

Appendix E.

Representative Pedon Descriptions for the Soils of the GLEES Wyoming Soil Survey Area: East Glacier Lake, West Glacier Lake, and Lost Lake Watersheds

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A soil survey was conducted of the East Glacier, West Glacier and Lost Lake watersheds in July-September 1986. Procedures appropriate for an Order 3 soil survey were followed. Fifteen locations were surveyed and a total of 166 samples were analyzed. The 15 series are listed below, along with the soil classification and number of samples analyzed.

Series	Classification	# of Samples Sites
WYGL001	Loamy-skeletal, mixed Typic Cryoboralf	7
WYGL002	Loamy-skeletal, mixed Typic Cryoboralf	9
WYGL003	Loamy-skeletal, mixed Dystric Cryochrept	4
WYGL004	Loamy-skeletal, mixed Typic Cryorthent	4
WYGL005	Loamy-skeletal, mixed Typic Cryoboralf	7
WYGL006	Loamy-skeletal, mixed Dystric Cryochrept	7
WYGL007	Loamy-skeletal, mixed Dystric Cryochrept	7
WYGL008	Loamy-skeletal, mixed Typic Cryorthent	4
WYGL009	Loamy-skeletal, mixed Typic Cryumbrept	4
WYGL010	Loamy-skeletal, mixed Typic Cryumbrept	5
WYGL011	Loamy-skeletal, mixed Humic Cryaquepts	4
WYGL012	Fine-loamy, Dystric Cryochrept	6
WYGL014	Coarse-loamy, mixed Dystric Cryochrept	3
WYGL015	Loamy-skeletal, mixed Dystric Cryochrept	6
WYGL016	Loamy-skeletal, mixed Typic Cryoboralf	7

For each series, representative descriptions of various horizons are provided in this Appendix. Identification of color (e.g., yellowish-brown, with the notation 10YR 5/4) is based on standard Munsell color notation. Soil descriptions were prepared by R.W.E. Hopper, P.M. Walthall, R. Aguilar, R. Knox, and E. Roswall of the Agronomy Department at Colorado State University.

SERIES: WYGL001

SOIL SURVEY # S86-56-001-001

LOCATION: Lat. 41° 22' 30" Long. 106° 15' 26"

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryoboralf

PHYSIOGRAPHY: Moraine in glaciated uplands

GEOMORPHIC POSITION: on middle third of component; backslope sideslope

SLOPE: 12% plane, west facing

ELEVATION: 3286 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None Observed

PERMEABILITY: Moderately rapid

DRAINAGE: Well drained

STONINESS: CLASS 2

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 11 to 61 cm

RUNOFF: Very rapid

PARENT MATERIAL: glacial till from mixed-igneous & metamorphic material

DIAGNOSTIC HORIZONS: 3 to 0 cm Ochric; 0 to 11 cm Ochric; 0 to 11 cm Albic; 11 to 31 cm Argillic

DESCRIBED BY: Hopper, Walthall, Aguilar
DATE: 07/86

NOTES: pit is located on the southeast side of West Glacier Lake on the west flank of the rock-cored moraine separating West and East Glacier Lakes; spruce-fir forest vegetation. Descriptions are listed by soil horizons.

Oi. 3-2 cm; black (10YR 2/1) fibric material consisting of undecomposed and partially decomposed forest litter; very dark grayish-brown (10YR 3/2) dry; loose, nonsticky, nonplastic; common very fine, fine and medium roots throughout; abrupt smooth boundary. (Sampled with Oa in sample no. WYGL0011.)

Oa. 2-0 cm; black (10YR 2/1) sapric material consisting of well-decomposed forest litter; very dark grayish-brown (10YR 3/2) dry; moderate medium subangular blocky structure parting to moderate fine subangular blocky and fine granular; soft, very friable, nonsticky, nonplastic; many very fine and fine roots and common medium roots throughout; abrupt smooth boundary. (Sample no. WYGL0011.)

E. O-3 cm; yellowish-brown (10YR 5/4) loam; very pale brown (10YR 7/3) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, very friable, nonsticky, nonplastic; many very fine and fine roots and common medium roots throughout; clear smooth boundary. (Sample no. WYGL0012.)

2EB. 3-11 cm; yellowish-brown (10YR 5/4) very gravelly loam; very pale brown (10YR 7/3) dry; moderate fine platy structure parting to moderate fine and very fine granular; soft, very friable, nonsticky, nonplastic; many very fine and fine roots and common medium roots throughout; few discontinuous faint yellowish-brown (10YR 5/4) clay films on vertical and horizontal faces of peds and yellowish-brown (10YR 5/4) clay films on rock fragments; 50% pebbles; quartzite rock fragments with soft weathered masses of mafic intrusive rock; clear wavy boundary. (Sample no. WYGL0013.)

2Bt. 11-31 cm; brown to dark brown (7.5YR 4/4) extremely gravelly silty clay loam; light brown (7.5YR 6/4) dry; moderate fine subangular blocky structure parting to moderate very fine subangular blocky; soft, friable, slightly sticky, plastic; many very fine and fine roots throughout; common discontinuous distinct brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal faces of peds and brown to dark brown (7.5YR 4/4) clay films on rock fragments; 70% pebbles; gradual wavy boundary. (Sample no. WYGL0014.)

2BC1. 31-66 cm; yellowish-brown (10YR 5/4) and brown to dark brown (7.5YR 4/4) very cobbly sandy loam; yellow (10YR 7/6) dry; approximately 10% of the horizon consists of lenses and unconsolidated masses of strong brown (7.5YR 5/6) very cobbly sandy clay loam; moderate medium subangular blocky structure parting to moderate fine subangular blocky; soft, friable, nonsticky, nonplastic; many very fine and fine roots throughout; common discontinuous distinct yellowish-brown (10YR 5/4) clay films on vertical and horizontal faces of peds and yellowish-brown (10YR 5/4) clay films on rock fragments; 35% cobbles; 20% pebbles; dominantly quartzite rock fragments; gradual wavy boundary. (Sample no. WYGL0015.)

2BC2. 66-100 cm; yellowish-brown (10YR 5/6) and strong brown (7.5YR 5/6) very cobbly sandy loam; yellow (10YR 8/6) and strong brown (7.5YR 5/6) dry; weak medium subangular blocky structure parting to weak very fine subangular blocky; soft, very friable, nonsticky, nonplastic; common very fine roots throughout; common discontinuous faint clay bridging between sand grains; common discontinuous distinct yellowish-brown (10YR 5/6) clay films on rock fragments; loose clean quartz coarse sand throughout horizon; 35% cobbles; 20% pebbles; dominantly quartzite rock fragments. (Sample no. WYGL0016.)

SERIES: WYGL002

SOIL SURVEY # S86-56-001-002

LOCATION: LAT. 41° 22' 35" Long. 106° 15' 10"

Base Map Location (Appendix F): X = 16.6, Y = 9.3.

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryoboralf

PHYSIOGRAPHY: Hillside in glaciated uplands

GEOMORPHIC POSITION: on upper third of component; backslope

SLOPE: 20% convex, southwest facing

ELEVATION: 3298 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Moderately rapid

DRAINAGE: Well drained

STONINESS: CLASS 4

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 16 to 47 cm

RUNOFF: Very rapid

PARENT MATERIAL: glacial till from dominantly quartzite material

DIAGNOSTIC HORIZONS: 3 to 0 cm Ochric; 0 to 16 cm Ochric; 0 to 25 cm Albic; 16 to 47 cm Argillic

DESCRIBED BY: Hopper, Aguilar SAMPLE DATE: 07/86

NOTES: pit is located on backslope of ridge to the east of East Glacier Lake; spruce-fir krummholz vegetation.

Oi. 3-2 cm; very dark gray (10YR 3/1) fibric material consisting of undecomposed and partially decomposed forest litter; dark grayish-brown (10YR 4/2) dry; loose, nonsticky, nonplastic; abrupt smooth boundary. (Sampled with Oa in sample no. WYGL0021.)

Oa. 2-0 cm; very dark gray (10YR 3/1) sapric material consisting of well-decomposed forest litter; dark grayish-brown (10YR 4/2) dry; moderate medium subangular blocky structure; soft, very friable, nonsticky; many very fine and fine roots and common medium roots throughout; abrupt smooth boundary. (Sample no. WYGL0021.)

E. 0-8 cm; brown (7.5YR 5/4) gravelly coarse sandy loam; light gray (10YR 7/2) dry; weak fine subangular blocky structure; soft, very friable, nonsticky, nonplastic; many very fine and fine roots and common medium roots throughout; many very fine tubular pores; 20% pebbles; dominantly quartzite rock fragments; abrupt wavy boundary. (Sample no. WYGL0022.)

EB. 8–16 cm; light brown (7.5YR 6/4) gravelly coarse sandy loam; very pale brown (10YR 7/3) dry; weak medium subangular blocky structure parting to weak fine and weak very fine subangular blocky; soft, friable, nonsticky, nonplastic; many very fine and fine roots and few medium roots throughout; many very fine tubular pores; common discontinuous prominent light gray (10YR 7/2) skeletons (sand or silt) on vertical and horizontal faces of peds; very few patchy distinct light brown (7.5YR 6/4) clay films on vertical and horizontal faces of peds; 20% pebbles; dominantly quartzite rock fragments; clear wavy boundary. (Sample no. WYGL0023.)

BEt. 16–25 cm; light yellowish-brown (10YR 6/4) very gravelly sandy loam; very pale brown (10YR 7/4) dry; weak medium subangular blocky structure parting to weak fine and weak very fine subangular blocky; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots throughout and few medium roots throughout; many very fine tubular pores; common patchy prominent light gray (10YR 7/2) skeletons (sand or silt) on vertical and horizontal faces of peds; few patchy distinct light brown (7.5YR 6/4) clay films on vertical and horizontal faces of peds; 10% cobbles; 30% pebbles; dominantly quartzite rock fragments; abrupt wavy boundary. (Sample no. WYGL0024.)

Bt. 25–47 cm; brownish-yellow (10YR 6/6) and reddish-brown (5YR 4/4) very gravelly loam; light yellowish-brown (10YR 6/4) and reddish-yellow (7.5YR 6/6) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine subangular blocky; slightly hard, firm, nonsticky, nonplastic; many very fine and fine roots and few medium roots throughout; many very fine tubular pores; common discontinuous distinct brownish-yellow (10YR 6/6) clay films on vertical and horizontal faces of peds; 10% cobbles; 30% pebbles; dominantly quartzite rock fragments; clear wavy boundary. (Sample no. WYGL0025.)

BC1. 47–61 cm; yellowish-brown (10YR 5/6) and reddish-brown (5YR 4/4) very gravelly loam; very pale brown (10YR 7/4) and reddish-yellow (7.5YR 6/6) dry; weak medium subangular blocky structure parting to weak fine and weak very fine subangular blocky; slightly hard, firm, nonsticky, nonplastic; many very fine and fine roots throughout; many very fine tubular pores; few patchy distinct yellowish-brown (10YR 5/6) clay films on vertical and horizontal faces of peds; 10% cobbles; 30% pebbles; dominantly quartzite rock fragments; clear wavy boundary. (Sample no. WYGL0026.)

BC2. 61–73 cm; yellowish-brown (10YR 5/6) and reddish-brown (5YR 4/4) very gravelly loam; very pale brown (10YR 8/4) and reddish-yellow (7.5YR 6/6) dry; weak medium subangular blocky structure parting to weak fine and weak very fine subangular blocky; slightly hard, firm, nonsticky, nonplastic; many very fine and fine roots throughout; many very fine tubular pores; very few patchy distinct yellowish-brown (10YR 5/6) clay

films on vertical and horizontal faces of peds; 10% cobbles; 30% pebbles; dominantly quartzite rock fragments; abrupt irregular boundary. (Sample no. WYGL0027.)

BC3. 73–101 cm; brownish-yellow (10YR 6/6) and strong brown (7.5YR 5/6) very cobbly loam; very pale brown (10YR 8/4) and reddish-yellow (7.5YR 6/6) dry; weak medium subangular blocky structure parting to weak very fine subangular blocky; slightly hard, friable, nonsticky, nonplastic; few very fine and fine roots throughout; common very fine interstitial and tubular pores; 30% cobbles; 20% pebbles; dominantly quartzite rock fragments; abrupt irregular boundary. (Sample no. WYGL0028.)

SERIES: WYGL003

SOIL SURVEY # S86–56–001–003

LOCATION: Lat. 41° 22' 36" Long. 106° 15' 7"

Base Map Location (Appendix F): X = 18.1, Y = 11.4.

CLASSIFICATION: Loamy-skeletal, mixed Dystric Cryochrept

PHYSIOGRAPHY: Upland slope in glaciated uplands

GEOMORPHIC POSITION: on middle third of component; shoulder of headslope

SLOPE: 10% convex, west facing

ELEVATION: 3304 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH:

PERMEABILITY: Moderately rapid

DRAINAGE: Well drained

STONINESS: CLASS 4

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 25 to 59 cm

RUNOFF: Rapid

PARENT MATERIAL: residuum from quartzite material over solid rock from quartzite material (see notes)

DIAGNOSTIC HORIZONS: 0 to 12 cm Ochric 12 to 30 cm Cambic

DESCRIBED BY: Hopper, Aguilar SAMPLE DATE: 07/86

NOTES: pedon on alpine ridge east of East Glacier Lake; it is believed that the parent material for this soil is a combination of residuum and nivation debris with slight eolian influence.

A. 0–2 cm; very dark grayish-brown (10YR 3/2) extremely gravelly sandy loam; yellowish-brown (10YR 5/4) dry; weak medium subangular blocky structure parting to moderate very fine subangular blocky; soft, friable, nonsticky, nonplastic; many very fine and fine

roots throughout; 10% stones; 15% cobbles; 40% pebbles; abrupt smooth boundary. (Sample no. WYGL0031.)

2Bw. 2–30 cm; brown to dark brown (7.5YR 4/4) extremely gravelly coarse sandy loam; reddish-yellow (7.5YR 6/6) dry; weak medium subangular blocky structure parting to weak very fine granular; loose, very friable, slightly sticky, nonplastic; common very fine roots throughout; 5% stones; 20% cobbles; 60% pebbles; clear wavy boundary. (Sample no. WYGL0032.)

2BC. 30–47 cm; yellowish-brown (10YR 5/6) extremely stony fine sandy loam; very pale brown (10YR 7/4) dry; weak medium subangular blocky structure parting to weak very fine granular; soft, friable, slightly sticky, slightly plastic; common very fine roots throughout; 60% stones; 25% pebbles; clear irregular boundary. (Sample no. WYGL0033.)

3C. 47–59 cm; yellow (10YR 7/6) extremely stony fine sandy loam; very pale brown (10YR 8/4) dry; weak medium subangular blocky structure parting to weak very fine granular; soft, friable, slightly sticky, slightly plastic; few very fine roots throughout; 60% stones; 25% pebbles; abrupt irregular boundary. (Sample no. WYGL0034; Sample taken from interstices of the highly fractured quartzite bedrock).

R. 59 cm; slightly weathered to unweathered quartzite bedrock.

SERIES: WYGL004

SOIL SURVEY # S86–56–001–004

LOCATION: Lat. 41° 22' 46" Long. 106° 15' 17"

Base Map Location (Appendix F): X = 17.2, Y = 10.9.

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryorthent

PHYSIOGRAPHY: Upland slope in glaciated uplands

GEOMORPHIC POSITION: on upper third of component; shoulder of headslope

SLOPE: 10% convex, south facing

ELEVATION: 3383 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Rapid

DRAINAGE: Well drained

STONINESS: CLASS 4

EROSION OR DEPOSITION: Moderate

FAMILY CONTROL SECTION: 25 to 100 cm

RUNOFF: Very rapid

PARENT MATERIAL: local colluvium from quartzite material

DIAGNOSTIC HORIZONS: 1 to 0 cm Ochric 0 to 3 cm Ochric

DESCRIBED BY: Hopper, Aguilar SAMPLE DATE: 07/86

NOTE: pit is located on the shoulder of the alpine ridge north of East Glacier Lake.

Oi. 1–0 cm; very dark gray (10YR 3/1) fibric material consisting of undecomposed and partially decomposed herbaceous litter; dark grayish-brown (10YR 4/2) dry; loose, nonsticky, nonplastic; many very fine and fine roots throughout; abrupt broken boundary. (This horizon not sampled because of its thin and discontinuous nature.)

A. 0–3 cm; very dark grayish-brown (10YR 3/2) extremely gravelly loam; dark yellowish-brown (10YR 4/4) dry; weak medium subangular blocky structure parting to weak very fine granular; soft, friable, slightly sticky, plastic; many very fine and fine roots throughout; 10% cobbles; 60% pebbles; abrupt smooth boundary. (Sample no. WYGL0041.)

CA. 3–24 cm; dark yellowish-brown (10YR 3/4) extremely gravelly loam; light yellowish-brown (10YR 6/4) dry; weak medium subangular blocky structure parting to weak fine and weak very fine subangular blocky; soft, friable, slightly sticky, plastic; many very fine and fine roots throughout; few, patchy, faint, dark yellowish-brown (10YR 3/4) pressure faces on vertical and horizontal faces of peds; 5% stones; 50% cobbles; 30% gravel; clear irregular boundary. (Sample no. WYGL0042.)

Cl. 24–46 cm; dark yellowish-brown (10YR 4/4) extremely stony coarse sandy loam; light yellowish-brown (10YR 6/4) dry; weak fine and weak very fine granular; soft, friable, nonsticky, plastic; common very fine roots throughout; 70% stones; 10% cobbles; 5% pebbles; clear irregular boundary. (sample no. WYGL0043.)

C2. 46–64 cm; dark yellowish-brown (10YR 4/4) extremely stony coarse sandy loam; light yellowish-brown (10YR 6/4) dry; weak fine and weak very fine granular; soft, very friable, slightly sticky, slightly plastic; few very fine roots throughout; 70% stones; 10% cobbles; 5% pebbles; abrupt irregular boundary. (Sample no. WYGL0044.)
R. 64 cm; Slightly weathered and unweathered quartzite bedrock.

SERIES: WYGL005

SOIL SURVEY # S86–56–001–005

LOCATION: Lat. 41° 22' 39" Long. 106° 15' 8"

Base Map Location (Appendix F): X = 17.8, Y = 12.6.

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryoboralf

PHYSIOGRAPHY: Hillside or mountain side in glaciated uplands

GEOMORPHIC POSITION: on middle third of component; backslope of headslope

MICRORELIEF:

SLOPE: 25% convex, west facing

ELEVATION: 3300 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Moderately rapid

DRAINAGE: Well drained

STONINESS: CLASS 2

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 17 to 67 cm

RUNOFF: Rapid

PARENT MATERIAL: glacial till from quartzite material

DIAGNOSTIC HORIZONS: 4 to 0 cm Ochric; 0 to 9 cm Ochric; 0 to 17 cm Albic; 17 to 67 cm Argillic

DESCRIBED BY: Hopper, Knox **SAMPLE DATE:** 07/86

NOTE: pit is located at midbackslope of ridge east of East Glacier Lake; spruce-fir forested vegetation.

Oi. 4–3 cm; very dark gray (10YR 3/1) fibric material consisting of undecomposed and partially decomposed forest litter; very dark grayish-brown (10YR 3/2) dry; loose, nonsticky, nonplastic; 5% quartzite cobbles; abrupt smooth boundary. (Sampled with Oa in sample no. WYGL0051.)

Oa. 3–0 cm; very dark gray (10YR 3/1) sapric material consisting of well-decomposed forest litter; very dark grayish-brown (10YR 3/2) dry; moderate medium subangular blocky structure; soft, very friable, nonsticky, nonplastic; many very fine and fine roots and common medium roots throughout; 5% cobbles; dominantly quartzite rock fragments; abrupt smooth boundary. (sample no. WYGL0051.)

E. O–9 cm; dark grayish-brown (10YR 4/2) gravelly loam; pale brown (10YR 6/3) dry; moderate medium subangular blocky structure parting to moderate fine granular; soft, friable, slightly sticky, plastic; many very fine and fine roots and few to common medium and coarse roots throughout; many very fine tubular pores; 5% cobbles; 15% pebbles; dominantly quartzite rock fragments; abrupt smooth boundary. (Sample no. WYGL0052.)

BE. 9–17 cm; yellowish-red (5YR 5/6) and pink (7.5YR 7/4) gravelly sandy loam; very pale brown (10YR 7/3) dry; moderate medium granular structure parting to

moderate fine and moderate very fine granular; soft, friable, sticky, plastic; many very fine and fine roots and common medium roots throughout; many very fine tubular pores; 5% cobbles; 15% pebbles; predominantly quartzite rock fragments; clear wavy boundary. (Sample no. WYGL0053.)

Bt. 17–43 cm; yellowish-red (5YR 5/6) very gravelly loam; pink (7.5YR 8/4) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine subangular blocky; soft, friable, sticky, plastic; many very fine and fine roots and few medium roots throughout; common very fine tubular pores; 10% cobbles; 30% pebbles; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0054.)

BC1. 43–64 cm; brown (7.5YR 5/4) very cobbly loam; pink (7.5YR 7/4) dry; weak very fine subangular blocky structure; soft, friable, sticky, plastic; common very fine and fine roots throughout and common very fine roots matted around stones; few very fine tubular pores; 35% cobbles; 20% pebbles; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; abrupt wavy boundary. (Sample no. WYGL0055.)

BC2. 64–105 cm; brown (7.5YR 5/4) extremely gravelly loam; pink (7.5YR 7/4) dry; weak fine subangular blocky structure parting to weak very fine subangular blocky; soft, friable, slightly sticky, plastic; few very fine tubular pores; 55% pebbles; 15% cobbles; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; abrupt wavy boundary. (Sample no. WYGL0056.)

SERIES: WYGL006

SOIL SURVEY # S86–56–001–006

LOCATION: Lat. 41° 22' 50" Long. 106° 15' 3"

Base Map Location (Appendix F): X = 14.8, Y = 15.2.

CLASSIFICATION: Loamy-skeletal, mixed Dystric Cryochrept

PHYSIOGRAPHY: Mountain side in glaciated uplands

GEOMORPHIC POSITION: on lower third of component; backslope of headslope

SLOPE: 35% convex, south facing

ELEVATION: 3350 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Rapid

DRAINAGE: Well drained

STONINESS: CLASS 4

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 25 to 100 cm

RUNOFF: Rapid

PARENT MATERIAL: local colluvium from quartzite material

DIAGNOSTIC HORIZONS: 0 to 13 cm Ochric 13 to 23 cm Cambic

DESCRIBED BY: Hopper, Knox SAMPLE DATE: 07/86

NOTES: pit is located northeast of East Glacier Lake, north of WYGL005 past meadow on rock outcrop.

A. 0–5 cm; very dark grayish-brown (10YR 3/2) extremely gravelly silt loam; dark grayish-brown (10YR 4/2) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, plastic; many very fine and fine roots and common medium and coarse roots throughout; many very fine and fine roots matted around cobblestones and stones; common very fine tubular pores; 20% stones; 25% cobbles; 30% pebbles; abrupt smooth boundary. (Sample no. WYGL0061.)

E. 5–9 cm; brown to dark brown (10YR 4/3) extremely gravelly sandy loam; pale brown (10YR 6/3) dry; weak medium subangular blocky structure parting to moderate fine granular and moderate very fine granular; soft, very friable, slightly sticky, slightly plastic; many very fine and fine roots and common medium and coarse roots throughout; many very fine roots matted around cobblestones and stones; many very fine interstitial and tubular pores; 20% stones; 25% cobbles; 30% pebbles; abrupt smooth boundary. (Sample no. WYGL0062.)

BE. 9–13 cm; brown to dark brown (10YR 4/3) extremely gravelly sandy loam; pale brown (10YR 6/3) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots and common medium and coarse roots throughout; many very fine and fine roots matted around cobblestones and stones; many very fine interstitial and tubular pores; 20% stones; 25% cobbles; 30% pebbles; clear wavy boundary. (Sample no. WYGL0063.)

Bw. 13–23 cm; brown to dark brown (7.5YR 4/2) extremely gravelly loam; light yellowish brown (10YR 6/4) dry; moderate medium subangular blocky structure parting to moderate fine platy parting to moderate very fine granular; soft, friable, sticky, plastic; many very fine and fine roots and few medium roots throughout; many very fine and fine roots matted around cobblestones and stones; many very fine tubular pores; 20% stones; 25% cobbles; 30% pebbles; clear wavy boundary. (Sample no. WYGL0064.)

BC. 23–41 cm; light yellowish-brown (10YR 6/4) extremely gravelly sandy loam; white (10YR 8/2) dry; weak medium subangular blocky structure parting to weak fine and weak very fine granular; soft, friable, slightly

sticky, slightly plastic; common very fine and fine roots throughout and matted around stones; common very fine tubular pores; 20% stones; 25% cobbles; 30% pebbles; clear irregular boundary. (Sample no. WYGL0065.)

Cl. 41–74 cm; light yellowish-brown (10YR 6/4) extremely stony sandy loam; white (10YR 8/2) dry; single grain; soft, friable, slightly sticky, slightly plastic; few very fine roots throughout and matted around stones; few very fine tubular pores; 75% stones; 10% pebbles; diffuse irregular boundary. (Sample no. WYGL0066.)

C2. 74–101 cm; light yellowish-brown (10YR 6/4) extremely stony sandy loam; white (10YR 8/2) dry; single grain; soft, friable, slightly sticky, slightly plastic; few very fine roots throughout; few very fine tubular pores; 75% stones; 10 pebbles. (Sample no. WYGL0067.)

SERIES: WYGL007

SOIL SURVEY # S86–56–001–007

LOCATION: Lat. 41° 22' 53" Long. 106° 15' 26"

Base Map Location (Appendix F): X = 12.6, Y = 13.8.

CLASSIFICATION: Loamy-skeletal, mixed Dystric Cryochrept

PHYSIOGRAPHY: Mountain side in glaciated uplands

GEOMORPHIC POSITION: on upper third of component; backslope of sideslope

SLOPE: 35% convex, south facing

ELEVATION: 3365 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Moderately rapid

DRAINAGE: Well drained

STONINESS: CLASS 2

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 25 to 100 cm

RUNOFF: Rapid

PARENT MATERIAL: local colluvium from quartzite material

DIAGNOSTIC HORIZONS: 6 to 0 cm Ochric; 0 to 26 cm Ochric; 0 to 10 cm Albic; 26 to 55 cm Cambic

DESCRIBED BY: Hopper, Knox SAMPLE DATE: 07/86

NOTES: pit is located in large island of vegetation directly north of East Glacier Lake on the backslope of the main ridge. Two vegetation types are associated with this area and soils were sampled in each: subalpine fir krummholz WYGL007 and open alpine, like WYGL008.

Oi. 6–4 cm; black (7.5YR 2/0) fibric material consisting of undecomposed and partially decomposed forest litter; very dark gray (10YR 3/1) dry; loose, nonsticky,

nonplastic; abrupt smooth boundary. (Sampled with Oa in sample no. WYGL0071.)

Oa. 4–0 cm; black (7.5YR 2/0) sapric material consisting of well-decomposed forest litter; very dark gray (10YR 3/1) dry; moderate medium subangular blocky structure; soft, very friable, nonsticky, nonplastic; many very fine and fine roots throughout; abrupt smooth boundary. (Sample no. WYGL0071.)

E. O–10 cm; brown to dark brown (10YR 4/3) silt loam; light yellowish-brown (10YR 6/4) dry; moderate medium subangular blocky structure parting to moderate fine and very fine granular; soft, very friable, slightly sticky, slightly plastic; many very fine and fine roots throughout and matted around stones; many very fine tubular pores; 10% pebbles approximately 5% of the rock fragments are mafic intrusives; abrupt wavy boundary. (Sample no. WYGL0072.)

BE. 10–26 cm; brown to dark brown (7.5YR 4/2) silt loam; light yellowish-brown (10YR 6/4) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine and fine root and common medium and coarse roots throughout; many very fine tubular pores; 10% pebbles; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0073.)

Bw. 26–55 cm; brown to dark brown (7.5YR 4/4) very gravelly silt loam; light yellowish-brown (10YR 6/4) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots and common medium roots throughout; common very fine tubular pores; 10% stones; 25% pebbles; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0074.)

BC1. 55–85 cm; dark yellowish-brown (10YR 4/4) very gravelly fine sandy loam; light yellowish-brown (10YR 6/4) dry; moderate medium subangular blocky structure parting to moderate fine granular and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; common very fine and fine roots and few medium roots throughout; few very fine tubular pores; 5% stone; 5% cobbles; 30% pebbles; dominantly quartzite rock fragments; approximately 5% mafic intrusives; abrupt wavy boundary. (Sample no. WYGL0075.)

BC2. 85–106 cm; dark yellowish-brown (10YR 4/4) extremely stony sandy loam; light yellowish-brown (10YR 6/4) dry; weak medium subangular blocky structure parting to weak fine and weak very fine granular; soft, friable, slightly sticky, slightly plastic; few very fine and fine roots throughout; few very fine tubular pores; 40% stones; 20% cobbles; 20% pebbles; dominantly quartz-

ite rock fragments; about 5% of the rock fragments are mafic intrusives; abrupt irregular boundary. (Sample no. WYGL0076.)

R. 106 cm; Slightly weathered and unweathered quartzite bedrock.

SERIES: WYGL008

SOIL SURVEY # S86–56–001–008

LOCATION: Lat. 41° 22' 53" Long. 106° 15' 24"

Base Map Location (Appendix F): X = 12.7, Y = 13.9.

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryorthent

PHYSIOGRAPHY: Mountain side in glaciated uplands

GEOMORPHIC POSITION: on upper third of component; backslope of sideslope

SLOPE: 5% convex, south facing

ELEVATION: 3365 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Rapid

DRAINAGE: Well drained

STONINESS: CLASS 5

EROSION OR DEPOSITION: Moderate

FAMILY CONTROL SECTION: 25 to 100 cm

RUNOFF: Very rapid

PARENT MATERIAL: local colluvium from quartzite material

DESCRIBED BY: Hopper, Knox SAMPLE DATE: 07/86

NOTES: pit located in large island of vegetation directly north of East Glacier Lake. Two vegetation types in this area and soils associated with each type were sampled: subalpine fir krummholz (WYGL007) and open alpine, like (WYGL008). Digging curtailed by amount and size of rocks at 92 cm. However, based on field observations it is felt that this soil is greater than 100 cm deep.

A. 0–21 cm; brown to dark brown (7.5YR 4/2) extremely gravelly silt loam; brown (10YR 5/3) dry; weak medium subangular blocky structure parting to weak fine and weak very fine subangular blocky; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots and few medium roots throughout; many very fine roots matted around coarse pebbles, cobblestones and stones; common very fine tubular pores; 40% pebbles; 20% cobbles; 5% stones; clear wavy boundary. (Sample no. WYGL0081.)

AC. 21–51 cm; dark brown (10YR 3/3) extremely gravelly loam; brown (10YR 5/3) dry; weak medium subangular blocky structure parting to weak fine and weak very fine granular; soft, friable, slightly sticky,

plastic; many very fine and fine roots throughout and matted around stones; common very fine tubular pores; 40% pebbles; 20% cobbles; 5% stones; clear wavy boundary. (Sample no. WYGL0082.)

C1. 51–73 cm; brown to dark brown (10YR 4/3) extremely gravelly sandy loam; pale brown (10YR 6/3) dry; weak medium subangular blocky structure parting to weak fine and weak very fine granular; soft, friable, slightly sticky, slightly plastic; common very fine roots throughout and matted around stones; few very fine tubular pores; 40% pebbles; 20% cobbles; 5% stones; abrupt irregular boundary. (Sample no. WYGL0083.)

2C2. 73–92 cm; dark yellowish-brown (10YR 4/4) extremely stony coarse sandy loam; pale brown (10YR 6/3) dry; weak medium subangular blocky structure parting to weak fine and weak very fine granular; soft, friable, nonsticky, nonplastic; few very fine roots throughout and matted around stones; 65% stones; 20% pebbles. (Sample no. WYGL0084.)

SERIES: WYGL009

SOIL SURVEY # S86–56–001–009

LOCATION: Lat. 41° 22' 50" Long. 106° 15' 13"

Base Map Location (Appendix F): X = 15.2, Y = 13.2.

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryumbrept

PHYSIOGRAPHY: Mountain side in glaciated uplands

GEOMORPHIC POSITION: on middle third of component; backslope of sideslope

SLOPE: 12% plane, south facing

ELEVATION: 3325 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Moderately rapid

DRAINAGE: Well drained

STONINESS: CLASS 1

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 25 to 100 cm

RUNOFF: Moderate

PARENT MATERIAL: local colluvium and alluvium derived primarily from quartzite material

DIAGNOSTIC HORIZONS: 0 to 45 cm Umbric 8 to 45 cm Cambic

DESCRIBED BY: Hopper, Knox SAMPLE DATE: 07/86

NOTES: pit is located in a grass meadow at the base of a talus slope in the upper third of the backslope north of East Glacier Lake.

A. 0–8 cm; dark brown (7.5YR 3/2) silt loam; brown (10YR 5/3) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine subangular blocky; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots throughout; many very fine tubular pores; abrupt smooth boundary. (Sample no. WYGL0091.)

Bw. 8–45 cm; dark brown (10YR 3/3) silt loam; brown (10YR 5/3) dry; moderate coarse subangular blocky structure parting to moderate fine and moderate very fine platy; soft, friable, sticky, plastic; many very fine roots throughout; many very fine tubular pores; clear wavy boundary. (Sample no. WYGL0092.)

BC. 45–84 cm; brown to dark brown (10YR 4/3) and yellowish-brown (10YR 5/6) very stony loam; pale brown (10YR 6/3) and very pale brown (10YR 7/3) dry; lenses of yellowish-brown (10YR 5/6) coarse sandy loam and coarse loamy sand; moderate coarse subangular blocky structure parting to moderate fine and moderate very fine platy; soft, friable, sticky, plastic; few very fine roots throughout; common very fine tubular pores; 45% stones; 10% pebbles; abrupt irregular boundary. (Sample no. WYGL0093; coarser material occurring as lenses sampled separately as WYGL0095.)

2C. 84–110 cm; dark yellowish-brown (10YR 4/4) extremely stony silt loam; very pale brown (10YR 8/3) dry; common medium distinct yellowish-red (5YR 4/6) mottles; weak medium subangular blocky structure parting to weak fine granular parting to weak very fine granular; soft, friable, sticky, plastic; 55% stones; 10% cobbles; 15% pebbles. (Sample no. WYGL0094.)

SERIES: WYGL010

SOIL SURVEY # S86–56–001–010

LOCATION: Lat. 41° 22' 41" Long. 106° 15' 13"

Base Map Location (Appendix F): X = 15.6, Y = 10.3.

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryumbrept

PHYSIOGRAPHY: Fan in glaciated uplands

GEOMORPHIC POSITION: on lower third of component; footslope of headslope

SLOPE: 6% plane, west facing

ELEVATION: 3261 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Moderately rapid

DRAINAGE: Moderately well drained

STONINESS: CLASS 1

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 25 to 100 cm

RUNOFF: Moderate

PARENT MATERIAL: local colluvium and alluvium derived from quartzite material

DIAGNOSTIC HORIZONS: 0 to 30 cm Umbric 9 to 30 cm Cambic

DESCRIBED BY: Hopper, Knox SAMPLE DATE: 07/86

NOTES: pit is located in meadow northeast of East Glacier Lake and is associated with one of the University of Wyoming lysimeter installations.

A. 0–9 cm; dark brown (10YR 3/3) silt loam; brown to dark brown (10YR 4/3) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots and few to common medium and coarse roots throughout; common very fine tubular pores; clear smooth boundary. (Sample no. WYGL0101.)

Bw. 9–30 cm; dark brown (10YR 3/3) silt loam; yellowish-brown (10YR 5/4) dry; many fine distinct dark yellowish-brown (10YR 4/6) mottles; moderate coarse subangular blocky structure parting to moderate fine platy parting to moderate fine granular; soft, friable, slightly sticky, plastic; many very fine and fine roots throughout; common very fine tubular pores; many discontinuous prominent dark brown (10YR 3/3) pressure faces on bottoms of plates; abrupt wavy boundary. (Sample no. WYGL0102.)

BC. 30–59 cm; brown to dark brown (7.5YR 4/4) very stony silt loam; light yellowish-brown (10YR 6/4) dry; many coarse distinct yellowish-red (5YR 4/8) mottles; moderate coarse subangular blocky structure parting to weak fine platy parting to moderate fine granular; soft, friable, sticky, plastic; few very fine and fine roots throughout; few very fine tubular pores; common discontinuous prominent brown to dark brown (7.5YR 4/4) pressure faces on bottoms of plates; 25% stones; 10% cobbles; 5% pebbles; abrupt wavy boundary. (Sample no. WYGL0103.)

2C1. 59–91 cm; yellowish-brown (10YR 5/6) extremely cobbly sandy loam; very pale brown (10YR 8/4) dry; many medium prominent yellowish-red (5YR 4/8) and common coarse prominent yellowish-red (5YR 4/8) mottles; massive; soft, very friable, nonsticky, nonplastic; 25% stones; 40% cobbles; 5% pebbles; clear irregular boundary. (Sample no. WYGL0104.)

2C2. 91–108 cm; very pale brown (10YR 7/4) extremely cobbly sandy loam; very pale brown (10YR 8/3) dry; many coarse prominent strong brown (7.5YR 5/8) mottles massive; loose, very friable, nonsticky, nonplastic; 20% stones; 40% cobbles; 10% pebbles. (Sample no. WYGL0105.)

SERIES: WYGL011

SOIL SURVEY # S86–56–001–011

LOCATION: Lat. 41° 22' 38" Long. 106° 15' 11"

Base Map Location (Appendix F): X = 15.2, Y = 9.5.

CLASSIFICATION: Loamy-skeletal, mixed Humic Cryaquepts

PHYSIOGRAPHY: Mountain side in glaciated uplands

GEOMORPHIC POSITION: on lower third of component; toeslope of headslope

SLOPE: 8% concave, southwest facing

ELEVATION: 3246 m MSL

PRECIPITATION: Aquic moisture regime

WATER TABLE DEPTH: 79 cm - Apparent

PERMEABILITY: Moderate

DRAINAGE: Poorly drained

STONINESS: CLASS 1

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 25 to 100 cm

RUNOFF: Slow

PARENT MATERIAL: glacial till from quartzite material over local colluvium

and alluvium derived from quartzite material

DIAGNOSTIC HORIZONS: 0 to 45 cm Umbric

DESCRIBED BY: Hopper, Knox SAMPLE DATE: 07/86

NOTES: pit is located east of East Glacier Lake in thick stand of willow.

A1. 0–11 cm; very dark grayish-brown (10YR 3/2) silt loam; brown (10YR 5/3) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, plastic; many very fine and fine roots and common medium roots throughout; clear smooth boundary. (Sample no. WYGL0111.)

2A2. 11–45 cm; very dark grayish-brown (10YR 3/2) and streaks of very dark gray (10YR 3/1) silt loam; brown (10YR 5/3) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, plastic; many very fine and fine roots throughout; abrupt wavy boundary. (Sample no. WYGL0112.)

2AC. 45–58 cm; brown to dark brown (10YR 4/3) with bands and streaks of very dark grayish-brown (10YR 3/2) silt loam; light yellowish-brown (10YR 6/4) and grayish-brown (10YR 5/2) dry; many fine prominent very dark gray (10YR 3/1) mottles; moderate medium subangular blocky structure parting to moderate fine platy parting to moderate very fine granular; soft, fri-

able, slightly sticky, plastic; common very fine and fine roots throughout; common very fine and fine tubular pores; abrupt wavy boundary. (Sample no. WYGL0113.)

3C. 58–95 cm; brown to dark brown (7.5YR 4/4) extremely stony silt loam; very pale brown (10YR 7/3) dry; weak medium subangular blocky structure parting to weak fine and weak very fine granular; soft, friable, sticky, plastic; few very fine roots throughout; few very fine tubular pores; 60% stones; 10% cobbles; 10% pebbles. Watertable encountered at 79 cm within horizon. (Sample no. WYGL0114.)

SERIES: WYGL012

SOIL SURVEY # S86–56–001–012

LOCATION: Lat. 41° 22' 53" Long. 106° 15' 6"

Base Map Location (Appendix F): X = 16.8, Y = 13.8.

CLASSIFICATION: Fine-loamy, mixed Dystric Cryochrept

PHYSIOGRAPHY: Mountain side in glaciated uplands

GEOMORPHIC POSITION: on upper third of component; backslope of headslope

SLOPE: 25% convex, west facing

ELEVATION: 3325 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Moderate

DRAINAGE: Well drained

STONINESS: Class 1

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 25 to 55 cm

RUNOFF: Rapid

PARENT MATERIAL: residuum from mafic igneous intrusive rocks

DIAGNOSTIC HORIZONS: 5 to 0 cm Ochric 0 to 19 cm Cambic

DESCRIBED BY: Hopper SAMPLE DATE: 07/86

NOTES: pit is located northeast of East Glacier Lake on upper third of the backslope of the main ridge in a dense stand of spruce-fir krummholz vegetation; the soil appears to have formed in residuum of mafic intrusives; some colluvial influence is probable; the rock fragments in this soil are composed primarily of mafic intrusives.

Oi. 5–4 cm; very dark gray (5YR 3/1) fibric material consisting of undecomposed and partially decomposed forest litter; very dark grayish-brown (10YR 3/2) dry; loose, nonsticky, nonplastic; abrupt broken boundary. (Sampled with Oa in Sample no. WYGL0121.)

Oa. 4–0 cm; very dark gray (5YR 3/1) sapric material consisting of well-decomposed forest litter; very dark

grayish-brown (10YR 3/2) dry; weak medium subangular blocky structure; soft, very friable, nonsticky, nonplastic; common very fine and fine roots throughout and common very fine roots matted around stones; abrupt smooth boundary. (Sample no. WYGL0121.)

Bw. O–19 cm; dark brown (10YR 3/3) gravelly loam; brown to dark brown (10YR 4/3) dry; moderate medium subangular blocky structure parting to moderate fine granular; soft, friable, sticky, plastic; common very fine, fine, medium, and coarse roots throughout and common very fine roots matted around coarse pebbles and cobblestones; few very fine tubular pores; few patchy faint dark brown (10YR 3/3) pressure faces on vertical and horizontal faces of peds; 25% pebbles; 5% cobbles; clear wavy boundary. (Sample no. WYGL0122.)

BC. 19–33 cm; reddish-brown (2.5YR 4/4) and dark brown (10YR 3/3) loam; brown (10YR 5/3) and brown (7.5YR 5/4) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; slightly hard, firm, sticky, plastic; common very fine, fine, medium, and coarse roots throughout and common very fine and fine roots matted around coarse pebbles and cobblestones; common very fine tubular pores; 10% pebbles; less than 5% cobbles; clear wavy boundary. (Sample no. WYGL0123.)

C. 33–55 cm; dark greenish-gray (5GY 4/1), dark brown (10YR 3/3), and reddish-brown (2.5YR 4/4) very gravelly clay loam; yellowish-brown (10YR 5/4), dark grayish-brown (2.5Y 4/2), and reddish-brown (2.5YR 4/4) dry; weak medium subangular blocky structure; slightly hard, firm, sticky, plastic; few to common very fine and fine roots throughout and common very fine roots matted around coarse pebbles; few very fine tubular pores; 40% pebbles; abrupt wavy boundary (Sample no. WYGL0124.)

Cr. 55–72 cm; red (10R 4/6) and dark brown (10YR 3/3) clay; brown to dark brown (7.5YR 4/4) and weak red (10R 4/4) dry; hard, very firm, sticky, plastic; few very fine roots throughout. (Sample no. WYGL0125.)

SERIES: WYGL014

SOIL SURVEY # S86–56–001–014

LOCATION: Lat. 41° 22' 46" Long. 106° 15' 38"

Base Map Location (Appendix F): X = 12.8, Y = 10.7.

CLASSIFICATION: Coarse-loamy, mixed Dystric Cryochrept

PHYSIOGRAPHY: Mountain side in glaciated uplands

GEOMORPHIC POSITION: on upper third of component; backslope of sideslope

SLOPE: 6% convex

ELEVATION: 3319 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: 34 cm - Seasonal
PERMEABILITY: Moderately rapid
DRAINAGE: Well drained
STONINESS: Class 1
EROSION OR DEPOSITION: Slight
FAMILY CONTROL SECTION: 25 to 74 cm
RUNOFF: Rapid
PARENT MATERIAL: local colluvium from quartzite material
DIAGNOSTIC HORIZONS: 5 to 0 cm Ochric 0 to 32 cm Cambic

DESCRIBED BY: Hopper SAMPLE DATE: 08/86

NOTES: pit is located on backslope of ridge north of West Glacier Lake on the east side of the waterfall near the bottom of a snowfield on a bedrock bench; no evidence of restricted drainage; observed water table from subsurface flow of water due to snowmelt.

Oa. 5–0 cm; black (10YR 2/1) sapric material consisting of well-decomposed herbaceous litter; dark grayish-brown (10YR 4/2) dry; moderate fine granular structure; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots throughout; abrupt smooth boundary. (Sample no. WYGL0141.)

Bw. 0–32 cm; dark yellowish-brown (10YR 4/4) silt loam; light yellowish-brown (10YR 6/4) dry; weak medium subangular blocky structure parting to weak fine and weak very fine subangular blocky; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots throughout; clear wavy boundary. (Sample no. WYGL0142.)

BC. 32–74 cm; dark yellowish-brown (10YR 4/4) silt loam; light yellowish-brown (10YR 6/4) dry; soft, friable, slightly sticky, slightly plastic; common very fine roots throughout; 40% cobbles; 15% pebbles; dominantly quartzite rock fragments; abrupt wavy boundary. (Sample no. WYGL0143.)

R. 74 cm; slightly weathered and unweathered quartzite bedrock.

SERIES: WYGL015

SOIL SURVEY # S86–56–001–015

LOCATION: Lat. 41° 22' 43" Long. 106° 15' 21"

CLASSIFICATION: Loamy-skeletal, mixed Dystric Cryochrept

PHYSIOGRAPHY: Moraine in glaciated uplands

GEOMORPHIC POSITION: on lower third of component footslope of sideslope

SLOPE: 6% plane, northeast facing

ELEVATION: 3292 m MSL
PRECIPITATION: Udic moisture regime
WATER TABLE DEPTH: None observed
PERMEABILITY: Moderately rapid
DRAINAGE: Well drained
STONINESS: CLASS 4
EROSION OR DEPOSITION: Moderate
FAMILY CONTROL SECTION: 25 to 100 cm
RUNOFF: Rapid
PARENT MATERIAL: local colluvium from quartzite material over glacial till from quartzite material
DIAGNOSTIC HORIZONS: 0 to 7 cm Ochric 7 to 33 cm Cambic

DESCRIBED BY: Hopper, Roswall SAMPLE DATE: 09/86

NOTES: pit is located north-northeast of precipitation gage on rock-cored moraine between East and West Glacier Lakes on a bedrock-controlled bench; site is associated with the University of Wyoming lysimeter installations.

A. 0–7 cm; very dark gray (10YR 3/1) extremely cobbly loam; very dark grayish-brown (10YR 3/2) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots and common medium roots throughout and many very fine roots matted around coarse pebbles, cobblestones, and stones; common very fine tubular pores; 15% pebbles; 55% cobbles; 5% stones; abrupt broken boundary. (Sample no. WYGL0151.)

2BA. 7–15 cm; brown to dark brown (7.5YR 4/2) extremely cobbly loam; very dark grayish-brown (10YR 3/2) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots and common medium roots throughout and many very fine and fine roots matted around coarse pebbles, cobblestones and stones; common very fine tubular pores; common discontinuous distinct dark brown (7.5YR 3/2) clay films in root channels and/or pores; 15% pebbles; 55% cobbles; 5% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0152.)

2Bw. 15–33 cm; brown to dark brown (7.5YR 4/2) extremely cobbly loam; very pale brown (10YR 7/4) dry; moderate medium subangular blocky structure parting to moderate fine platy parting to moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine and fine roots and few medium roots throughout and many very fine and fine roots matted

around coarse pebbles, cobblestones, and stones; common very fine tubular pores; few discontinuous distinct dark brown (7.5YR 3/2) clay films on faces of peds; 25% pebbles; 40% cobbles; 10% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0153.)

2BC. 33–55 cm; yellowish-brown (10YR 5/4) and brown to dark brown (7.5YR 4/4) extremely cobbly loam; very pale brown (10YR 7/4) dry; moderate medium subangular blocky structure parting to moderate fine platy parting to moderate very fine granular; soft, friable, slightly sticky, slightly plastic; few to common very fine and fine roots throughout and matted around coarse pebbles, cobblestones and stones; common very fine tubular pores; common discontinuous faint yellowish-brown (10YR 5/4) pressure faces on horizontal faces of peds; common continuous prominent strong brown (7.5YR 5/8) organic coats in root channels and/or pores; 25% pebbles; 40% cobbles; 10% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0154)

2CB. 55–83 cm; olive brown (2.5Y 4/4) and dark yellowish-brown (10YR 4/4) extremely cobbly loam; very pale brown (10YR 7/4) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine subangular blocky; soft, friable, sticky, slightly plastic; few very fine roots throughout and matted around coarse pebbles, cobblestones and stones; common very fine tubular pores; common discontinuous faint dark yellowish-brown (10YR 4/4) pressure faces on horizontal faces of peds; common patchy prominent strong brown (7.5YR 5/8) organic coats in root channels and/or pores; 25% pebbles; 40% cobbles; 10% stones; dominantly quartzite rock fragments; approximately 5% of the coarse fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0155.)

3C. 83–108 cm; olive brown (2.5Y 4/4) and dark yellowish-brown (10YR 4/4) extremely cobbly loam; light reddish brown (2.5YR 6/4) dry; massive; slightly hard, friable, slightly sticky, slightly plastic; few very fine roots throughout; common very fine tubular pores; common continuous prominent strong brown (7.5YR 5/8) organic coats in root channels and/or pores; 25% pebbles; 40% cobbles; 10% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives. (Sample no. WYGL0156.)

SERIES: WYGL016

SOIL SURVEY # S86–56–001–016

LOCATION: Lat. 41° 22' 32" Long. 106° 15' 7"

Base Map Location (Appendix F): X = 16.8, Y = 8.2.

CLASSIFICATION: Loamy-skeletal, mixed Typic Cryoboralf

PHYSIOGRAPHY: Moraine in glaciated uplands

GEOMORPHIC POSITION: on middle third of component; backslope of sideslope

SLOPE: 20% plane, west facing

ELEVATION: 3274 m MSL

PRECIPITATION: Udic moisture regime

WATER TABLE DEPTH: None observed

PERMEABILITY: Moderately rapid

DRAINAGE: Well drained

STONINESS: CLASS 4

EROSION OR DEPOSITION: Slight

FAMILY CONTROL SECTION: 33 to 68 cm

RUNOFF: Rapid

PARENT MATERIAL: glacial till from quartzite material

DIAGNOSTIC HORIZONS: 4 to 0 cm Ochric; 0 to 33 cm Ochric; 0 to 33 cm Albic; 33 to 68 cm Argillic

DESCRIBED BY: Hopper, Roswall SAMPLE DATE: 09/86

NOTES: pit is located on south side of moraine below and east of East Glacier Lake; spruce-fir forest vegetation; site is associated with one of the University of Wyoming lysimeter installations.

Oi. 4–3 cm; dark reddish-brown (5YR 2/2) fibric material consisting of undecomposed and partially decomposed forest litter; very dark grayish-brown (10YR 3/2) dry; loose, nonsticky, nonplastic; abrupt smooth boundary. (Sample with Oa in sample no. WYGL0161.)

Oa. 3–0 cm; dark reddish-brown (5YR 2/2) and dark reddish-brown (5YR 3/2) sapric material consisting of well-decomposed forest litter; very dark grayish-brown (10YR 3/2) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, very friable, nonsticky, nonplastic; many very fine and fine roots and common medium roots throughout; abrupt smooth boundary. (Sample no. WYGL0161.)

E. O–12 cm; brown to dark brown (7.5YR 4/2) very gravelly silt loam; light brownish-gray (10YR 6/2) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; many very fine, medium and coarse roots throughout; common very fine tubular pores; 35% pebbles; 10% cobbles; 5% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0162.)

EB. 12–33 cm; brown to dark brown (7.5YR 4/2) and yellowish-red (5YR 4/6) very gravelly silt loam; very pale brown (10YR 7/3) dry; moderate medium subangular blocky structure parting to moderate fine platy parting to moderate very fine granular; soft, fri-

able, slightly sticky, slightly plastic; many very fine and fine roots and few to common medium and coarse roots throughout; many very fine and fine roots matted around coarse pebbles, cobblestones, and stones; common very fine tubular pores; few discontinuous distinct yellowish-red (5YR 4/6) organic coats or clay films in root channels and/or pores; few discontinuous faint yellowish-red (5YR 4/6) clay films on vertical and horizontal faces of peds; 35% pebbles; 10% cobbles; 5% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0163.)

BE. 33–47 cm; brown to dark brown (7.5YR 4/4), brown (7.5YR 5/4), and light brown (7.5YR 6/4) very gravelly silt loam; pale brown (10YR 6/3) and very pale brown (10YR 8/3) dry; moderate medium subangular blocky structure parting to moderate fine platy parting to moderate very fine granular; soft, friable, sticky, slightly plastic; common very fine and fine roots and few medium roots throughout; common very fine and fine roots matted around coarse pebbles, cobblestones, and stones; common very fine tubular pores; common discontinuous distinct yellowish-red (5YR 4/6) organic coats or clay films in root channels and/or pores; common discontinuous distinct brown (7.5YR 5/4) clay films on vertical and horizontal faces of peds; 40% pebbles; 10% cobbles; 5% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0164.)

Bt. 47–68 cm; brown to dark brown (7.5YR 4/4) and light brown (7.5YR 6/4) extremely stony loam; light yellowish-brown (10YR 6/4) and very pale brown (10YR 8/3) dry; moderate medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, sticky, slightly plastic; common very fine and fine roots throughout and matted around coarse pebbles, cobblestones, and stones; common very fine tubular pores; common discontinuous distinct brown to dark brown (7.5YR 4.4) clay films on vertical and horizontal faces of peds; 25% pebbles; 15% cobbles; 35% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives; clear wavy boundary. (Sample no. WYGL0165.)

BC. 68–102 cm; brown to dark brown (7.5YR 4/4) and yellowish-brown (10YR 5/4) extremely stony loam; light yellowish-brown (10YR 6/4) and reddish-yellow (7.5YR 6/6) dry; weak medium subangular blocky structure parting to moderate fine and moderate very fine granular; soft, friable, slightly sticky, slightly plastic; few very fine and fine roots throughout and matted around coarse pebbles, cobblestones, and stones; common very fine interstitial and tubular pores; common discontinuous distinct brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal faces of peds; 20% pebbles; 25% cobbles; 40% stones; dominantly quartzite rock fragments; approximately 5% of the rock fragments are mafic intrusives. (Sample no. WYGL0166.)