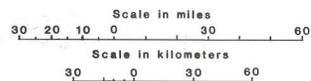


GEOLOGICAL MAP of MONTANA and Yellowstone National Park



KEY

- Fault, sense of motion not indicated
- Contact

CONTINENTAL AND MARINE DEPOSITS

- Quaternary, extensive**
Stream, glacial, and lake deposits
- Tertiary, Flaxville gravel**
Gravel and sand with some silt, volcanic ash, and marl
- Tertiary, basin fill**
Oligocene through Pliocene basin fill composed of a heterogeneous mixture of gravel, sand, silt, and clay deposited by streams and in lakes
- Eocene, continental deposits**
Includes fine to coarse-grained clastic rocks
- Paleocene, continental deposits**
Including stream-deposited sediments of coal-bearing Fort Union Fm. in the east, Willow Creek Fm. in the north central, and Beaverhead conglomerate in the southwest

- uK** **Upper Cretaceous, undifferentiated**
Hell Creek sandstone and shale, St. Mary River mudstone, and volcanoclastic Livingston Gp. in south-central Montana
- Km** **Montana Group**
Bearpaw shale, Judith River sandstone, siltstone, and shale, Craggett shale, Eagle sandstone, and Telegraph Creek sandy shale. Includes Fox Hills sandstone and Pierre shale in the extreme east
- Kc** **Colorado Group**
Includes mainly shale of the Niobrara, Belle Fourche, Mowry, and Thermopolis Formations
- Kk** **Kootenai Formation**
Conglomerate, sandstone, shale, and mudstone
- lMz** **Lower Mesozoic**
Includes calcareous fossiliferous sandstone, shale, and limestone of the Ellis Group in the central and south central, and the Dinwoody and Thaynes Formations in the southwest as well as the Morrison shale, sandstone, and marl in the west

- uPz** **Mississippian, Pennsylvanian, Permian**
Includes Madison limestone, Big Snowy dolomite and limestone, and Quadrant sandstone
- IPz** **Devonian and Cambrian**
Consists of Three Forks shale, Jefferson limestone, Pilgrim and Meagher limestone, Park and Wolsey shale, and Flathead sandstone
- Y3** **Upper Belt-Missoula and Piegan Groups**
Chiefly red, maroon, and purple argillites and impure quartzite and limestone
- Y2** **Middle Belt-Wallace, Siyeh, Helena Fms.**
Heterogeneous Wallace Fm. including argillite, limestone, sandstone, shale, and quartzite; Siyeh and Helena limestones
- Y1** **Lower Belt-Ravalli and Prichard Fms.**
Ravalli Fm. includes siliceous and sandy quartzite, argillite, and shale; Prichard Fm. consists of banded slate with interbedded sandstone
- Y** **Undivided Belt Supergroup**

VOLCANIC, PLUTONIC, AND METAMORPHIC ROCKS

- Qf** **Quaternary, rhyolitic volcanic rocks**
Volcanic rocks, mostly felsic Yellowstone flows and associated pyroclastic deposits
- Ti** **Tertiary, intrusives**
Mostly granitic to intermediate composition, some alkaline especially in north-central Montana
- ITv** **Lower Tertiary, volcanic rocks**
Flows and associated pyroclastic deposits; latite, andesite, with some rhyolite and basalt and associated intrusive dikes and necks
- Kib** **Younger Cretaceous, granitic rocks**
Boulder Batholith and related rocks; predominantly quartz monzonite
- Kv** **Cretaceous, volcanic rocks**
Mafic to intermediate composition lava flows, ash flows, and other pyroclastic rocks with interbedded sedimentary rocks including Elkhorn Mountains volcanic rocks
- Kil** **Older Cretaceous, volcanic rocks**
Idaho Batholith and associated masses; monzonite and granodiorite
- Kgn** **Border Zone of Idaho Batholith**
Metasedimentary rocks of Belt age intruded by granitic rocks
- W** **Stillwater Complex**
Layered mafic-ultramafic intrusive complex, includes anorthosite; associated with hornfels aureole
- W** **Archean, undifferentiated**
High-grade metamorphic rocks derived from igneous and sedimentary parent rocks. Lithologies include quartzofeldspathic gneiss, granulite, amphibolite, quartzite, and marble