

The Stearns Butte 7.5' quadrangle resides on the southern margin of the Lower Crooked River basin (LCRB), near the junction of the High Cascades, High Lava Plains, and Blue Mountains geomorphic provinces. The quadrangle encompasses juniper- and sage-covered high desert terrain that ranges in elevation from 1287 m (4222') about the head of Devils Canyon on the southeast to 884 m (2900 ft) in the Crooked River canyon on the north. Previous work done in the map area is restricted to a 1:250,000 scale map compiled by Swanson (1968). The geology in the quadrangle is dominated by Neogene rocks of the Deschutes Formation (Tg) and the Pliocene basalt (Tpp). Neogene strata unconformably overly variably deformed Paleogene

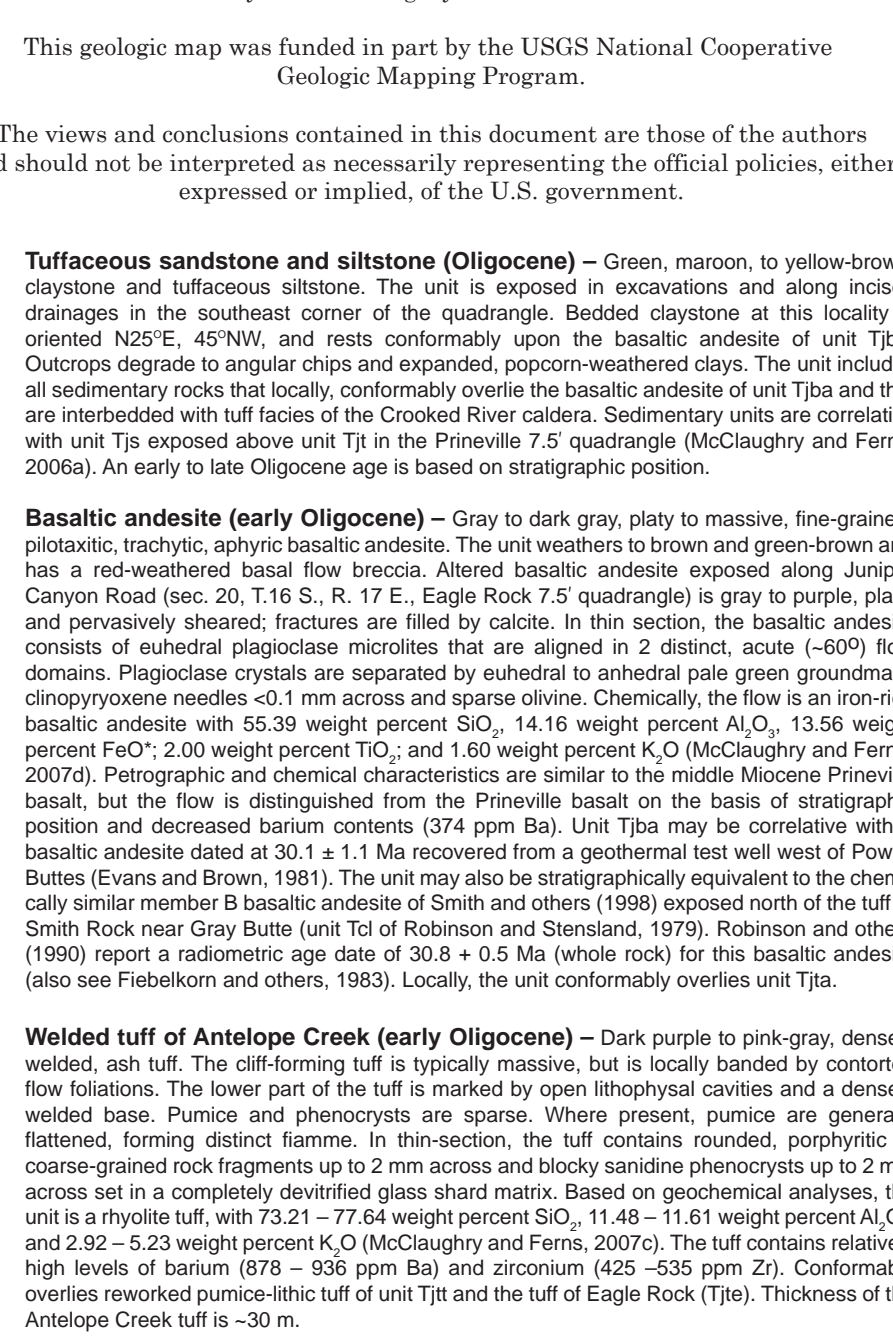
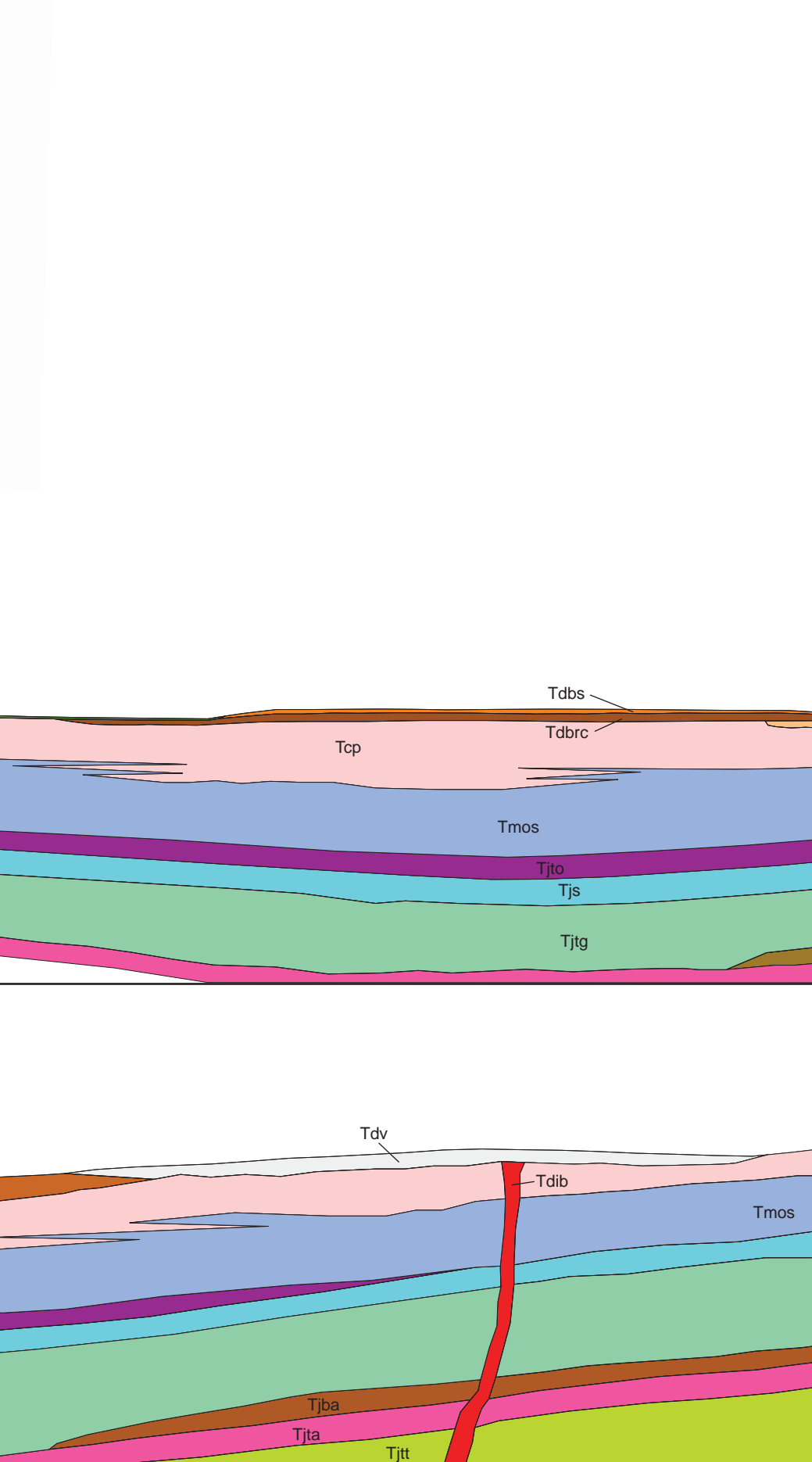
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This map depicts a preliminary stratigraphic assessment for the Stearns Butte T-5 quadrangle and provides a framework for further geological and geophysical analysis of the area. The map was prepared by the U.S. Geological Survey as part of the National Geologic Map Act. It is based on data collected from various sources, including aerial photographs, topographic maps, and field observations. The map shows the distribution of different geological units, including the Stearns Butte Formation, which is composed of sandstone, siltstone, and shale. The map also shows the location of several faults, including the Stearns Butte Fault and the Stearns Butte Syncline. The map is intended to provide a general overview of the geology of the area and to serve as a basis for more detailed studies.

Upper Cenozoic surficial and valley-fill deposits

Alluvium (Holocene and late Pleistocene) – Gravel, sand, and silt deposited in active stream channels and on adjoining flood plains. Includes gravel and channel sand deposited in active or recently active channels and overbank fines deposited on the modern flood plain of the Crooked River.

Deposits of interticing, basal, boulder-dominated breccias deposited along the length of the troughs, and in some cases along the margins of the troughs, are thought to have originated from over-stepped, tension-cracked cliff-faces that calve and topple or rotate tectonically along fractured columnar part margins. Upper surfaces of Qb1s deposits form hummocks that are dissected by channels formed by debris flows. Qb1s breccias are composed of sediment-gravity flows. Older slides have vegetated and soil-mantled upper surfaces; more recent deposits lack vegetation and soil and in places may be confused for tumbled capped intracrystalline flows. Most slide in the deposits average 1–3 m across; the maximum intact thickness may average 10–15 m. Cracks in the breccias are generally vertical and are common in clasts. Thickness is highly varied; maximum thickness is several tens of meters.

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Andesite and dacite porphyry (Ecocene) (Cross section only, B-B') – Res weathering, coarse-grained, platy to columnar jointed, felsitic, andesite and dacite porphyry exposed in the Eagle Rock 7.5 quadrangle (McCluggage and Ferns, 2007c). Includes clast- and matrix-supported, monolithic breccia and bulbous masses of felsitic-porphyr glassy, black vitrophyre.

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Fig. 1. Total alkalis vs. silica (TAS) classification of whole-rock XRF analyses from

