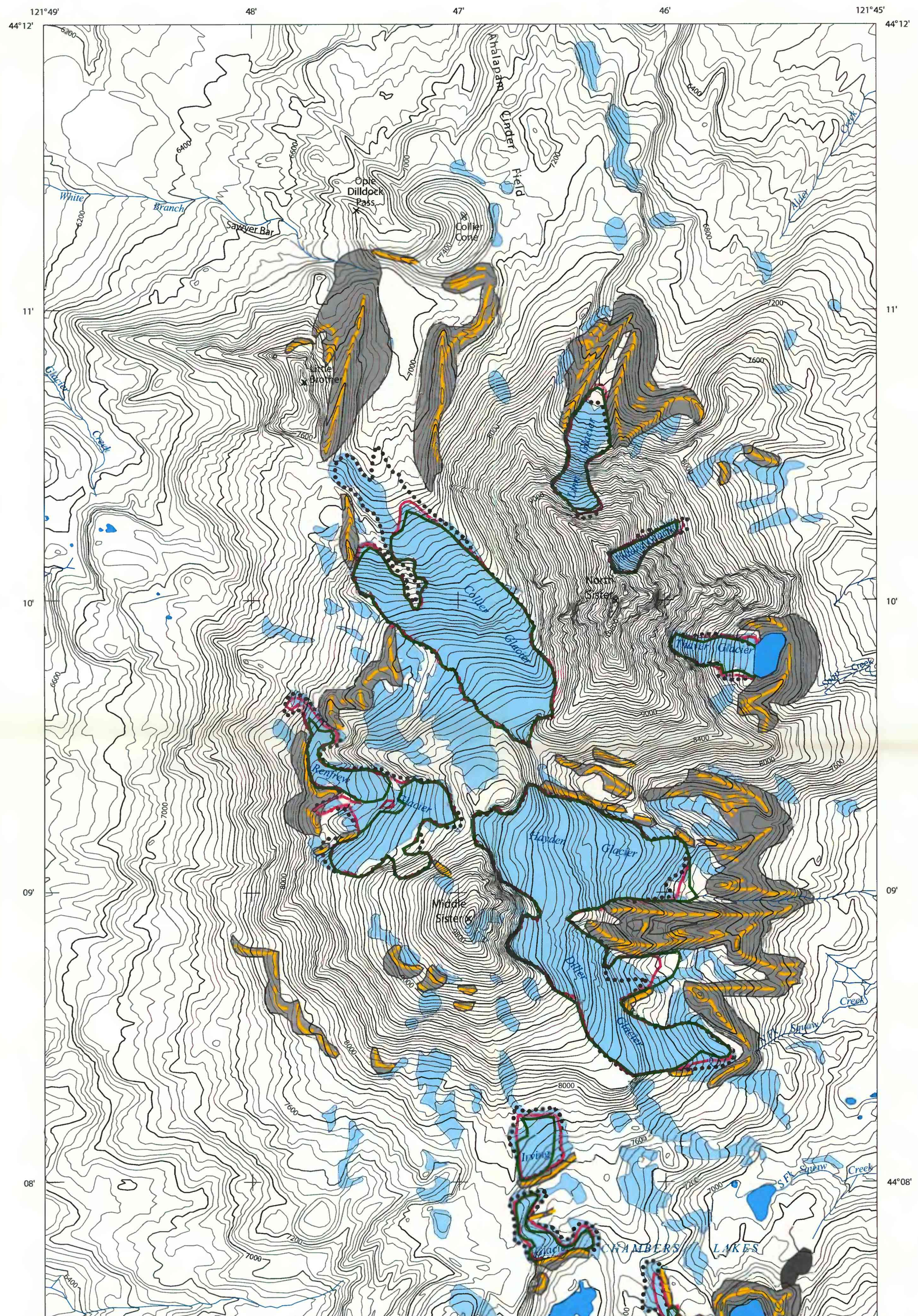
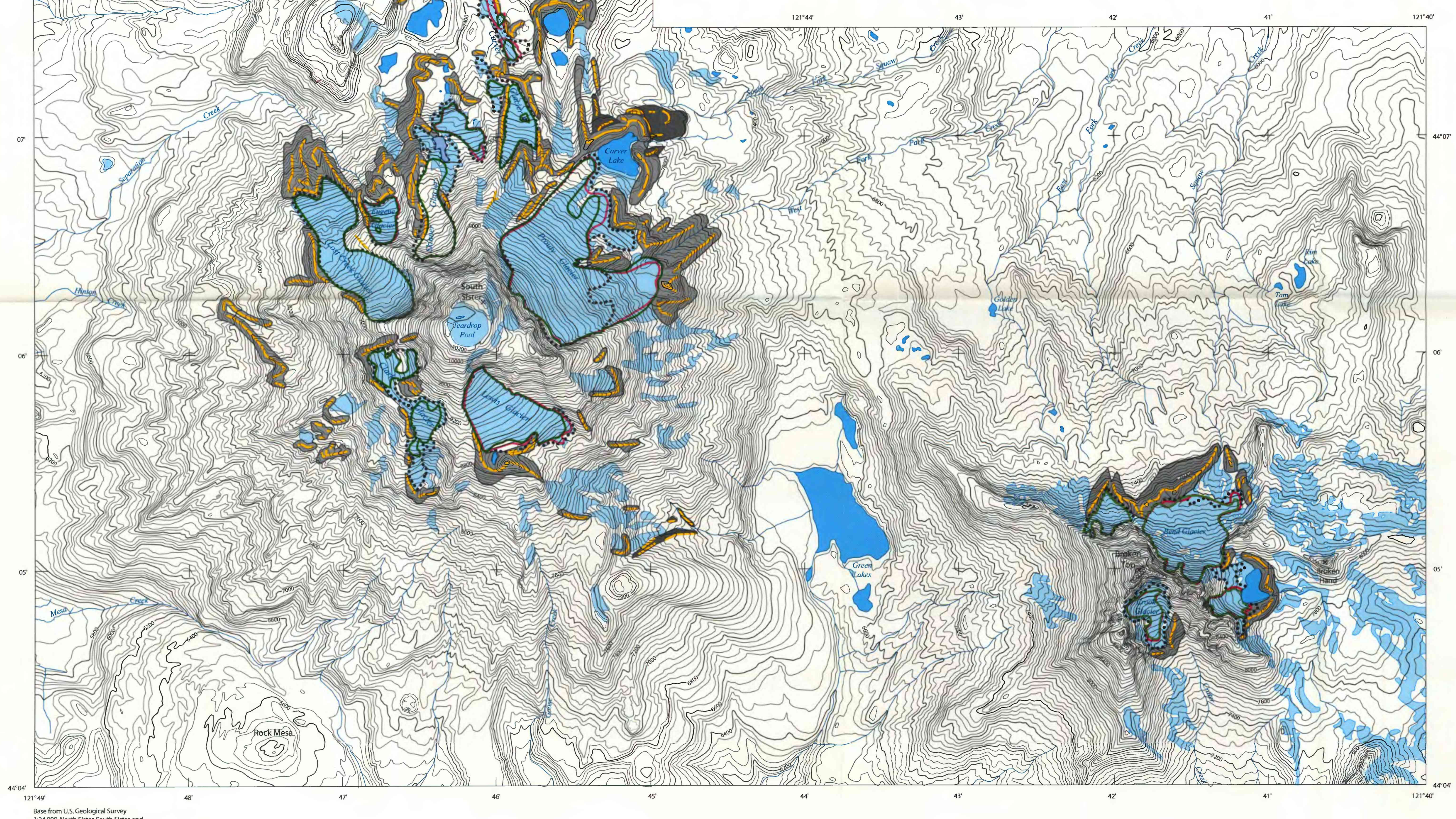
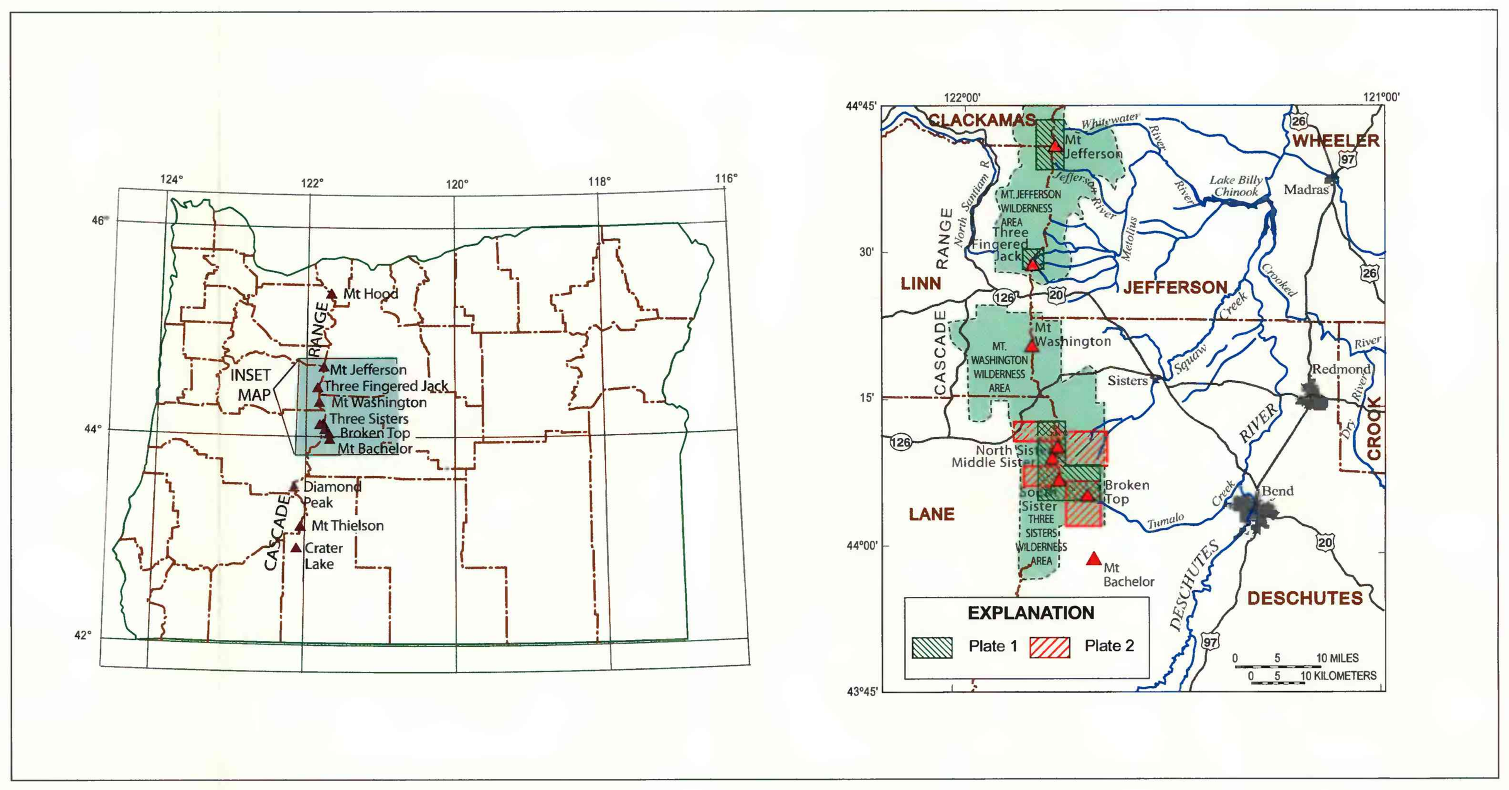
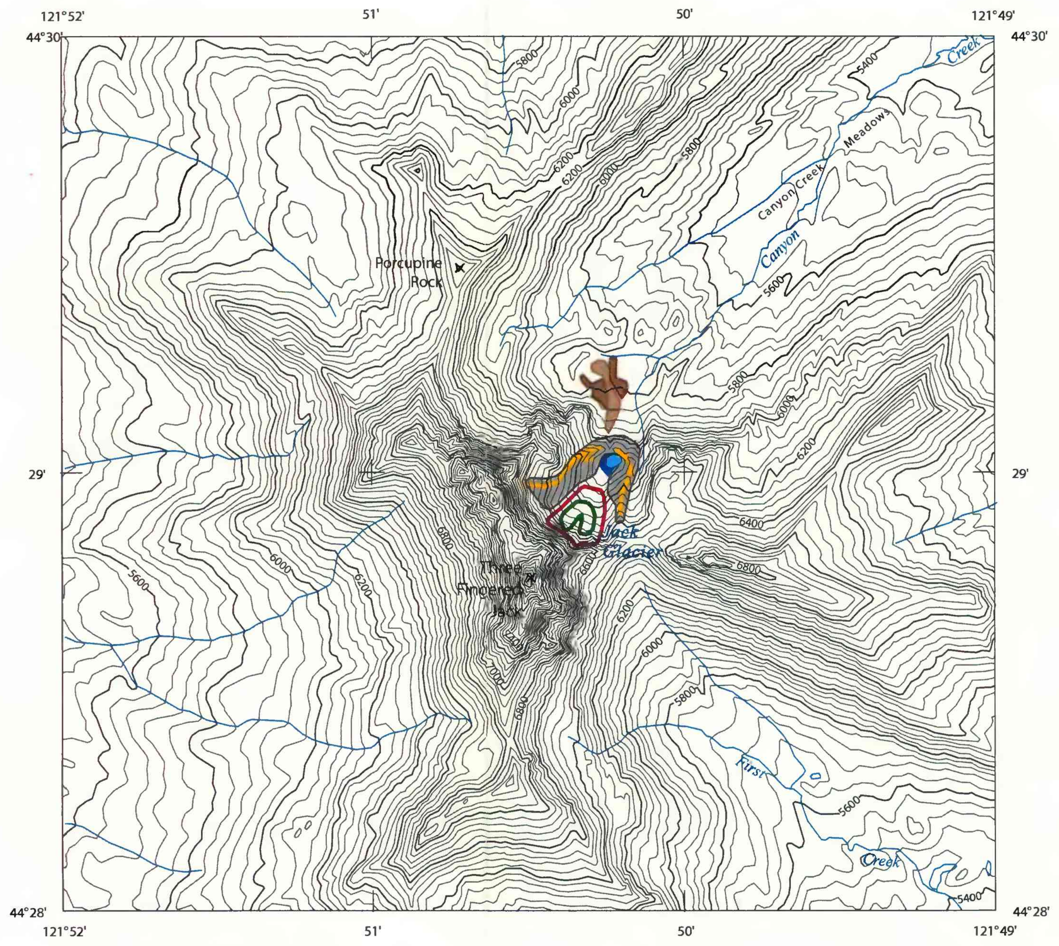
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PROFESSIONAL PAPER 1606
Neoglacial moraines and glacial positions since the culmination of the Little Ice Age—PLATE 1
O'Connor, J.E., Hardison, J.H., III, and Costa, J.E., 2001, Debris flows from failure of neoglacial-age moraine dams in the Three Sisters and Mount Jefferson Wilderness areas, Oregon









Base from U.S. Geological Survey 1:24,000, Three Fingered Jack, Oregon, 1988

Neoglacial-age moraines, historical glacier positions and debris flow deposits of Three Fingered Jack in the Mount Jefferson Wilderness Area

EXPLANATION

Moraine deposits

Neoglacial lateral and terminal moraines. Predate 18-20th century Little Ice Age moraines, postdate Mazama tephra (7,700 years BP)

Little Ice Age moraines deposited during maximum 18-20th century glacier advance.

Debris flows

Recent, small debris flow from a partial breach at Jack Glacier

Debris flows from moraine-dam failures at Mount Jefferson and Three Fingered Jack

Lake extent at time of breaches at Mount Jefferson and Three Fingered Jack

Moraine crest

Glacier extent

1949—U.S. Geological Survey aerial photographs (DGS-2, scale approximately 1:40,000

1967—U.S. Forest Service aerial photographs (FIG, scale approximately 1:20,000)

1974—U.S. Forest Service aerial photographs (ESF, scale approximately 1:20,000)

1988—U2 flight vertical aerial photographs (scale approximately 1:40,000)

1990—U.S. Forest Service aerial photographs (616180C, scale 1:20,000)

SCALE 1:24,000

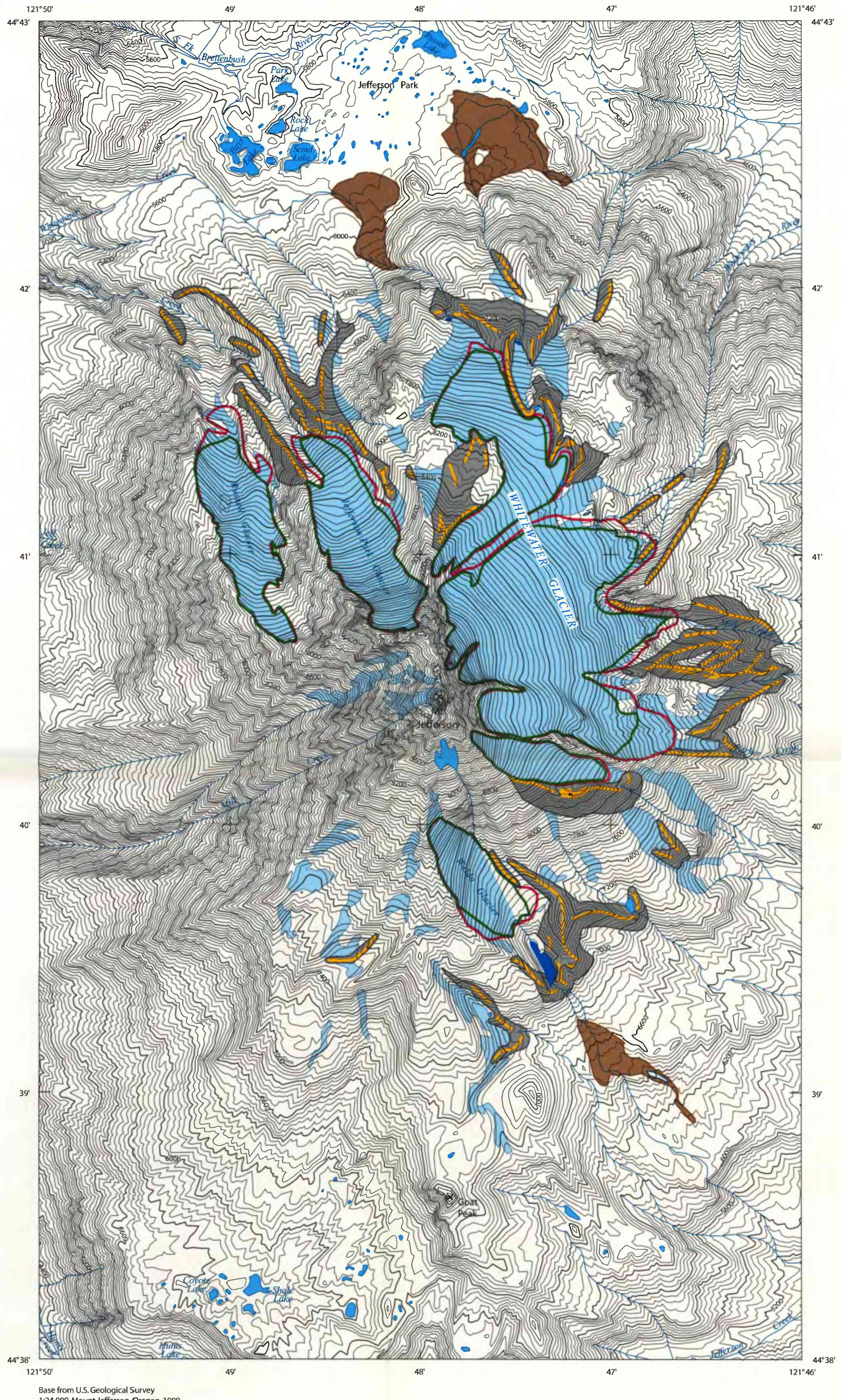
1 .5 0 1 2 KILOMETERS

1000 500 0 1000 2000 METERS

1 .5 0 1 MILES

CONTOUR INTERVAL 40 FEET

NOTE: In this report, we use the names on the current U.S. Geological Survey topographic quadrangles and informally use the names "Jack Glacier" and "East Bend Glacier" for the unmapped glaciers or perennial ice masses in the northeast-facing cirques of Three Fingered Jack and Broken Top.



Base from U.S. Geological Survey 1:24,000, Mount Jefferson, Oregon, 1988

Base from U.S. Geological Survey 1:24,000, North Sister, South Sister, and Broken Top, Oregon, 1988

Neoglacial-age moraines and historical glacier positions of North, Middle, and South Sister, and Broken Top in the Three Sisters Wilderness Area

Neoglacial-age moraines, historical glacier positions and debris flow deposits of Mount Jefferson in the Mount Jefferson Wilderness Area

Base data from U.S. Geological Survey, 1:24,000
Lambert Conformal Conic projection
Standard parallels 44°20' and 46°, central meridian -120°30', and baseline meridian 43°40'
Vertical datum, National Geodetic Vertical Datum of 1929
Horizonal datum, North American Datum of 1927 (NAD27)

NEOGLACIAL MORAINES AND GLACIAL POSITIONS SINCE THE CULMINATION OF THE LITTLE ICE AGE FOR MOUNT JEFFERSON, THREE FINGERED JACK, AND THE THREE SISTERS WILDERNESS AREA, OREGON