

2009

GLACIAL SYMBOLS

CONTACTS - Dashed where approximately located

ICU-MARGINAL CHANNELS - Drainages from the central to peripheral margin derived from valley glaciers. Most of these are secondary to the main trunk of the glacier. Marginal channels are represented by dashed lines with arrows pointing to the main trunk of the glacier. Marginal channels are occupied by recent streams, although some are occupied by the main trunk of the glacier.

CHIRQUE HEADWALLS - Present or former headwall scarps of glacial erosion at the heads of valleys.

MORAINES - Crests of prominent moraine and lateral moraine. The main crest of the main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier. The main crest of the main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

SAMPLE LOCATIONS - Location of the sample sites and their approximate elevation. The location of the sample sites and their approximate elevation is shown as a solid line with arrows pointing to the sample sites.

INTRODUCTION

This map represents the first complete inventory of the glacial deposits in the Utah Mountains since Howard (1959) described the glacial deposits in the area. The map is the result of a field program and continuing work by the authors and others to better understand the glacial and climatic history of the region. The map is based on a detailed field survey of the Utah Mountains area, including the main trunk of the glacier, the main trunk of the glacier, and the main trunk of the glacier.

DESCRIPTION OF THE ICE EXTENTS INSET MAP

This inset map displays reconstructed ice extents for the Smith Fork Glaciation (ca. 12,000 to 14,000 years ago) in the Utah Mountains. The map is based on a detailed field survey of the Utah Mountains area, including the main trunk of the glacier, the main trunk of the glacier, and the main trunk of the glacier.

DESCRIPTION OF MAP UNITS

Glacial Deposits

Alberion (Holocene) - Unconsolidated deposits of modern to well-sorted sand and gravel, including gravels, sand, silt, and clay. Deposited during the Holocene in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Alberion (Pre-Holocene) - Unconsolidated deposits of modern to well-sorted sand and gravel, including gravels, sand, silt, and clay. Deposited during the Pre-Holocene in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Lauritzen (Holocene) - Unconsolidated deposits of modern to well-sorted sand and gravel, including gravels, sand, silt, and clay. Deposited during the Holocene in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Slides, Slumps, and Piles (Holocene and Pleistocene) - Unconsolidated, poorly sorted deposits of locally derived material that has moved down slope through bedding, slumping, and flowing. Includes debris flows, debris avalanches, and debris fans. Deposited during the Holocene and Pleistocene in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Talus Deposits (Holocene and Pleistocene) - Unconsolidated, poorly sorted deposits of angular boulders located at the base of eroded hillsides and along glacial valley sides. Boulders are derived from local sources, including bedrock, lava flows, and other sources. Deposited during the Holocene and Pleistocene in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Rock Chatter Deposits (Holocene and Pleistocene) - Unconsolidated, poorly sorted deposits of angular boulders having a characteristic morphology owing to flint through deflation of interstitial ice. First an inter-ice zone in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Smith Fork Tilt (Late Pleistocene) - Unconsolidated, matrix-supported, poorly sorted deposits of glacial till deposited during the Smith Fork Glaciation. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Smith Fork Overwash (Late Pleistocene) - Unconsolidated, class-sorted, oblong- to sub-angular with local boulders and sand lenses, composed primarily of Utah Mountain Group lithologies. Class is generally well-sorted, and occasionally has local boulders and sand lenses. Deposited during the Smith Fork Glaciation in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Pre-Smith Fork Tilt (Unsorted (middle or late Pleistocene)) - Glacial diamictite similar in physical properties and composition to Smith Fork Tilt, but located beyond the Smith Fork glacial limit in a position where it is not possible to determine whether these deposits were deposited during the Smith Fork or an earlier glacial limit. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

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Black Fork Tilt (middle or late Pleistocene) - Similar to Smith Fork Tilt, but deposited during the penultimate Black Fork Glaciation. This event is locally correlated to the Ball Lake Glaciation, which occurred approximately 160,000 to 150,000 years ago in the Yellowstone Plateau and Utah Mountain ranges. Deposited during the Black Fork Glaciation in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

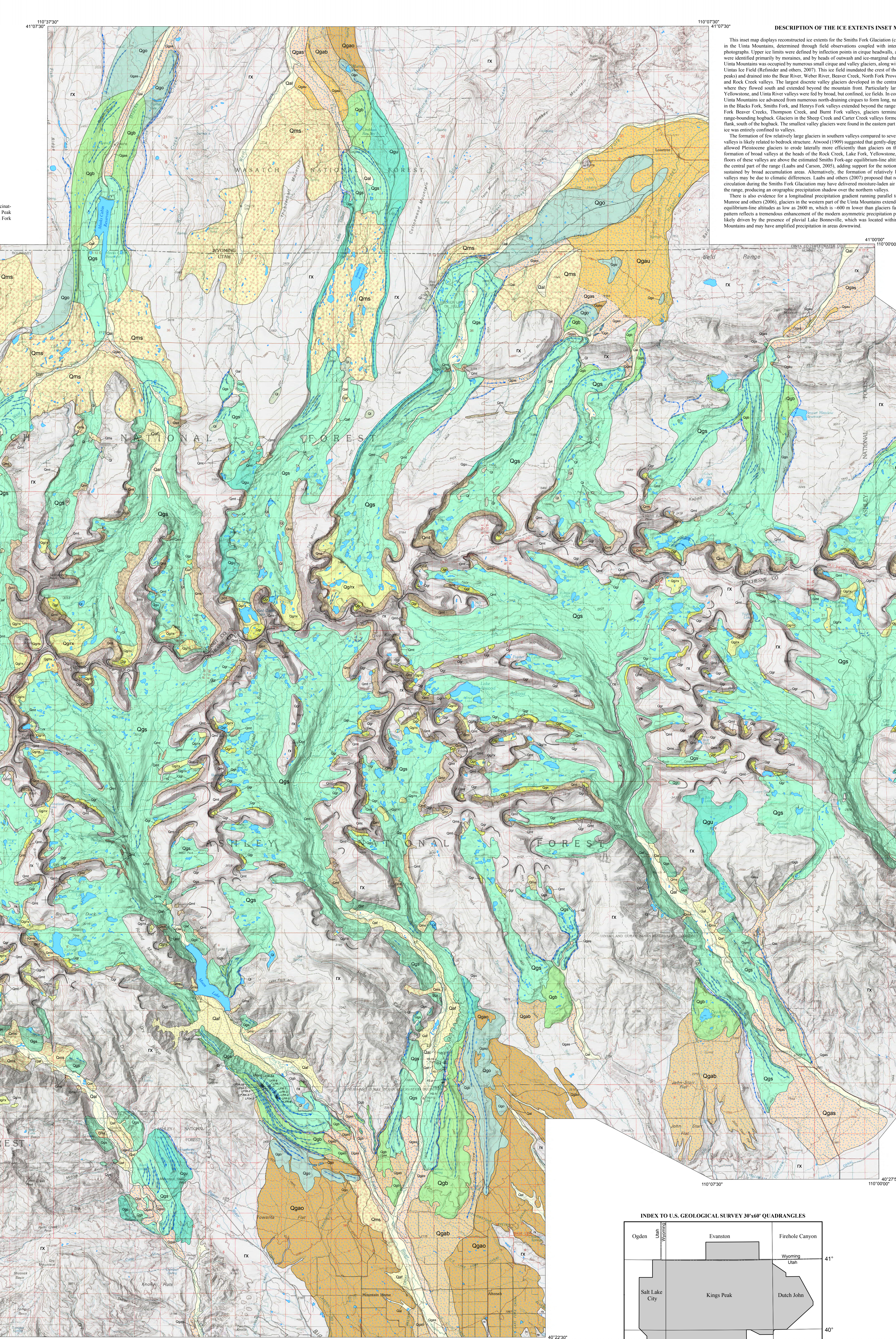
Black Fork Overwash (middle or late Pleistocene) - Similar to Smith Fork Overwash, but found at higher elevations above the modern stream. Terraces are generally graded to Black Fork-age surfaces. Thickness is generally unknown, but is likely from 1 to 20 m. Deposited during the Black Fork Glaciation in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Pre-Black Fork Tilt (early?) or middle Pleistocene) - Similar to Smith Fork and Black Fork Tilt, but locally may be as much as 10 m in size in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

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Tilt Glacial Till Over Bedrock (Holocene) - Thin, unconsolidated deposits of glacial till deposited on bedrock. Includes till, sand, silt, and clay. Deposited during the Holocene in the main trunk of the glacier. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.

Bedrock and Non-glacial Surficial Deposits (Pleistocene and Pre-Pleistocene) - Well-sorted, unconsolidated, non-glacial surficial deposits of the Utah Mountains. This unit includes non-glacial surficial deposits that are not related to the glacial limit and are not related to the glacial limit. The main trunk of the glacier is shown as a solid line with arrows pointing to the main trunk of the glacier.



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INDEX TO U.S. GEOLOGICAL SURVEY 30'x60' QUADRANGLES

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COBINATION OF MAP UNITS

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Alberion (Pre-Holocene)

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