

Geologic Map of the Burns 7.5' Quadrangle, Harney County, Oregon

2019

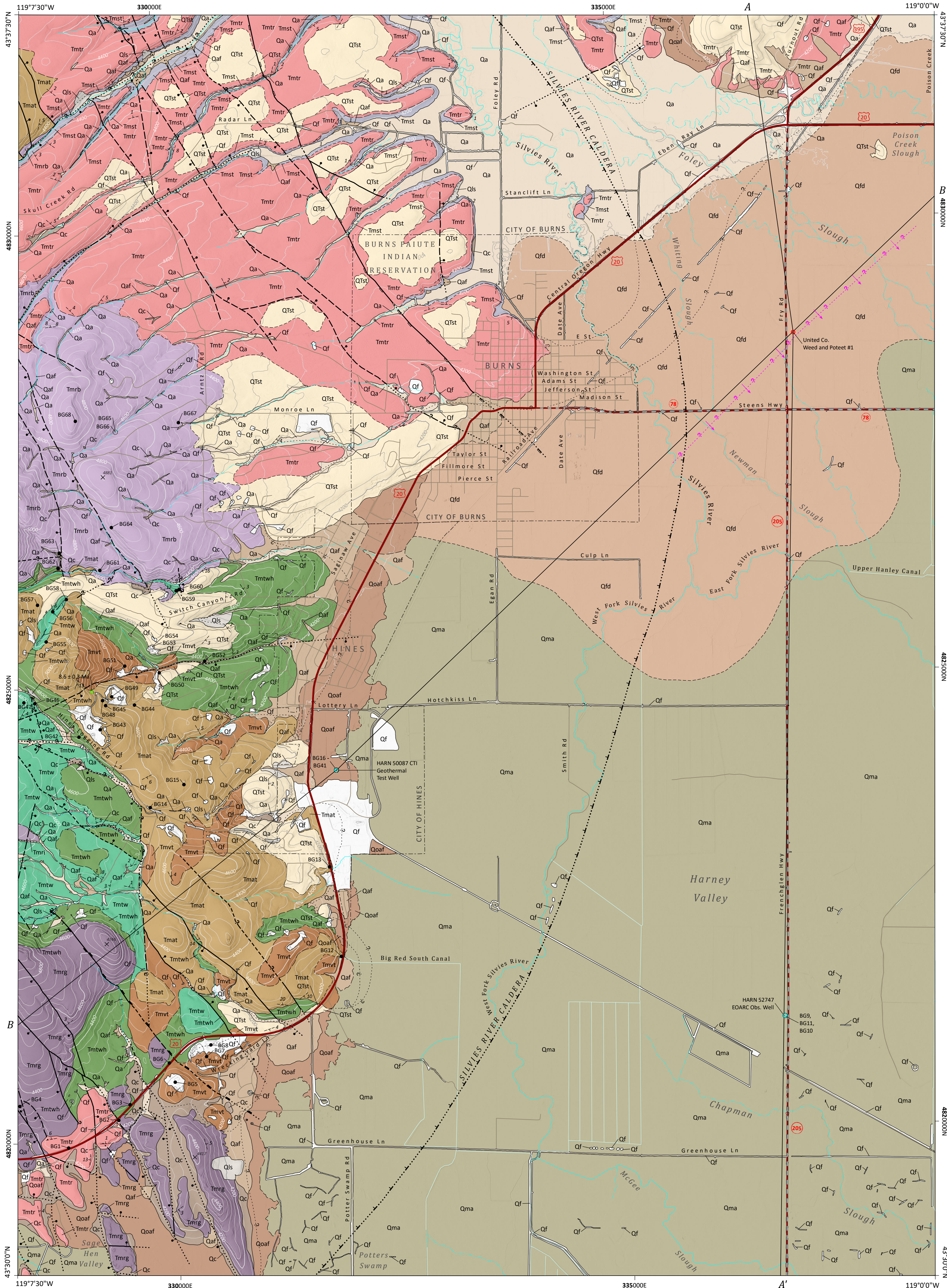
GMS-123

Geologic Map of the Poison Creek and Burns 7.5' Quadrangles,
Harney County, Oregon

By Jason D. McCloughry, Carlie J. M. Duda, and Mark L. Ferns

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STATEMAP component of the National Cooperative Geologic Mapping Program (G18AC00136).
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PLATE 2



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)
- Qma marsh and alluvial deposits (Holocene and Upper Pleistocene[?])
- Qda fan delta deposits (Holocene and Upper Pleistocene[?])
- Qa alluvium (Holocene and Upper Pleistocene[?])
- Qaf fan deposits (Holocene and Upper Pleistocene[?])
- Qls landslide deposits (Holocene and Upper Pleistocene[?])
- Qc colluvium (Holocene and Upper Pleistocene[?])
- Qoaf older fan deposits (Holocene and Pleistocene[?])

Angular unconformity to disconformity

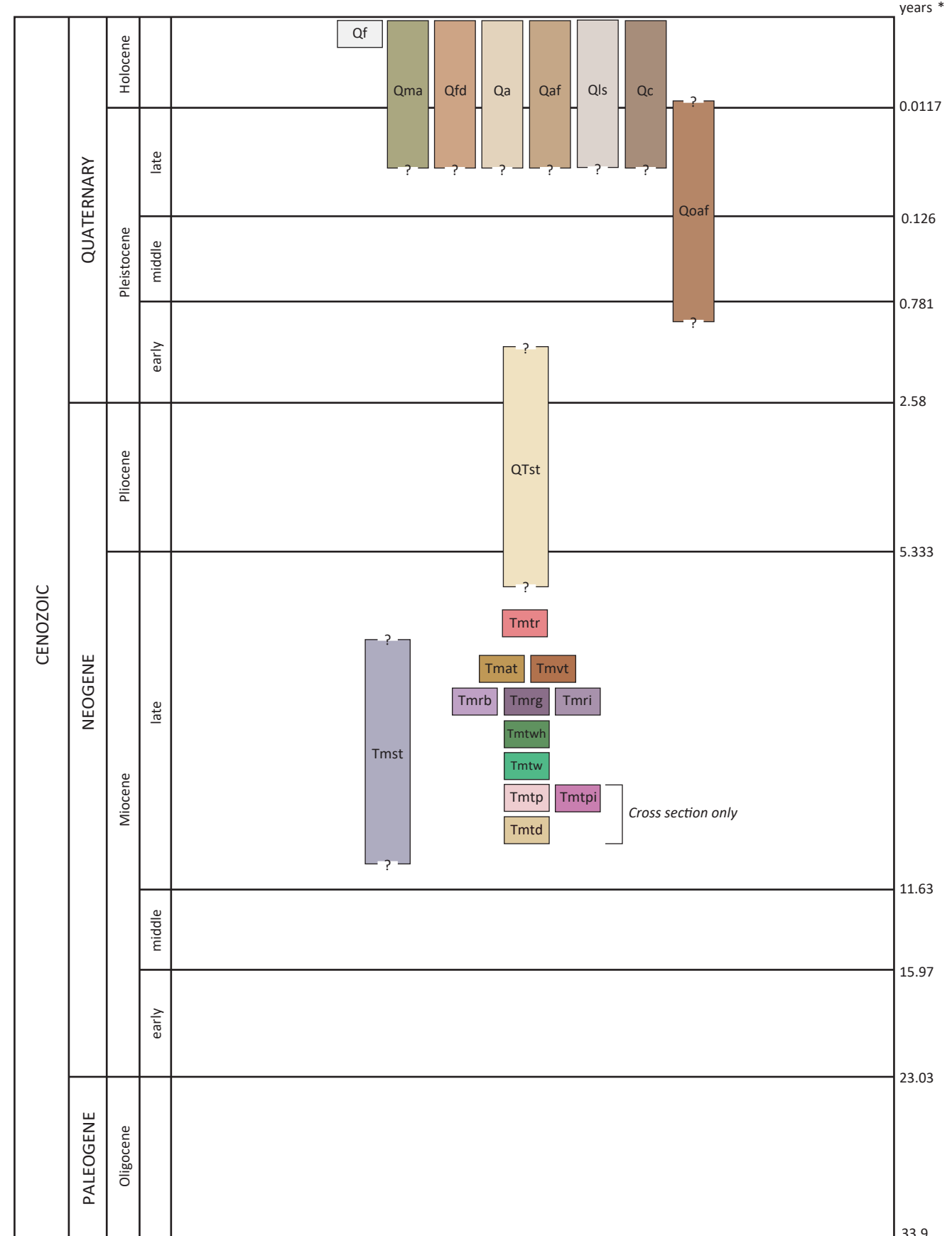
UPPER CENOZOIC VOLCANIC AND SEDIMENTARY ROCKS LOWER PLEISTOCENE TO UPPER MIOCENE SEDIMENTARY ROCKS

- Qst sedimentary rocks (lower Pleistocene to upper Miocene[?])

UPPER MIOCENE VOLCANIC AND SEDIMENTARY ROCKS

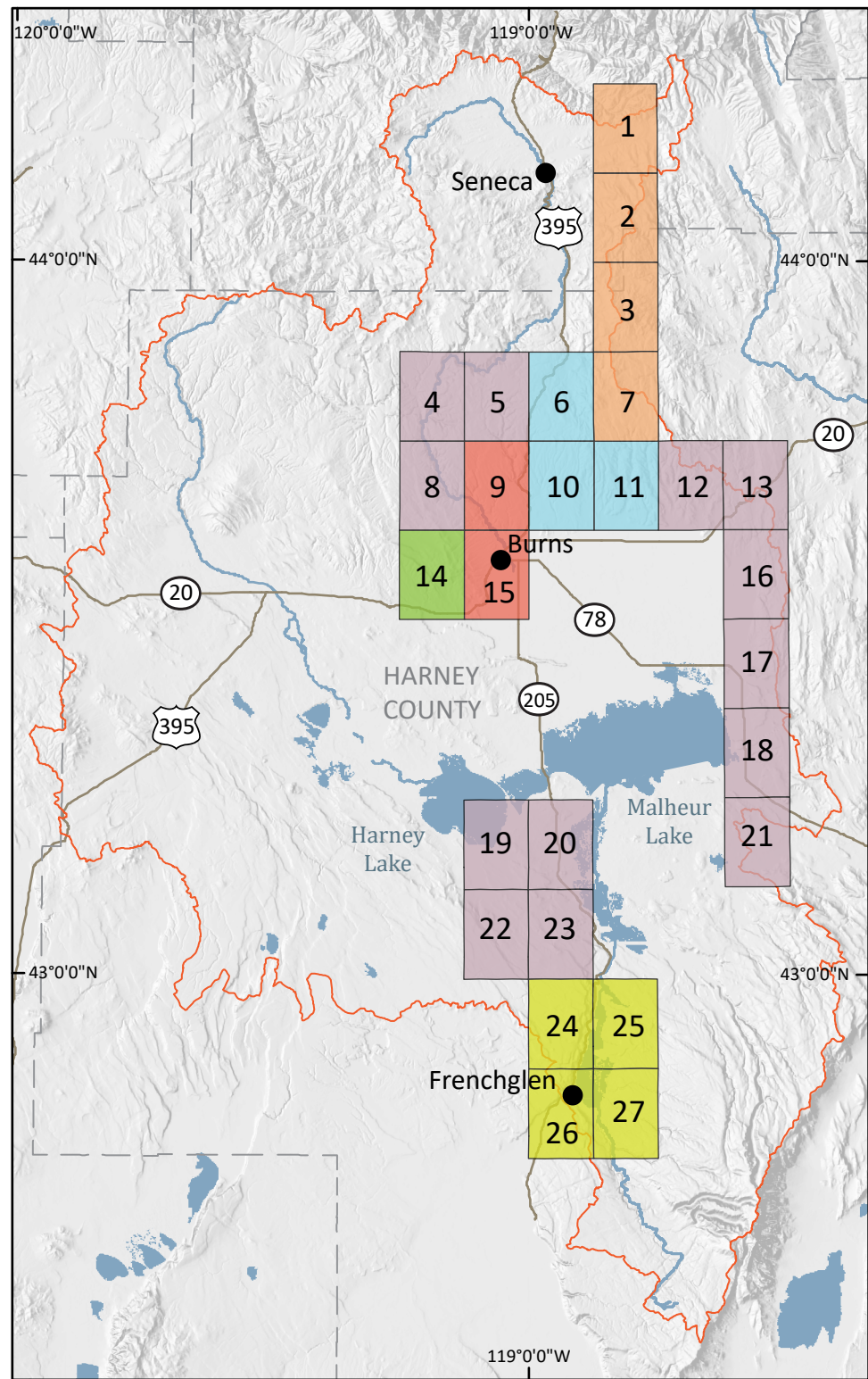
- Tmtr Rattlesnake Tuff (upper Miocene) 7.093 ± 0.015 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$)
- Tmat basaltic trachyandesite and trachyandesite flows and dikes (upper Miocene)
- Tmtt basaltic trachyandesite and trachyandesite vent deposits (upper Miocene)
- Tmrh rhyolite of Burns Butte (upper Miocene) 7.68 ± 0.04 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$)
- Tmrh rhyolite of Golden Ranch (upper Miocene) 8.03 ± 0.26 Ma (K/Ar)
- Tmrh rhyolite intrusive (upper Miocene)
- Tmrwh tuff of Wheeler Springs, non-welded lapilli tuff (upper Miocene)
- Tmrwh tuff of Wheeler Springs, welded tuff (upper Miocene)
- Tmtp Prater Creek Ash-flow Tuff (upper Miocene) 8.41 ± 0.16 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$) (cross section only)
- Tmtd Prater Creek Ash-flow Tuff, intracaldera unit (upper Miocene) (cross section only)
- Tmtd Devine Canyon Ash-flow Tuff (upper Miocene) 9.63 ± 0.05 Ma, 9.74 ± 0.02 Ma ($^{40}\text{Ar}/^{39}\text{Ar}$) (cross section only)
- Tmat tuffaceous sedimentary rocks (upper Miocene)

TIME-ROCK CHART



*International Chronostratigraphic Chart, International Stratigraphic Commission, 2013/v1, Time scale after Gradstein and others (2004), Ogg and others (2008), and Cohen and others (2013). <http://www.stratigraphy.org/index/ics-chart-timescale>

HARNEY BASIN LOCATION MAP

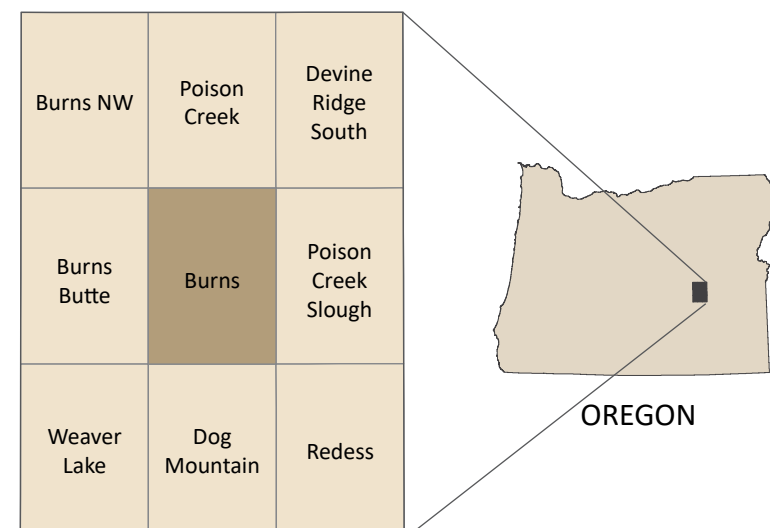


- FY 2018 DOGAMI STATEMAP (this study)
- FY 2019 DOGAMI STATEMAP geologic mapping
- DOGAMI geologic mapping completed
- Future DOGAMI geologic mapping targets
- USGS geologic mapping completed
- FY 2016 - 2019 EdMap project areas (Portland State University, Oregon)

U.S. Geological Survey 7.5' Quadrangles by Number

- Big Canyon
- Jump-Off Joe Mountain
- Calamity Butte
- Landing Creek
- Mosquito Flat
- Devine Ridge North
- Telephone Butte
- Burns Northwest
- Poison Creek (this study)
- Devine Ridge South
- Harney
- Buchanan
- Stinkingwater Pass
- Burns Butte
- Burns (this study)
- Mahon Creek
- Crane
- New Princeton
- Southeast Harney Lake
- Coyote Buttes
- Adobe Flat
- Twin Buttes
- Jacksack Butte
- Irish Lake
- Krumbo Reservoir
- Frenchglen
- Page Springs

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



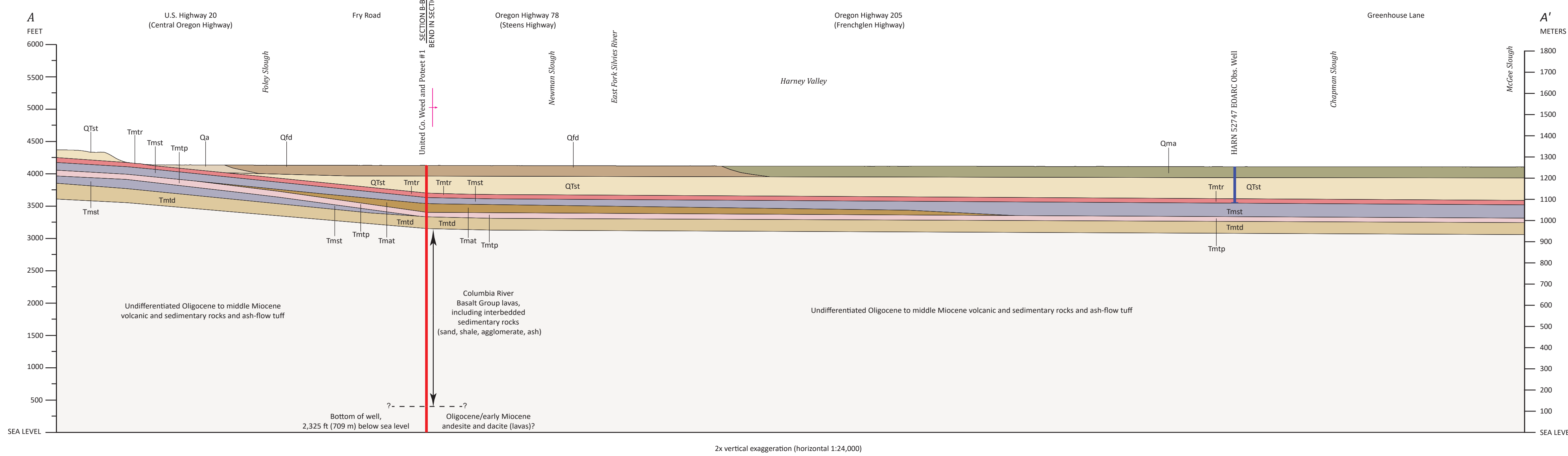
U.S. Geological Survey 7.5-minute quadrangles. Map plate extent shown with a filled brown polygon.

EXPLANATION OF SYMBOLS

- Stream
- Intermittent stream
- Canal
- Road
- Oregon highway
- U.S. highway
- Cross section line
- City/town boundary
- Oil or gas well (cross section only)
- Horizontal bedding, as determined remotely or from aerial photographs
- Gently inclined (between 0° and 30°) bedding, as determined remotely or from aerial photographs; showing approximate strike and direction of dip
- Digital elevation model (1-meter) derived elevation
- Location of whole-rock XRF geochemical analysis sample; open circle where multiple data points overlap
- Location of radiometric age sample; age in millions of years (Ma)
- Water well, as shown on topographic maps or on general-purpose or smaller-scale maps
- Oil or gas well, as shown on topographic maps or on general-purpose or smaller-scale maps
- Water well (cross section only)
- Caldera margin — Identity and existence certain, location concealed. Ticks point into caldera
- Contact — Solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where identity or existence questionable
- Fault — Thick solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where identity or existence questionable. Ball and bar on downthrown block
- Normal fault — Thick solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where identity or existence questionable. Rectangles on downthrown block
- Rotational or scissor fault, reverse-slip offset — Thick solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where identity or existence questionable. Rectangles on downthrown block
- Rotational or scissor fault, normal-slip offset — Thick solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where identity or existence questionable. Rectangles on downthrown block
- Normal fault (in cross section) — Short-dashed line where inferred, dotted where approximate. Arrows show relative motion
- Monocline — Identity or existence questionable, location concealed. Arrow shows direction of dip

GEOLOGIC CROSS SECTIONS

Selected Quaternary units not shown in cross section.



Source Data: Three-foot hard earth lidar digital elevation model for Burns (4319-E) quadrangle derived from multiple Oregon lidar surveys: Harney 3/27/2018, Silver Creek 2017, Harney Basin 2015, and Burns 2011. These data are distributed through the Oregon Department of Geology and Mineral Industries (DOGAMI) Data Program (<http://data.dogami.org/arcgis/maps/indexviewer/>). Water features from USGS High Resolution National Hydrography Dataset (NHD). Aquatic Resource Information System (ARIS) (2017). Road features from Oregon Department of Transportation (ODOT) (2015).

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

Software: Esri ArcGIS v10.6 and Adobe® Illustrator® 2019 v23.0.3.

Field Work: Field work conducted in 2018 and 2019 by Carlie J.M. Duda, DOGAMI; Jason D. McCloughry, DOGAMI; Clark A. Newendorp, DOGAMI (retired); Mark L. Ferns, and Alyssa Pratt, DOGAMI.

References: Cohen, R. M., Finney, S. C., Gibbard, P. L., and Van, L. N., 2013, The ICS International Chronostratigraphic Chart: Episodes 36, p. 199-204.

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

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

Geology Reviews: Martin Strock, Portland State University, Oregon; Josh Hackett, Oregon Water Resource Department; Clark A. Newendorp, DOGAMI (retired); Ian P. Madin, DOGAMI; and Robert A. Houston, DOGAMI.

Digital Cartography: Jon J. Francis, DOGAMI.

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