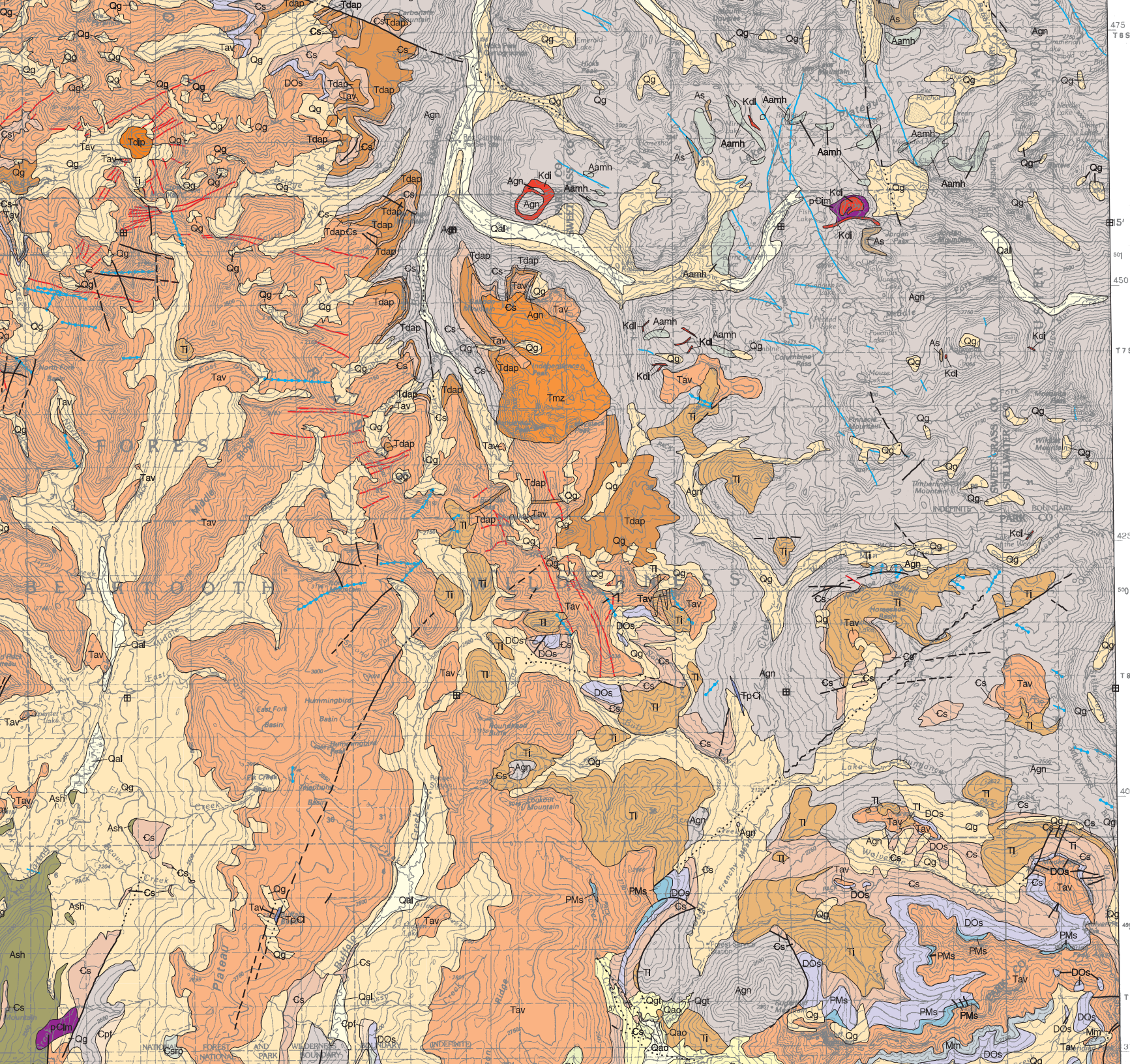
30X60 MINUTE SERIES (TOPOGRAPHIC)



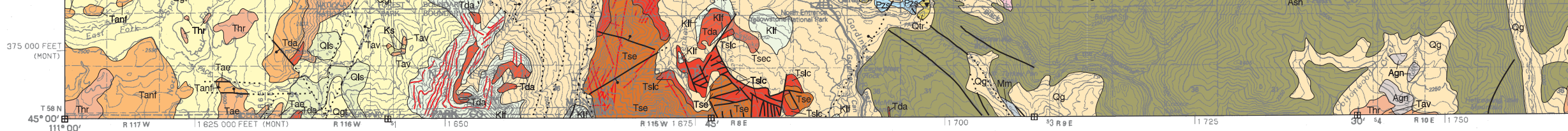
MAP UNITS

Qls	Landslide deposit
Qal	Alluvium of modern channels and flood plains
Qao	Alluvium, older, undivided
Qta	Talus deposit
Qtr	Travertine deposit
Qg	Glacial deposit, undivided
Qgl	Glacial lake deposit
Qgt	Glacial till
Qlc	Lava Creek Tuff, undivided
Qba	Basalt
Thr	Huckleberry Ridge Tuff, undivided
Ts	Sediment or sedimentary rocks, undivided
Tba	Basalt
TI	Intrusive rocks, undivided
Tgd	Granodiorite
Tr	Rhyolite or rhyolitic sediment
Tl	Latite and porphyritic latite
Tipy	Felsic pyroclastic rocks
Tmz	Monzodiorite of Independence area
Tdaf	Dacite flows
Tdap	Dacite porphyry
Tda	Dacite
Tdlp	Diorite porphyry
Tav	Absaroka Volcanics
Tm	Slough Creek Tuff Member of Mount Wallace Formation



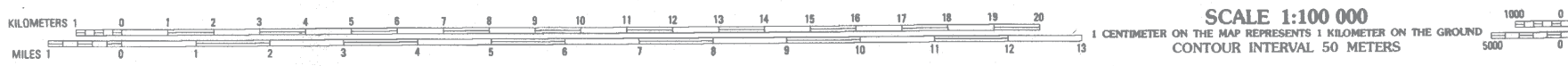


Tms	Slough Creek Tuff Member of Mount Wallace Formation
Tse	Sepulcher Formation
Tsk	Lost Creek Tuff Member of Sepulcher Formation
Tsec	Elk Creek Basalt Member of Sepulcher Formation
Tae	Andesite epiclastics of Hyalite Peak Volcanics
Tanf	Andesite flows of Hyalite Peak Volcanics
Tavv	Vent facies of Hyalite Peak Volcanics,
Tgcb	Golmeyer Creek Volcanics, andesite breccia
Tgcf	Golmeyer Creek Volcanics, andesite flow
Tgcs	Golmeyer Creek Volcanics, andesite sill
TpCl	Intrusive rocks, intermediate and mafic
Ks	Sedimentary rocks, undivided
KlI	Landslide Creek formation through Frontier formation, undivided
KclI	Lower shale member, informal, of Cody Shale and Frontier Formation, undivided
Kmfr	Mowry through Fall River Formations, undivided
Kk	Kootenai Formation
Kdl	Diorite
Jks	Sedimentary rocks, undivided
PMs	Permian, Pennsylvanian, and Mississippian sedimentary rocks, undivided
Psh	Shedhorn Sandstone
PMpa	Phosphoria, Quadrant, and Amsden Formations, undivided
PMqa	Quadrant and Amsden Formations, undivided
Mm	Madison Group, undivided
DOs	Sedimentary rocks, undivided
Cs	Sedimentary rocks, undivided
Csrp	Snowy Range and Pilgrim Formations, undivided
CpI	Park through Flathead Formations, undivided
Pzs	Sedimentary rocks, undivided
pClm	Intrusive Mafic
pCmy	Mylonite
Asw1	Peridotite zone - Stillwater Complex
Asw2	Bronzite zone - Stillwater Complex
Asw3	Norite and lower gabbro zones - Stillwater Complex
Asw4	Lower anorthosite zone - Stillwater Complex
Asw5	Lower and middle zones - Stillwater Complex
Asw6	Middle anorthosite zone - Stillwater Complex
Asw7	Upper zones - Stillwater Complex
Aamh	Amphibolite and hornblende gneiss
Aga	Amphibolite and gneiss
Ann	Gneissic rocks



● INTERIOR-GEOLOGICAL SURVEY, RESTON, VIRGINIA—1993

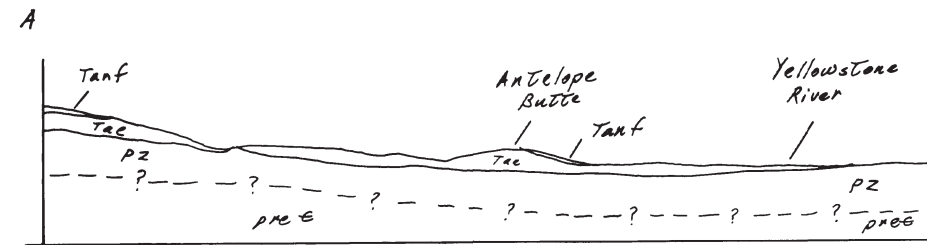
Base from U.S. Geological Survey
 Gardiner 30'x60' topographic quadrangle
 Map date: 1997
 Projection: UTM zone 12; 1927 NAD



GEOLOGIC CROSS SECTION

GARDINER 30' X 60' QUADRANGLE

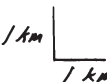
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 1999



For clarity Quaternary and Tertiary deposits not shown



For clarity Quaternary deposits not shown



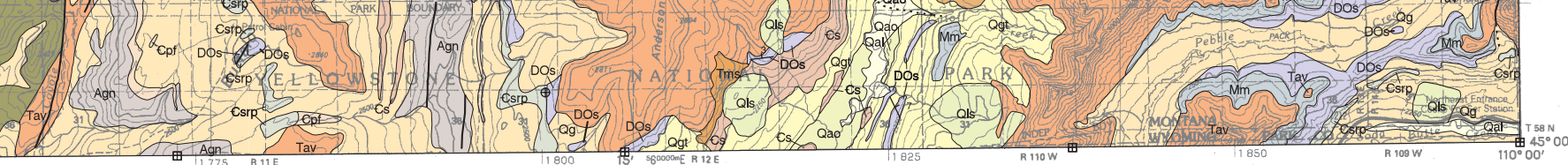
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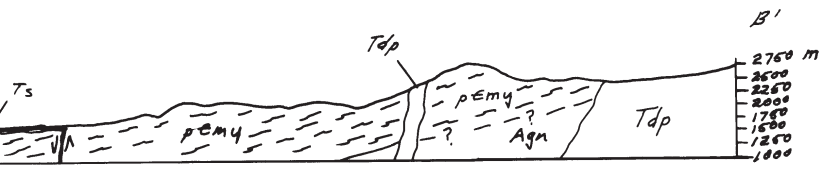
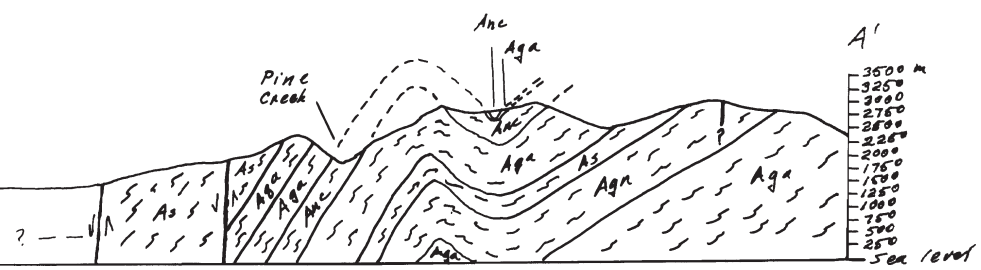
Revised	Date
MBMG GIS lab - changed colors to match Red Lodge 100K quad	3/01
Map	9/01
Map and text	12/02
Map	9/03
Map and text	4/07
Map R.B. Berg	9/08



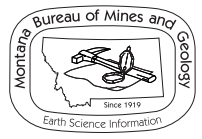
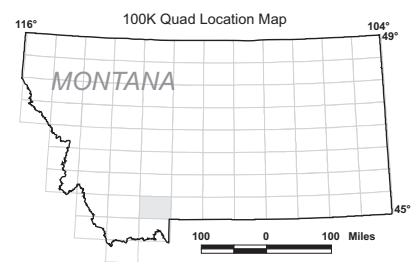
GARDINER, MONTANA-WYOMING
45110-A1-TM-100
1992

- Agn Gneissic rocks
- Agr Granitic rocks
- Anc Nappe core complex
- Aqa Quartzite and amphibolite
- As Biotite schist
- Ash Schist and Hornfels

SECTIONS
QUADRANGLE
 by William W. Locke



- Ti intrusive rocks, undivided (dikes)
- TpCi intermediate and mafic intrusive rocks
- pCm mafic intrusive rocks



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Quad index

BOZEMAN	LIVINGSTON	BIG TIMBER
ENNIS	GARDINER	RED LODGE
HEBGEN LAKE	YELLOWSTONE NAT PARK N	CODY

Partial support has been provided by the STATEMAP component of the National Cooperative Geologic Mapping Program of the U.S. Geological Survey under Contract Number 98-HQ-AG-2080.