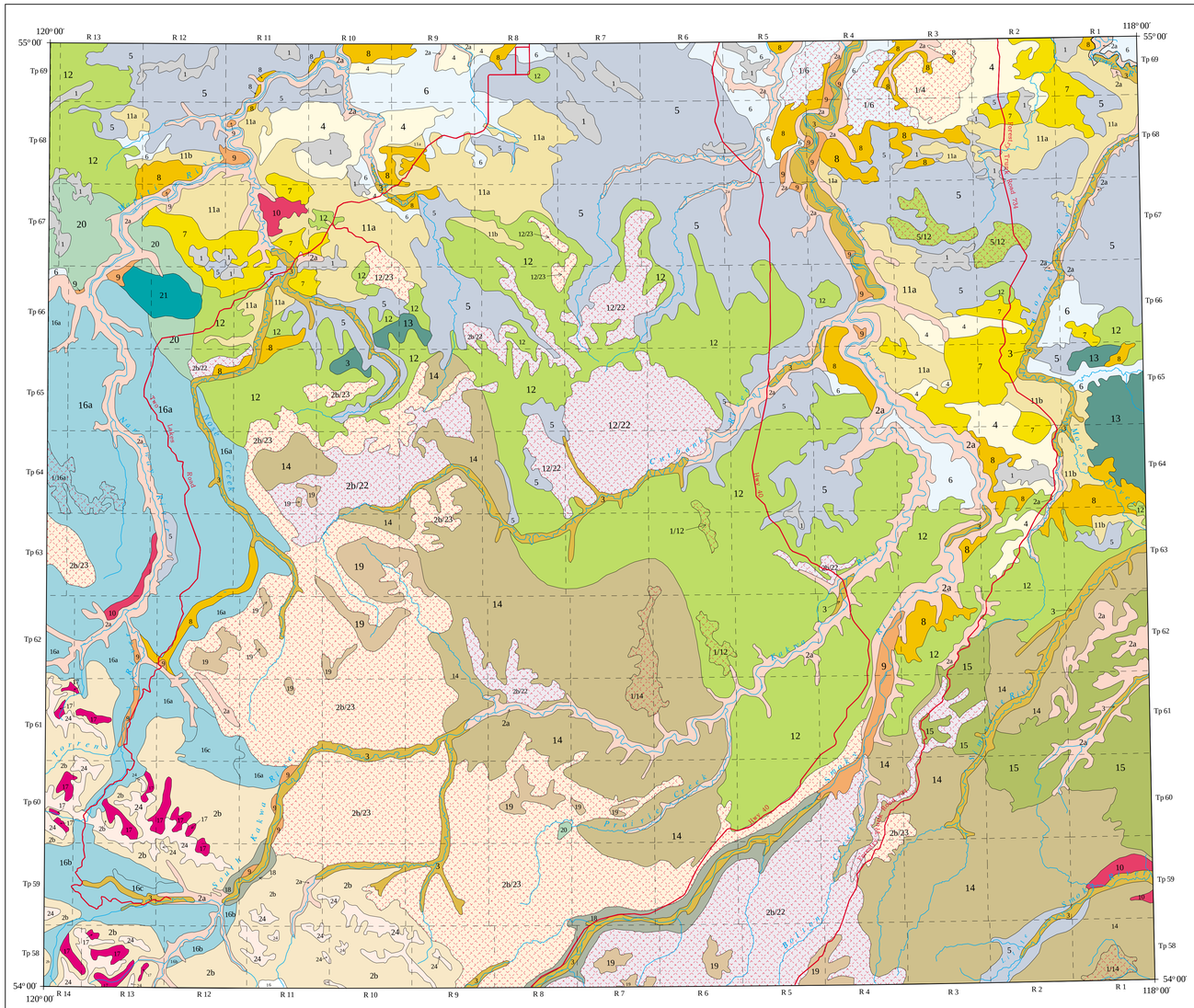


RECENT

- 1 Organic Deposits
- 2a Colluvial Deposits (mixed glacial and bedrock material)
- 2b Colluvial Deposits (soil creep)
- 3 Fluvial Deposits
- 4 Aeolian Deposits

PLEISTOCENE

Glaciolacustrine

- 5 Silt and Clay
- 6 Silt, Minor Sand
- 7 Sand

Glaciofluvial

- 8 Sand
- 9 Gravel
- 10 Ice-contact sediment
- 11 Undifferentiated Glaciofluvial and Aeolian Deposits

Moraine Continental

- 12 Ground Moraine
- 13 Hummocky Moraine
- 14 Ground Moraine (locally derived)
- 15 Ground Moraine (overlying Tertiary gravel)

Cordilleran

- 16 Ground Moraine
- 17 Cirque Valley Glacier Moraine
- 18 Lateral Moraine
- 19 Moraine-Colluvium Undifferentiated

Mixed Continental-Cordilleran Moraine

- 20 Ground Moraine
- 21 Hummocky Moraine

BEDROCK

- 22 Shale, Siltstone, Coal
- 23 Sandstone
- 24 Conglomerate, Sandstone

2b/23 Thin unit known to overlie another unit: e.g. soil creep/bedrock sandstone

Major Highway

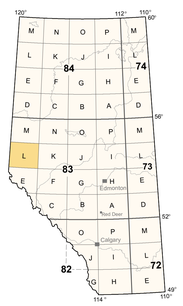
Source of Geological Information

Surficial Geology of Wapiti Map Area (preliminary unpublished), Alberta Geological Survey, L. Bayrock, 1972.

Soil Survey and Interpretations of the Wapiti Map Area, Alberta, Bulletin 39, Alberta Research Council, A.G. Twardy and I.G.W. Corns, 1980.

Surficial Geology of Wapiti Map Area, OFR 1983-23 (blue line), Alberta Research Council, L. D. Andriashek, 1983.

Unit Symbol	Unit Name	Description	General Morphology and Relief	General Thickness	Comments
	RECENT				
1	Organic Deposits	Bog, fen: peats developed from sedges and mosses; wet, poorly drained; minor silty-clay and marl sediment	Occupies depressions; concave topography; undulating morphology	< = 1.5m	
2a	Colluvial Deposits	Rough, broken land; stream and gully valleys; mixed glacial and bedrock material, slope stability variable	Veneer on low to high relief slopes; small floodplains	Generally thin (< = 1m), but variable in slump areas	
2b		Soil creep; thin deposits derived from local bedrock; may resemble till in high plateaus and benchlands; very stony with sand loam to clay loam matrix	Occurs as stone stripes, circles, boulderfields at elevation > 1800m; otherwise found as a thin veneer mantling high relief hills and plateaus	Variable, generally < = 1m though may exceed 2m in solifluction lobes	Has till-like appearance in southwest part of map area
3	Fluvial Deposits	Clay, silt, sand, gravel found along drainage channels of major rivers and creeks; variable texture both vertically and horizontally, poorly sorted.	Level to undulating topography; terraces	Variable thickness; may exceed 2m	Gravel found along large mountain streams; and sand found along streams away from mountains
4	Aeolian Deposits	Fine-grained sand in sheet or dune form; derived from fluvioglacial and lacustroglacial deposits; stone free	Local relief up to 5m; rolling to hummocky topography; in form of U-shaped and longitudinal dunes	Thick in dunes (> = 5m) but thin between dunes	Found in extensive areas east of Smoky and Wapiti rivers in northern part of map area
	PLEISTOCENE				
	Glaciolacustrine				
5	Silt and Clay	Rhythmically bedded yellow-brown silt and dark grey-brown clay layers with occasional to common ice rafted stones	Broad, undulating topography; masks underlying morphology; may be found on terraces along rivers	Variable; <1m - 4m; typically about 3m	Found in northeastern part of map area. Stoniness due to ice rafting or turbidite flow
6	Silt, Minor Sand	Stratified silt; minor sand, clay; stone free. Surface may be poorly reworked by wind	Broad plains near meltwater channels; found as a undulating veneer	Variable; generally >1m	Found in plains especially where Pinto Creek empties into the Wapiti River
7	Sand	Fine to medium-grained sand deposited as inwash in proglacial lakes; odd quartzite pebbles; occasional beds of gravel, silt, clay	Found as deltaic plain landforms; undulating rolling topography	Generally thick (>2m)	Found in northern part of map sheet
	Glaciofluvial				
8	Sand	Outwash sand with minor gravel, silt, clay; odd pebble up to 2cm diameter	Associated with meltwater channels; level to rolling topography	1.5 - 6m thick	
9	Gravel	Outwash gravel, coarse, minor sand; found as terrace deposits of major rivers. In part valley train derived from valley glaciers	Undulating topography on terraces	Variable; 1 - >30m thick	Terrace gravel along Little Smoky River composed mainly of rounded quartzitic cobbles
10	Ice Contact	Poorly sorted sand and gravel found in kames and eskers	Ridged to rolling topography; variable; generally >2m, <10m		
11a	Undifferentiated Glaciofluvial and Aeolian Deposits	Stone free to slightly stony sand; may be glaciofluvial deposit modified by wind; overlies glaciolacustine deposits	Reflects underlying landform; occurs as a veneer	Generally <1m	Occurs in benchland plateaus and lower plains areas
11b		As above but overlies morainal deposits			
	Moraine Continental				
12	Ground Moraine	Clayey to sandy till, slightly to moderately stony, olive brown color; numerous erratics derived from the Canadian Shield. Found in plains and plateaus of northeast half of map sheet	Undulating to gently rolling topography	Generally thin (<1m) in uplands to thick in lowlands (>5m)	Most of stones are derived from the mountains - limestone, metaquartzite, orthoquartzite, sandstone
13	Hummocky Moraine	Clayey to sandy till, numerous erratics derived from the Canadian Shield	Moderate to high relief; hummocky topography formed in stagnant ice environment	Variable; generally thick (>10m)	As above
14	Ground Moraine (locally derived)	Yellow-brown till, friable to firm; moderately to exceedingly stony, pebbles mostly well rounded metaquartzites; minor Canadian Shield erratics; derived almost entirely from local bedrock material	Occurs mostly in high plateaus and benchlands; topography determined by underlying bedrock morphology; found as a veneer in most areas	Thin on uplands and steep slopes (<2m) Thick in deeper valleys	Found in central, south-central and southwestern parts of map area. May be very stony where unit overlies Tertiary gravel
15	Ground Moraine (overlying Tertiary gravel)	Till derived from Tertiary gravel; gravel has a high content of well rounded quartzites and sandstones; till typically very stony	Till found as a discontinuous veneer over gravel caps on tablelands and plateaus; topography undulating to gently rolling	Till generally thin to discontinuous Gravel thickness ranges from 1 to 10 m	Occurs in plateaus east of Simonette Tower in southeast part of map area. Shield erratics are very few to absent
	Cordilleran				
16a	Ground Moraine	Stony calcareous till, friable, dark, grey-brown color, loam matrix; contains rocks derived from the Rocky Mountains local bedrock; stagnant ice topography uncommon	Along foothills unit forms grooves, flutes and drumlin fields; found on high relief rolling bedrock	Variable: 0 - 5m; generally <2m	Occurs in northwestern and westcentral parts of map area
16b		Coarse textured, friable yellow-brown to dark brown till; exceedingly stony; pebbles are well rounded quartzites and angular sandstones; unit contains abundant colluviated till and fan material	Occurs as a veneer of flutes, grooves, lateral and end moraines on steeply sloping ridges with high relief	Variable to discontinuous; generally <2m thick	Found in Rocky Mountain Foothills in southwestern part of map area
16c		Stony till with a silty-clay matrix; derived from massive, dense, glacially reworked shales, variable stone suite derived from mountains	Morainal veneer on a moderately rolling topography		Found in Rocky Mountain Foothills
17	Cirque Valley Glacier Moraine	Very stony till, almost gravel like composition, composed of local bedrock		Variable thickness	
18	Lateral Moraine	Dissected lateral moraine of large valley glaciers; till and glaciofluvial deposits in form of poorly defined benches; very stony and calcareous; may be capped by outwash gravel in places	Terrace bench along Smoky River	Variable; generally >2m	
19	Moraine-Colluvium Undifferentiated	Weathered till, carbonates leached to 2.5m; very stony, resembles colluviated bedrock material in places	A veneer on level, elevated benches and plateaus	Generally thin (<5m)	Found in southwest part of map area. Interpreted by L. Bayrock to be outside of Wisconsin glaciated area
	Mixed Continental-Cordilleran Moraine				
20	Ground Moraine	Till containing erratics from both the Canadian Shield and from the Rocky Mountains; stony to very stony; deposited by ice coalesced from the two source areas	Level to undulating topography	Generally thin	Found in northwest corner of the map area
21	Hummocky Moraine	Same unit as above, except till deposited from stagnant ice	Hummocky topography	Generally thick	Found in northwest corner of the map area
	TERTIARY-CRETACEOUS-MESOZOIC				
22	Shale, Siltstone, Coal	Outcrops found in south-central and central parts of map area; commonly mantled by colluvium	Undulating to moderately rolling upland plateaus	Weathered to a depth of 0.5 - 2m	Commonly stratified; shale may resemble lacustrine deposits; weathered shale prone to slumping
23	Sandstone	Paskapoo Sandstone found in the upland plateaus; Blackstone, Cardium, Wapiabi, Brazeau sandstones in the foothills. Commonly mantled by colluvium	Steeply sloping scarps and ridges; moderate to high relief	Weathered to a depth of 0.5 - 2m	
24	Conglomerate, Sandstone	Located in the Rocky Mountain Foothills in the southwest corner of the map area; all exposuers of bare rock with less than 0.1m of mineral or organic cover	Strongly rolling to very hilly	Weathered to a depth of < 0.1m	Occurs at tops of glacially abraded mountains, mountain slopes, canyons



Surficial Geology of Wapiti Area, NTS 83L

Scale 1:250,000

5 0 5 10 15 20 Kilometres

5 0 5 10 15 Miles

UTM Zone 11 NAD 27

Map 239

L. D. Andriashek

Digital version of Open File Report 1983-23
Compiled from Bayrock, 1972, and Twardy, 1980;

Figure 2.1 of Earth Sciences Report 2000-12

Digital Geology Compilation
D.K. Chao

Information Sales Office
Alberta Energy and Utilities Board
Alberta Geological Survey
4th Floor, Twin Atria Building
4999 - 98 Avenue
Edmonton, Alberta, Canada
T6B 2X3

Telephone (780) 422-3767
Facsimile (780) 422-1918

Web Sites:
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