UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PROFESSIONAL PAPER 454-D
PLATE 1

EXPLANATION

ROCKY MOUNTAIN GEOLOGIC-CLIMATIC UNITS

GLACIAL DEPOSITS

ALLUVIAL DEPOSITS

COLLUVIAL DEPOSITS

EOLIAN DEPOSITS

Recent

Neoglaciation

Temple Lake Stade

*Historic stade

ntt — Till. Stony to blocky sand

nhr, ntr — Rock glacier. ntr, upper unit; nhr, lower unit

nf — Fan gravel. Bouldery to sandy deposits

na — Gravelly alluvium. Flood-plain gravel, sand, and silt

nc — Colluvium. Gravelly to sandy slope deposits

nta — Inactive talus

nhta — Active talus

nttf, nttt — Talus flow. nhttf, fresh blocky talus flow; nttf, inactive soil-covered talus flow

nhp, ntp — Protalus. nhp, active protalus; ntp, inactive protalus

nbr — Block rubble. Coarse rubble developed from stony mantle

nfr — Frost rubble. Angular rubble developed from bedrock

ne — Eolian sand

Pinedale Glaciation

*Late stade

*Early *Middle stade

pt, ptu, ptm, ptl — Till. Stony to blocky loose sandy till. ptu, upper till; ptm, middle till; ptl, lower till

pru, prm — Rock glacier. pru, upper unit; prm, middle unit

po — Outwash. Bouldery to sandy deposits

pf — Fan gravel

pa — Gravelly alluvium

pam, pal — Gravelly alluvium. pam, middle unit; pal, lower unit

pta — Talus

np — Protalus

pl — Landslide deposits

Bull Lake Glaciation

*Late stade

*Early stade

bt, btu, btl — Till. Stony, sandy to silty compact tills. **btu, upper till; btl, lower till

bou, bol — Outwash. Bouldery to sandy deposits. **bou, upper unit; bol, lower unit

bapu — Gravelly alluvium. Correlative with the Provo Formation

babu — Gravelly alluvium. Correlative with the Bonneville Formation

bc — Colluvium. Sandy to silty locally derived deposits on upland divide east of Albion Basin

Pre-Bull Lake glaciations

pbty — Younger till. Bouldery glacial deposits on interfluve between Little Cottonwood Creek and Bells Canyon

pbto — Older till or fan gravel. On high bench on north side of Little Cottonwood Canyon

Pre-Lake Bonneville deposits

pbf — Fan Gravel

pbc — Stony colluvium

DISCONFORMITY

LACUSTRINE DEPOSITS

Lake Bonneville Group

bas — Sand of Bonneville and Alpine Formations

bg, bs — Bonneville Formation. bg, gravel; bs, sand

ag, as, ac — Alpine Formation. ag, gravel; as, sand; ac, clay

QUATERNARY

r — Bedrock

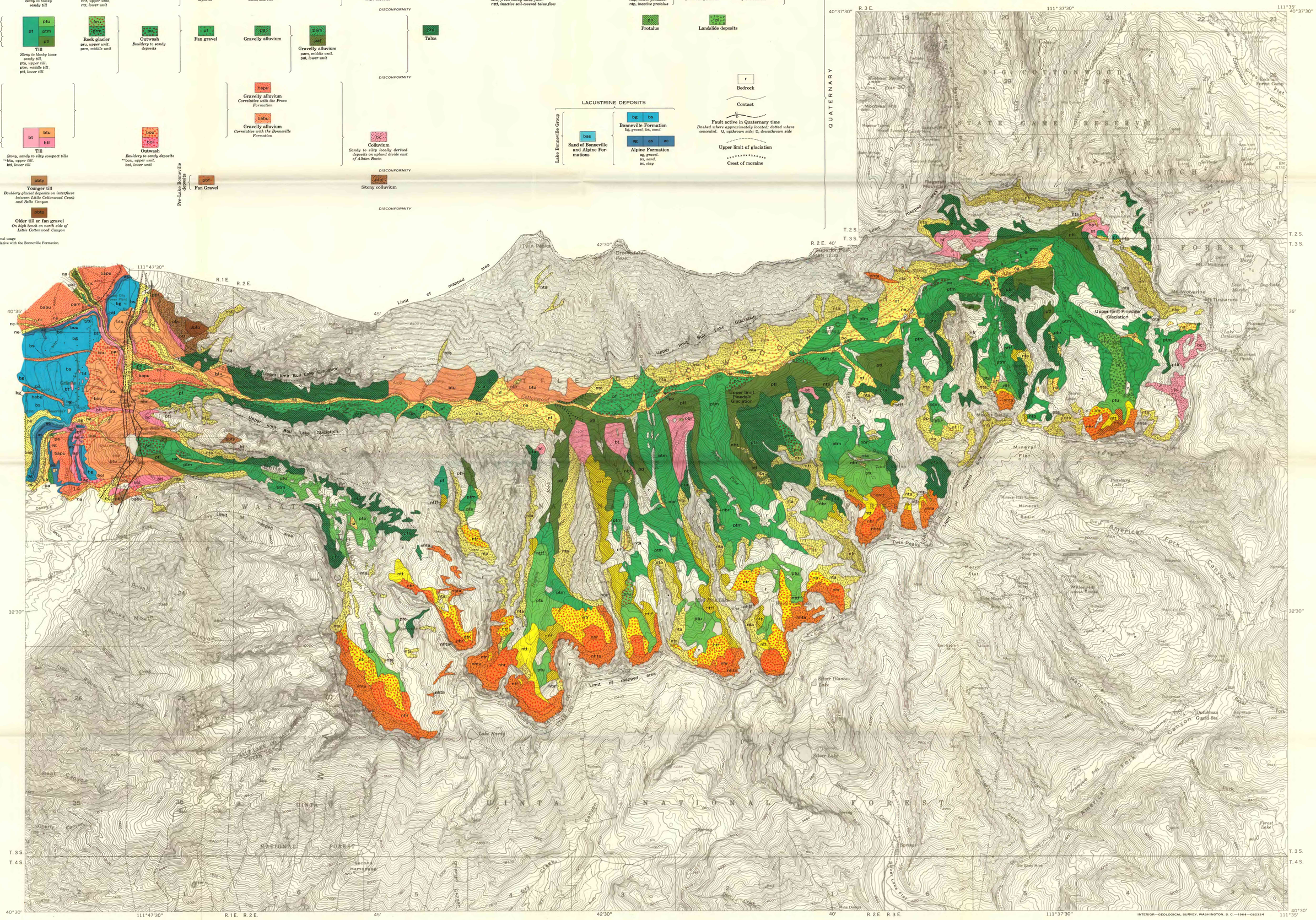
Contact

Fault active in Quaternary time. Dashed where approximately located; dotted where concealed. U, upthrown side; D, downthrown side

Upper limit of glaciation

Crest of moraine

*Informal usage
**Correlative with the Bonneville Formation



Base from U.S. Geological Survey topographic quadrangles

APPROXIMATE MEAN DECLINATION, 1964

GEOLOGIC MAP OF QUATERNARY DEPOSITS OF LITTLE COTTONWOOD AND BELLS CANYONS, UTAH

SCALE 1:24 000

1 ½ 0 1 MILE

1 .5 0 1 KILOMETER

LOCATION OF AREA

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1964—G62334

Geology by Gerald M. Richmond, 1959