

Table 1: Table of Formations in the Flathead Area

Part A: Triassic to Quaternary

System/ Series	Formation and Thickness		Lithology	
Quaternary			fill, sand and gravel	
unconformity				
Miocene	St. Eugene Formation (Rocky Mountain Trench only) 50 m exposed, total thickness unknown		colluvium, conglomerate, sand, silt and gravel	
Oligocene	Kishenehn Formation (Flathead Valley only) 0-4750m	Upper Member 0-2100m	conglomerates, sandstones, varicoloured mudstones and coal, breccias and megabreccias	
		Lower Member 0-2500m	varicoloured clays, mudstones and shales, sandstones, oil shales, argillaceous and fossiliferous limestones, scattered lignitic coal and locally conglomerates	
		Basal Member 0-140m	pebble and cobble conglomerates and sandstones	
unconformity				
Upper Cretaceous	Alberta Group	Belly River Formation 350+m	continental sandstones, shales, and minor amounts of coal	
		Wapiabi Formation 500m	dark shale, siltstone, fine sandstone, calcareous shale and limestone	
		Cardium Formation 100m	marine sandstone, siltstone and shale	
		Blackstone Formation 100m	dark shale, fine sandstone, siltstone, limestone and calcareous shale	
unconformity				
Lower Cretaceous	Blairmore Group 300-2400m	Crowsnest Formation 40-100m	alkaline tuff, volcanic breccia, volcanic conglomerate, and trachyte	
		Ma Butte Formation 120-1875m (latter is combined thickness with Beaver Mines Formation in the Fernie Basin)	quartz-chert sandstones, grey siltstones and red mudstones, igneous and quartzite-chert pebble conglomerate	
		Beaver Mines Formation 280-1875m (latter is combined thickness with Ma Butte Formation in the Fernie Basin)	grey to green feldspathic sandstone and arkose, siltstone, and grey to maroon mudstone, igneous pebble conglomerate	
		Gladstone Formation 80-450m	fine quartz-chert sandstone, siltstone, and green and red mudstone; limestone and calcareous mudstone in upper part	
		Cadomin Formation 15-75m	chert pebble conglomerate and sandstone, grey, green, and red mudstone	
	unconformity			
	Jurassic	Kodeneay Group	Elk Formation 0-275m	sandstone, conglomerate, siltstone, silt coal
			Mist Mountain Formation 20-400m	siltstone, sandstone, mudstone, shale, coal
			Morrissey Formation 15-40 m	fine to medium sandstone with conglomeratic beds in the upper part, and rare mudstone, siltstone and coal
			Fernie Formation 175-400m	dark shales, sandstone, siltstone, limestone, basal coquina and phosphate pebble conglomerate
unconformity				
Triassic	Spray River Group	Whitehorse Formation 0-6 m	sandy dolomite and limestone, calcareous and dolomitic sandstone and siltstone, and solution breccia	
		Sulphur Mountain Formation 0-157 m	dark shale and siltstone, calcareous and dolomitic siltstone, dolomite and sandstone	
unconformity				

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Part B: Devonian to Permian

unconformity						
Permian	Rocky Mountain Supergroup	Isabel Group	Johnson Canyon Formation 0-30 m	phosphatic siltstones, chert, basal chert-phosphate conglomerate		
unconformity						
Pennsylvanian	Spray Lakes Group 60-425m		Kananaskis Formation 0-30m	silty and sandy dolomite, siltstones and chert breccia		
			Misty Formation 75-200 m	sandstone with minor amounts of siltstone and dolomite		
unconformity						
Mississippian	Rundle Group		Todhunter Mbr	brightly coloured siltstone, dolomite and calc. sandstone		
			Etherington Formation 70-170m	dolomite, crinoidal and oolitic limestones, green and maroon shale, anhydrite, sandstone, and siltstone		
		Mount Head Formation 200-680 m	Opal Mbr 200-240 m	Camarvon Mbr 23-90 m	micritic and skeletal limestone with lesser amounts of calcareous shale	
				Marston Mbr 18-68 m	silty dolomite and anhydrite, lesser amounts of limestone and shale	
			Loomis Mbr 30 -100 m	oolitic, crinoidal, and micritic limestone, and fine to medium crystalline dolomite		
			Salter Mbr 29-67 m	silty and sandy dolomite, anhydrite with crinoidal grainstone and packstone increasing to west		
			Bart Mbr 11-39 m	oolitic, micritic and crinoidal limestone		
			Wileman Mbr 8-25m	silty dolomite and anhydrite		
			Livingstone Formation 200-400 m	fine to coarse crinoidal grainstones and packstones, and fine crystalline dolomite.		
			Banff Formation 250-365 m	dark cherty limestones and shales		
			Exshaw Formation 2-10 m	black organic shale, siltstone, chert		
		Upper Devonian		Palliser Formation 175-220 m	limestone, dolomite and anhydrite (solution breccia in outcrop)	
			Sassenach Fm 170 m	Alexo Formation 5-30 m		sandstone, siltstone, sandy and silty carbonate
				silty carbonate and anhydrite (solution breccia in outcrop)		
Fairholme Group	Mount Hawk Fm (basinal) 0-150 m		Arcs Mbr 0-45 m	light grey coarse dolomite		
			Grotto Mbr 0-60	dark grey dolomite		
	Perdrix Formation		"Ireton"	"Ireton" 0-3m	arg. carbonate	
			Peechee Mbr 0-200 m	Leduc Formation 200 m	light grey coarse dolomite, dolomite and anhydrite	
	Hollebeke Formation 120-240 m		Borsato Formation 15-60 m	Cooking Lake Formation 50-60 m	dark calc. shale and shaly limestone	
			Beaverhill Lake Group 100 m		dark crystalline dolomite, limestone, anhydrite	
Middle Devonian	Yahatinda Formation 0-30 m		limestone, dolomite, and anhydrite (solution breccia in outcrop)			
unconformity						

Table 1: Table of Formations in the Flathead Area

Part C: Precambrian to Cambrian

unconformity					
Middle Cambrian	Windsor Mountain Formation 0-70 m		dolomite-mottled limestone and dolomite; calcareous silty dolomite at base		
	Elko Formation 150-160 m		dolomite, dolomite-mottled limestone at base		
	Gordon Shale 45-90 m		greyish green shale, with sandstone and limestone		
	Flathead Sandstone 2-45 m		quartz sandstone		
unconformity					
Precambrian	Purocell Supergroup	Roosville Formation 0-1300 m		green and grey, argillite, dolomitic argillite, siltstone, and sandstone, and dolomite	
		Phillips Formation 120-200 m		red quartz sandstone, siltstone and argillite	
		Gateway Formation 375-715 m	upper member	argillite, dolomitic sandstone and dolomite	
			lower member	red to grey and green siltstone and argillite	
		Sheppard Formation 50-275 m		dolomite, yellow, grey, and red sandstone and siltstone, light green dolomitic sandstone and argillite, locally with chloritized andesite in the lower part	
		Purocell Lava 0-150 m		chloritized andesite	
		Siyeh Formation 350-800 m		argillaceous grey limestone and dolomite, grey, green, and black argillite, dolomitic sandstone	
		Grinnell Formation 100-230m		red argillite and siltstone and white to grey sandstone	
		Apeekunny Formation 230-500 m		green, grey and minor red argillite, siltstone, and green quartzitic sandstone	
		Aldridge Formation up to 4200m	Altyn Formation 145-375m		sandy dolomite, dolomitic sandstone, dolomite, dolomitic argillite and argillite
			Waterton Formation 250m		varicoloured to grey limestone and dolomite, thin argillite
			Tombstone Mountain Formation 175m		thin to thick bedded quartzite, siltstone and argillite, rusty weathering in part; intruded by abundant diorite sills (Moyie intrusions)
			Haig Brook Formation 145m		dark grey argillaceous and silty limestone and dolomite, and silty calcareous argillite
			Unit 1 107m		resistant light coloured to banded dolomite, limestone and minor argillite
			Unit 2 314m		dark calcareous and dolomitic argillite and black argillite
		Unit 3 219m		grey argillaceous dolomite and black argillite	
Unit 4 170m		grey, green, red and white fine dolomite and limestone			
		dark argillaceous limestone			

N.B. The data on this table are derived from the references listed in the text.