



Geologic Map of the Devine Ridge South 7.5' Quadrangle, Harney County, Oregon

2018

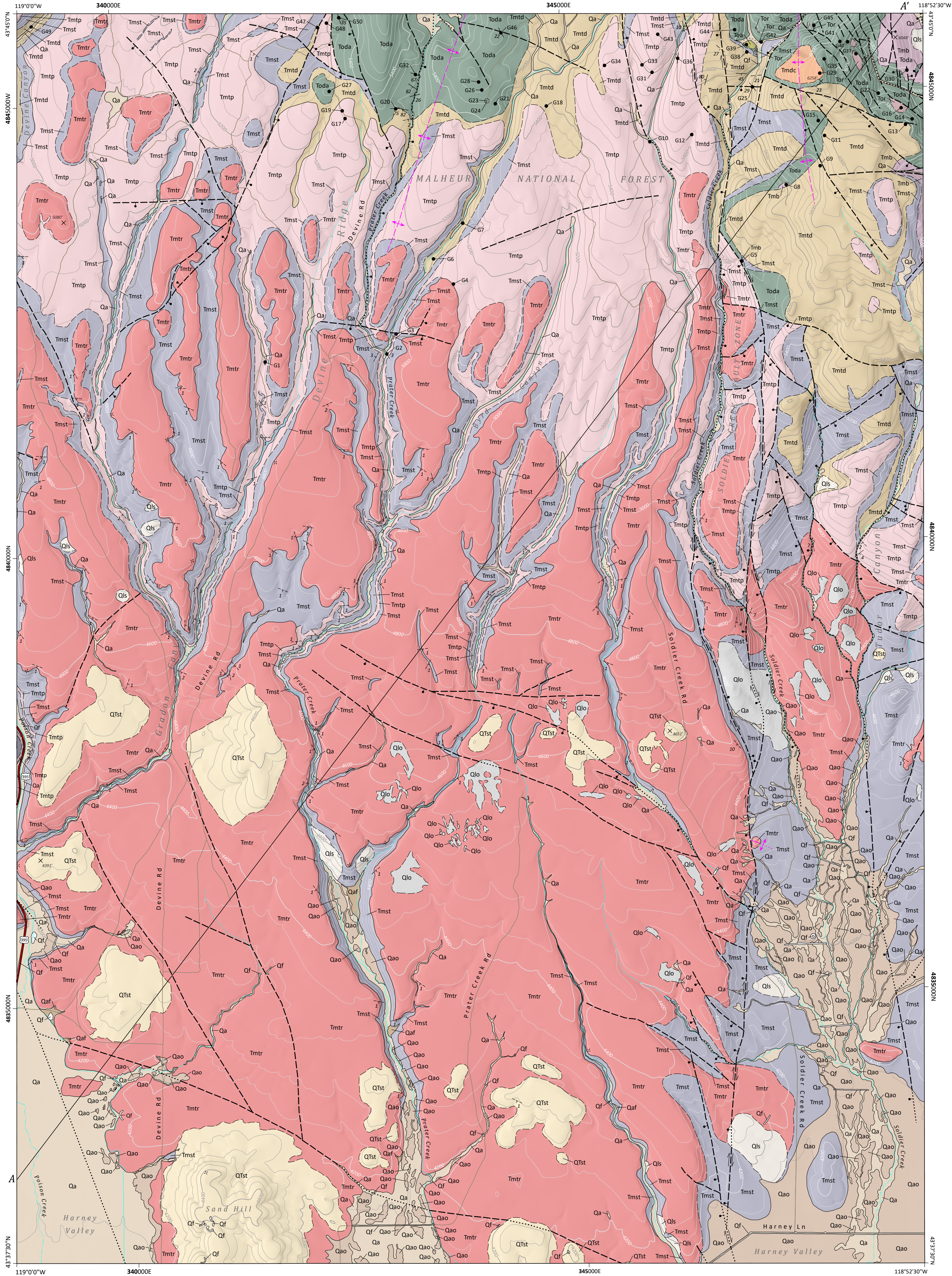
GMS-120

Geologic Map of the Devine Ridge South 7.5' Quadrangle,
Harney County, Oregon

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USGS STATEMAP component of the National Cooperative Geologic Mapping Program
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PLATE 1



EXPLANATION OF MAP UNITS

See Explanation of Map Units in the accompanying pamphlet for complete unit descriptions.

UPPER CENOZOIC SURFICIAL DEPOSITS

- Qf modern fill and construction material (upper Holocene)
- Qa alluvium (Holocene and Upper Pleistocene[?])
- Qaf fan deposits (Holocene and Upper Pleistocene[?])
- Qls landslide deposits (Holocene and Upper Pleistocene[?])
- Qao older alluvium (Holocene and Upper Pleistocene[?])
- Qlo loess (Holocene[?] and lower Pleistocene[?])

Angular unconformity to disconformity

UPPER TO LOWER CENOZOIC VOLCANIC AND SEDIMENTARY ROCKS LOWER PLEISTOCENE TO UPPER MIOCENE SEDIMENTARY ROCKS

- QTst sedimentary rocks (lower Pleistocene[?] and upper Miocene[?])

UPPER TO MIDDLE MIOCENE VOLCANIC AND SEDIMENTARY ROCKS

- Tmtr Rattlesnake Tuff (upper Miocene) 7.05 ± 0.01 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$); 7.093 ± 0.015 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$)
- Tmtp Prater Creek Ash-flow Tuff (upper Miocene) 8.41 ± 0.16 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$)
- Tmtd Devine Canyon Ash-flow Tuff (upper Miocene) 9.63 ± 0.05 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$)
- Tmst tuffaceous sedimentary rocks (upper Miocene[?] and middle Miocene[?])

Nonconformity

MIDDLE TO LOWER MIOCENE VOLCANIC ROCKS

- Tmcd Dinner Creek Tuff (middle Miocene or lower Miocene) 15.9 ± 0.09 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$); 16.16 ± 0.02 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$)
- Tmb basalt-basaltic andesite (lower Miocene[?])

Angular unconformity to disconformity

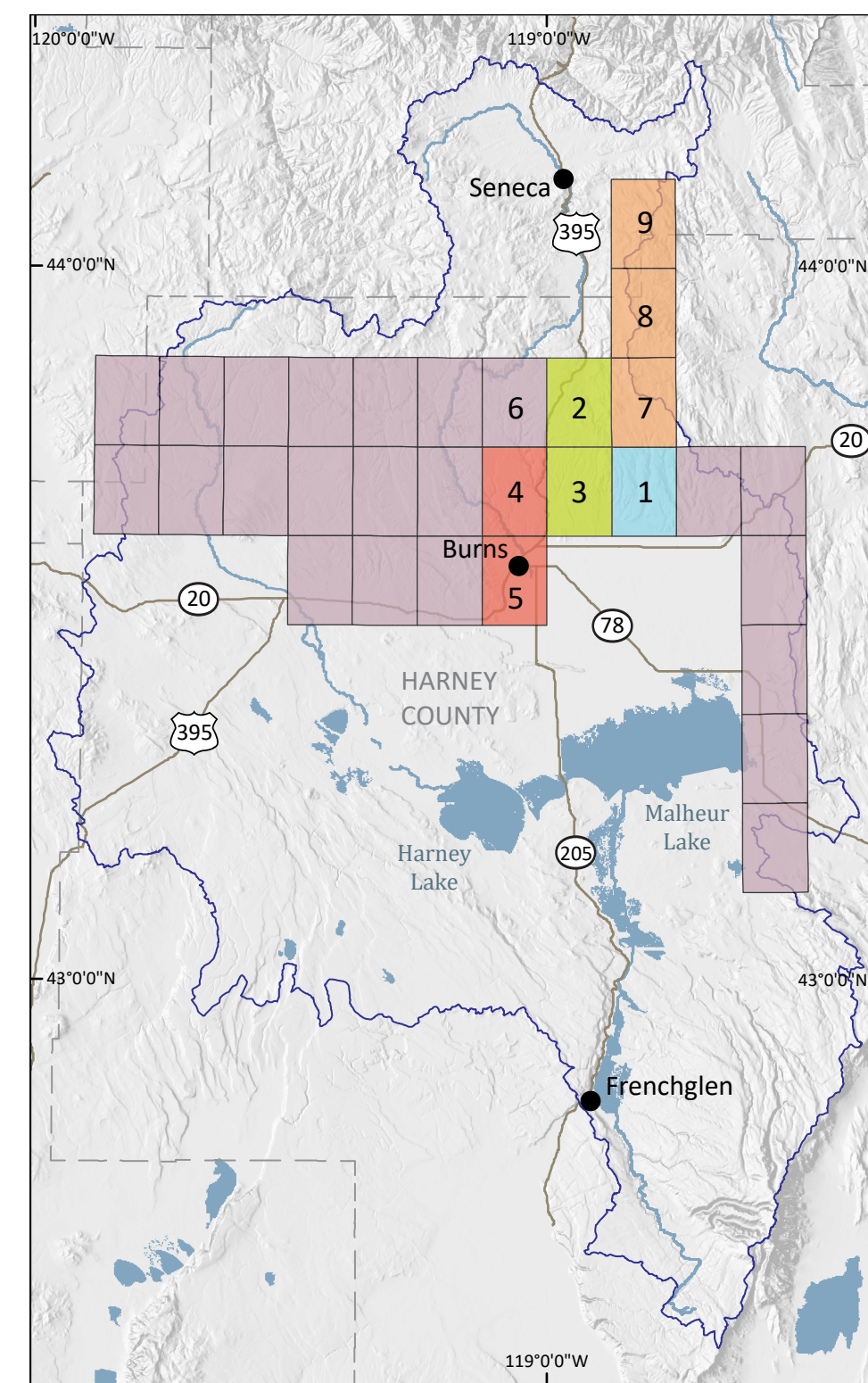
UPPER OLIGOCENE VOLCANIC ROCKS

- Toa andesite (upper Oligocene) 24.75 ± 0.15 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$)
- Tor rhyolite (upper Oligocene[?])
- Toda dacite (upper Oligocene[?])

EXPLANATION OF SYMBOLS

- Stream
- Intermittent stream
- Road
- U.S. route
- Cross-section line
- Inclined bedding showing strike and dip
- Inclined bedding showing Structure for Motion (SPM) DEM derived strike and dip
- Horizontal bedding, as determined remotely or from aerial photographs
- USGS (2015) DEM (10-meter) derived elevation
- Location of whole-rock X-ray fluorescence (XRF) geochemical analysis sample open circle where multiple data points overlap
- Contact — solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Fault — solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Normal fault — ball and bar on downthrown block. Solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Oblique-slip fault, right-lateral offset — ball and bar on downthrown block. Solid line where accurately located and existence certain, short-dashed where inferred, dotted where approximate, queried where uncertain.
- Oblique-slip fault, right-lateral offset (in cross section) — minus, away from observer; plus, toward observer. Arrows show relative motion.
- Normal fault (in cross section) — Arrows show relative motion.
- Anticline — solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.

PROJECT AREA



- FY 2018 DOGAMI STATEMAP in progress
- FY 2017 DOGAMI STATEMAP
- FY 2016 STATEMAP completed
- Location of 2016/2017 EdMap project areas (Portland State University, OR)
- Future DOGAMI geologic mapping targets

U.S. Geological Survey 7.5' Quadrangles by Number

- Harney
- Devine Ridge North
- Devine Ridge South (this study)
- Poison Creek
- Burns
- Mosquito Flat
- Telephone Butte
- Calamity Butte
- Jump-Off Joe Mountain

- Harney hydrologic basin boundary
- County boundary
- Stream
- Route 78 State 395 Federal
- Waterbody



Source Data: U.S. Geological Survey (USGS) National Elevation Dataset (NED) 10-meter digital elevation model (DEM) for Devine Ridge South (4318-P8) quadrangle. Water features from USGS High Resolution National Hydrography Dataset (NHD). Aquatic Resources Information System (ARIS) (2017). Road features from the Oregon Department of Transportation (ODOT) (2015).

Projection: Oregon Statewide Lambert Conformal Conic, Unit: International Feet, Horizontal Datum: NAD 1983 HARN. UTM Coordinates: Zone 11N, NAD83.

Field Work: Esri ArcGIS® 10.6 and Adobe® Illustrator® CC

Software: Clark A. Niewendorf, DOGAMI

References: Cohen, K. M., Pinney, S. C., Gibbard, P. L., and Fan, J.-X., 2013. The ICS International Chronostratigraphic Chart: Episodes, v. 36, no. 3, p. 199-204.

Gradstein, F. M., Ogg, J. G., and Smith, A. G., eds., 2004. A geologic time scale 2004: Cambridge, U.K., Cambridge University Press, 589 p.

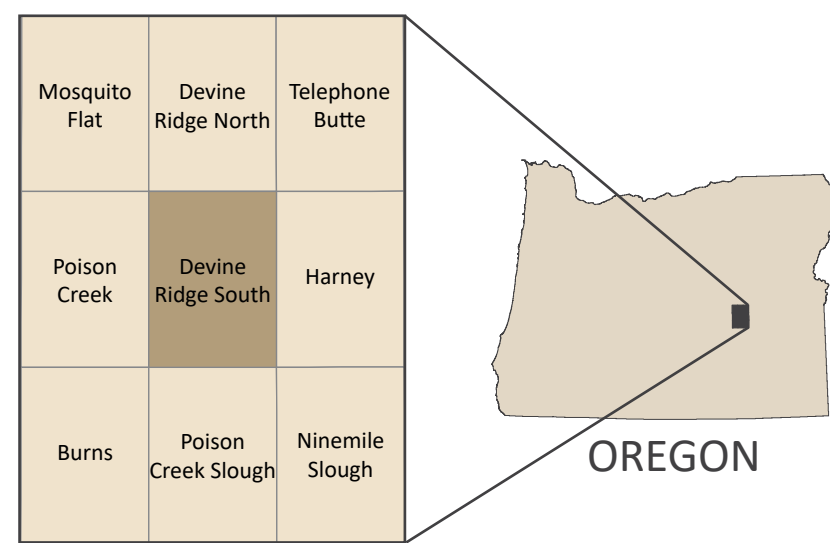
Ogg, J. G., Ogg, G., and Gradstein, F. M., 2008. The concise geologic time scale: New York, Cambridge University Press, 184 p.

Geology Reviewers: Mark L. Ferns and Darriac Boschmann

Digital Cartography: Jon J. Franczyk, DOGAMI

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U.S. Geological Survey 7.5-minute quadrangles. Map plate extent shown with a filled brown polygon.

GEOLOGIC CROSS SECTION

2x vertical exaggeration (horizontal: 1:24,000)

Selected Quaternary units not shown in cross section. The extent of diatreme Unit Toda in the subsurface is not known and is therefore queried. Subsurface projection of unit Toda is based on exposed thickness in the quadrangle.

