

System	Series	Group	Formation and member	Section lithology	Thickness, in feet	Description		
CRETACEOUS	Upper Cretaceous	Montana	Hell Creek formation			Sandstone, massive, soft; and greenish-gray sandy shale		
			Bearpaw shale		850 to 1,100	Shale, dark-gray, concretionary; upper unit Shale, dark-gray, with many bentonite beds; middle unit Shale, dark-gray, concretionary; lower unit		
			Parkman sandstone		250	Sandstone, massive, brown, with hard nodular limonitic concretions; upper unit Shale, dark-gray sandy and silty; lower unit		
			Claggett shale member		350	Shale, dark-gray with bright orange- and brown-weathering fossiliferous concretions; upper unit. Shale, dark-gray, concretionary; middle unit Shale, dark-gray, with many bentonite beds; lower unit		
			Shale member equivalent to Eagle sandstone		375 to 425	Shale, sandy, gray, with many beds of thin hard rusty-weathering ironstones; thin bed of ledge-forming sandstone about 170 ft above base; thick bentonite zone about 280 ft above base		
			Telegraph Creek member		750 to 850	Shale, sandy, gray; weathers to yellowish sandy soil		
			Colorado	Cody shale 2600±	Niobrara shale member		400	Shale, dark-gray, with numerous gray septarian concretions and thin bentonite beds; a thin calcareous shale zone about 80 ft above base forms light-colored band of soil
					Carlile shale member		275	Shale, dark-gray, sandy in middle; a 25-ft zone of thin hard ironstones 100 ft above base; a 10- to 20- ft zone of large concretions 180 ft above base
					Greenhorn calcareous member		60 to 100	Shale, dark-gray, white-weathering, calcareous; limonitic bentonite at base
					Lower member		200	Shale, dark-gray, concretionary; thick bentonite bed 60 ft above base
	Frontier formation				275	Shale, dark-gray, sandy, with sandstone lenses; thick Soap Creek bentonite bed at top		
	Mowry shale				345 to 400	Shale, gray, siltstone, and sandstone, partly siliceous; weathers silvery gray to bluish gray; Clay Spur bentonite bed at top		
	Thermopolis shale				425	Shale, dark-gray, with several beds of bentonite; zone of sandstone dikes about 250 ft below top		
	JURASSIC	Upper Jurassic	Ellis	Cloverly and Morrison formations, undifferentiated		225 to 650	Sandstones, thin at top underlain by shale, siltstone, "rusty beds", variegated shales, and the lenticular Pryor conglomerate member of the Cloverly formation. Mostly variegated shale and greenish siltstone and sandstone below Pryor conglomerate member	
				Swift formation		90 to 170	Sandstone and siltstone, fossiliferous, glauconitic; and calcareous shale; has ledge-forming very fine grained calcareous sandstone at base	
				Rierdon formation		175 to 390	Shale, light-brown, fossiliferous, calcareous	
		Middle Jurassic	Ellis	Piper formation		150 to 180	Siltstone, red, and shale; upper unit. Limestone, gray; middle unit. Shale, red, above gypsum; lower unit	
				Chugwater formation		375 to 675	Siltstone, red, and sandstone; thin limestone 40 to 100 ft below top may be Alcova limestone member; basal gypsiferous and limestone unit is equivalent to Embar formation	
	PENN-SYLVANIAN			UNCONFORMITY		0 to 115	Tensleep sandstone	
				Amsden formation		230 to 280	Shale, red, siltstone, and sandstone and thin beds of dolomite and limestone. Chert predominates near middle; red siltstone and shale at base	
MISSISSIPPIAN			UNCONFORMITY		705 to 740	Madison limestone		
			Three Forks shale and Jefferson limestone, undifferentiated		300	Limestone, light brownish- and greenish-gray, shaly and sandy; upper 200 ft. Dolomite, very light-gray, and dolomitic limestone; lower 100 ft		
ORDOVICIAN	Upper Ordovician		Bighorn dolomite		285 to 480	Dolomite, light-gray to white, and dolomitic limestone; upper unit. Limestone, dolomitic, massive, cliff-forming, light-brown is 180 ft thick in Bighorn Canyon lower unit		
CAMBRIAN	Middle and Upper Cambrian		Gallatin limestone and Gros Ventre formation, undifferentiated		1,000±	Limestone, with thin siltstone and shale partings; upper part. Limestones, thin-bedded, flat-pebble, and green shale; lower part. About 700 ft exposed in Bighorn Canyon but largely concealed by talus		

Geology by G. E. Prichard

GENERALIZED COLUMNAR SECTION OF ROCKS EXPOSED BETWEEN THE BIGHORN MOUNTAINS AND HARDIN, MONT.