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GEOLOGIC MAP OF THE RASTUS MTN. QUADRANGLE OREGON

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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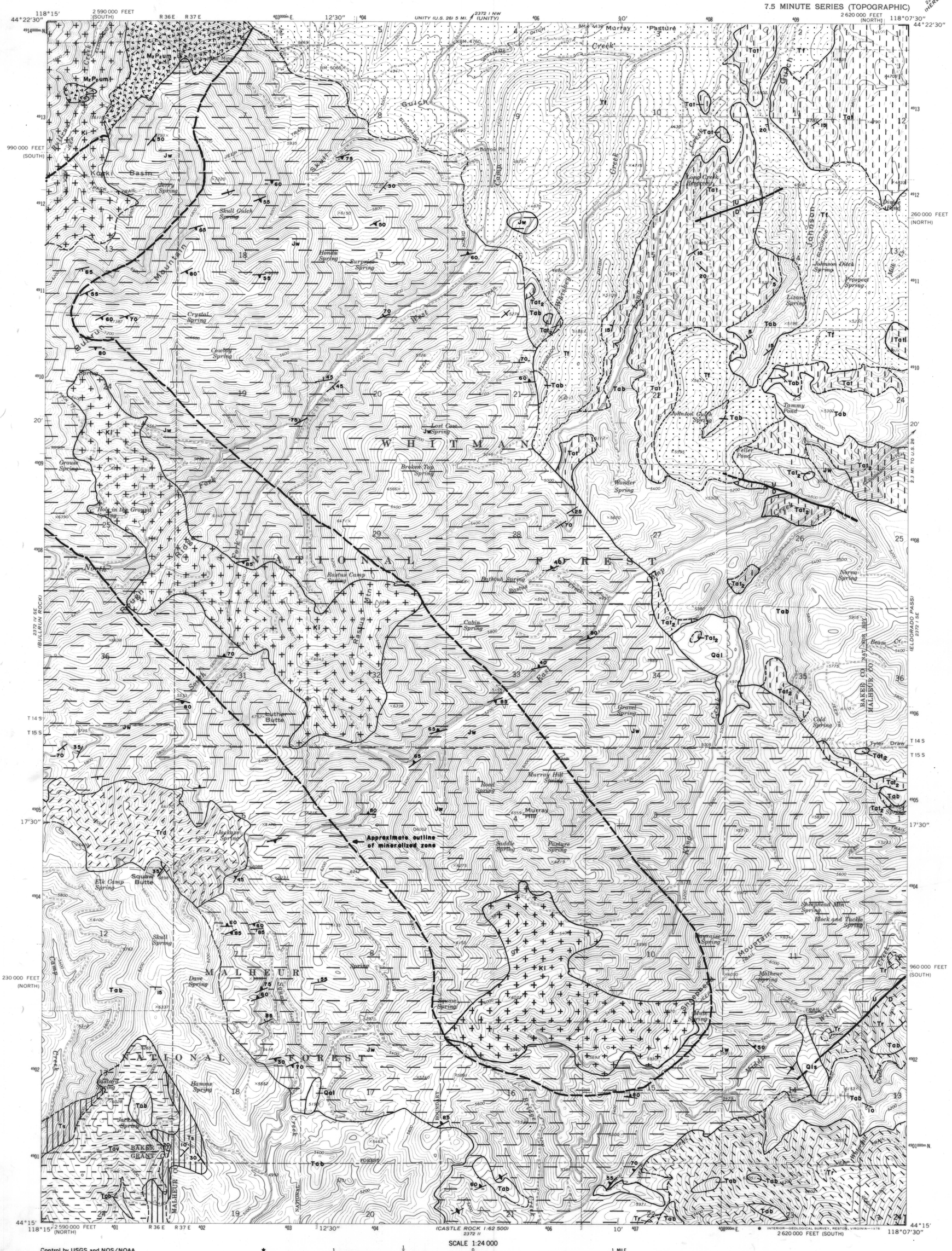
RASTUS MTN. QUADRANGLE
OREGON
7.5 MINUTE SERIES (TOPOGRAPHIC)

0-79-7



CORRELATION OF MAP UNITS

CENOZOIC	QUATERNARY		Qal, Qls
	TERTIARY — PLIOCENE		Tf
	TERTIARY — MIOCENE		Tat, Tav, Ts, Tab, Tr, Trd
MESOZOIC	CRETACEOUS		Ki
	JURASSIC — UPPER		
	JURASSIC — MIDDLE		Jw
	JURASSIC — LOWER		
	TRIASSIC		
PALEOZOIC			MzPzum

EXPLANATION

Qal — Alluvium: Unconsolidated fluviatile deposits consisting of clay, silt, sand, and gravel

Qls — Landslide debris

Tf — Fluviatile and lacustrine sedimentary deposits: Mainly unconsolidated, poorly sorted, alluvial fan deposits consisting of a wide variety of rock types, ranging from fine silt to boulders which in places are as much as 8 ft in diameter. Locally includes semiconsolidated, fine- to coarse-grained tuffaceous sedimentary rocks. Grades northward into Pliocene (Clarendonian) lacustrine deposits of the Unity basin (Lowry, 1968)

Tat — Ash flow tuff: Partly to densely welded ash flow tuff and minor air-fall tuff and tuffaceous sedimentary rocks. Two members recognized, based mainly on color differences; cooling relationships have not been fully established. (Tat) is grayish-brown, locally pinkish-brown to light-gray, glassy, silicic tuff containing abundant, generally flattened fragments of vesicular lava and pumice. (Tat) overlies (Tat_2) and older lava flows of unit (Tab) and in places is underlain by white air-fall tuff and unconsolidated fluvial deposits. (Tat_2) is mostly white to light-gray, locally pink and orange; the tuff contains abundant pumice and obsidian fragments, is densely welded, and, in places, is thinly laminated. (Tat_2) has been dated at 14.5 m.y. (Walker and others, 1974) and may be correlative with the Dinner Creek Ash Flow Tuff

Tr — Rhyolite flows and flow breccia: Dominantly white, light-gray, pink, or purple glassy flow-banded rhyolite flows, flow breccia, and domes with small exposures of tuff breccia and black obsidian flow breccia on Ironside Mountain

Tav — Andesite vitrophyre: Dominantly grayish-green, vitrophyric lava flows with minor amounts of partly welded, gray and pink lithic tuff and gray porphyritic andesite

Ts — Sedimentary deposits: Poorly sorted, semiconsolidated gravel and finer fluviatile deposits with thin, light-colored tuff layers. Rock fragments are mostly basalt and andesite

Tab — Andesite and basalt: Gray to dark-gray, locally red to brown, nonporphyritic and porphyritic andesite and basalt flows and flow breccia; locally includes olivine basalt, dark-colored silicic flows and flow breccia and minor andesitic and basaltic tuff and tuff breccia. Light-colored silicic volcanic rocks and tuffaceous sedimentary rocks make up part of the section in a few places. Platy flow structure is a common feature of the andesite and basalt flows, and many of the flows have vesicular tops. Age assignment is based on lithologic and stratigraphic correlations with the Strawberry Volcanics (Brown and Thayer, 1966; Thayer and Brown, 1973)

Trd — Silicic volcanic rocks: Dominantly grayish-green porphyritic biotite rhyodacite and fine-grained hornblende dacite with some light-gray, iron-stained and partly silicified and kaolinized rhyolite or dacite, biotite-bearing silicic air-fall tuff, and tuffaceous sedimentary rocks including conglomerate

Ki — Intrusive rocks: Mainly porphyritic hornblende diorite and quartz diorite. Only the larger intrusive complexes have been separately mapped. Hundreds of dikes and sills of similar composition cut the Weatherby Formation and older rocks elsewhere in the map area. The mapped exposure in the northwestern part of the quadrangle includes some equigranular quartz diorite. Small roof pendants of silicified breccia and sedimentary rocks of the Weatherby Formation are present in the central body. Some of the rocks are strongly altered by hydrothermal solutions (see paragraph on mineralization below). Relatively unaltered hornblende-biotite rhyodacite and hornblende quartz diorite dikes and sills cut the altered intrusive rocks locally. Some of the rocks in the southeastern part of the southernmost body may be altered silicic lava and tuff rather than intrusive rock. Intense hydrothermal alteration precludes positive identification of the original rocks. The age of the intrusions is uncertain. The rocks postdate the Weatherby Formation of Early and Middle Jurassic age and predate volcanic rocks of Miocene age. Dikes of similar composition cut the Tureman Ranch Diorite, which has been dated at 120 ± 6 m.y. (Thayer and Brown, 1964)

Jw — Weatherby Formation: Mostly wacke and siltstone; minor conglomerate, tuff, and arkosic sandstone. Limestone lenses are rare. Typical colors are light gray, tan, and gray-green, with minor amounts of dark gray and black. Pervasive shear cleavage generally strikes northeasterly and dips steeply, obscuring bedding features in most outcrops. Near the edges of the intrusive bodies (Ki), the rocks have been hydrothermally altered (see paragraph on mineralization below). The Weatherby Formation is of Early and Middle Jurassic (early Sinemurian to early Callovian) age. Ammonites of Bajocian age have been reported from the map area (Lowry, 1968). This unit was informally named the Rastus Series by Lowry for exposures on Rastus Mountain

MzPzum — Ultramafic complex: Dominantly coarse-grained olivine-enstatite harzburgite and dunite; includes minor serpentinite, pyroxenite, and hornblende gabbro. Age uncertain. Similar ultramafic rocks elsewhere in northeastern Oregon are generally believed to have been emplaced during the Permian or early Triassic. Conglomerates in the Weatherby Formation contain fragments of serpentinite

Mineralization: Within the area outlined on the map, most of the intrusive rocks (Ki) and sedimentary rocks (Jw) have been hydrothermally altered and mineralized. In the porphyritic intrusive rocks, the alteration is characterized by the replacement of hornblende by epidote, chlorite, and pyrite, and the silification or saussuritization of both groundmass and feldspars. Locally these rocks contain small amounts of copper and molybdenum sulfides. The rocks in the southernmost intrusive have been altered mainly to quartz and sericite. Commonly the feldspars are sericitized, and the mafic minerals are altered to brownish- or reddish-colored iron oxide minerals. The sedimentary rocks were bleached, silicified, and pyritized by the hydrothermal solutions. The pyrite generally occurs as minute disseminated crystals and as crystal aggregates along small fractures. Locally within the mineralized zone there are large areas of siliceous pyritized breccia. Gold deposits occur in serpentinized peridotite at the Thomason and Schwayder mines

GEOLOGIC SYMBOLS

- Contacts, dashed where approximately located
- Faults, dashed where approximately located
- Strike and dip of bedding
- Strike and dip of cleavage or foliation

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1971. Field checked 1972

Projection: Oregon coordinate system, north zone (Lambert conformal conic)
10,000-foot grid ticks based on Oregon coordinate system, north and south zones
1000-metre Universal Transverse Mercator grid ticks, zone 11, 1927 North American datum

UTM GRID AND 1972 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETRE

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

OREGON
QUADRANGLE LOCATION

Map prepared by
STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

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