

Geologic Map of the Fivemile Butte and Northern Part of the Flag Point 7.5' Quadrangles, Hood River and Wasco Counties, Oregon

2024

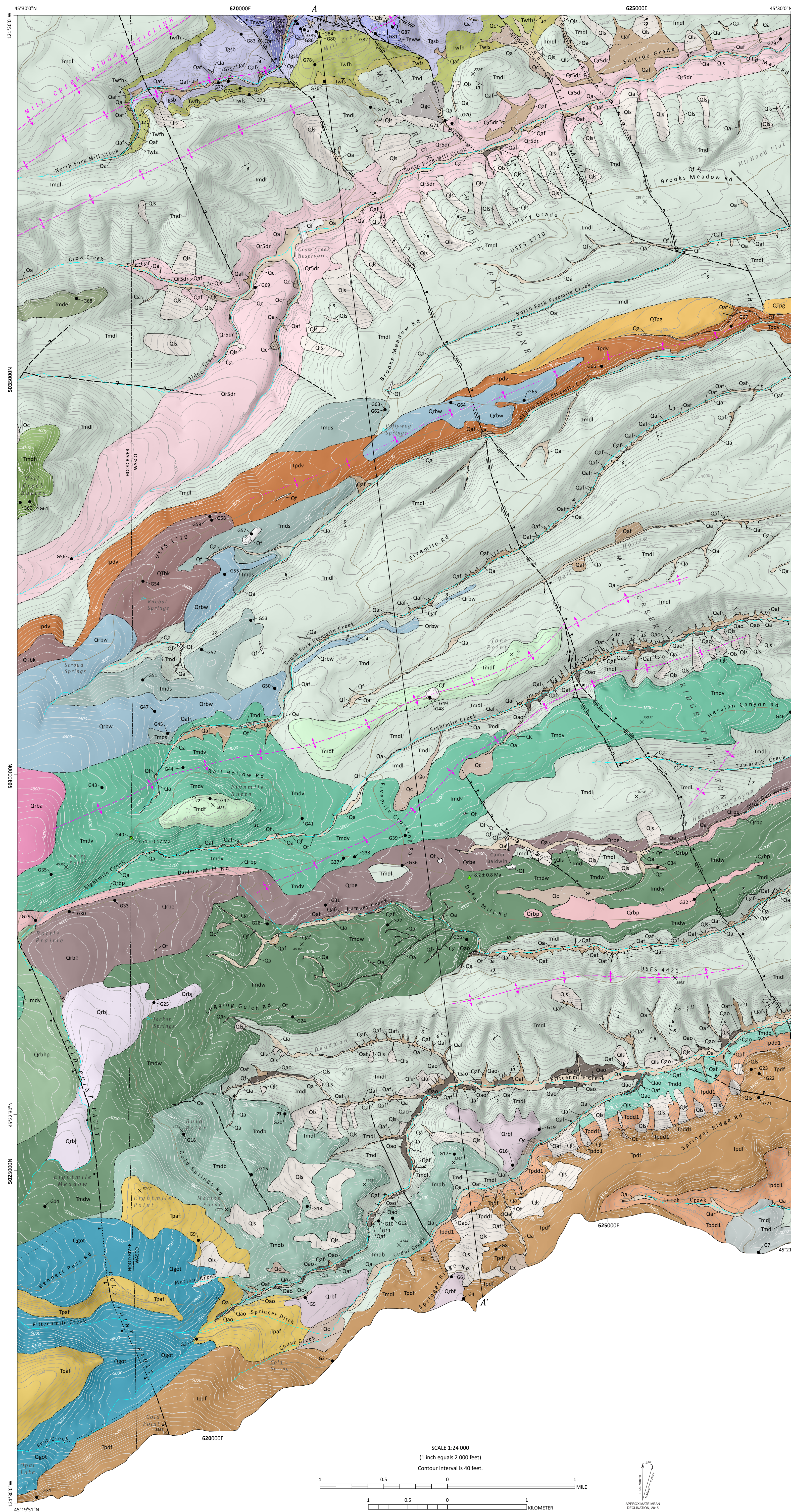
GMS-128

Geologic Map of the Mill Creek Area, Hood River and Wasco Counties, Oregon
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Cartography by Jon J. Franczyk⁶ and Geodatabase by Carl J. M. Azzopardi³

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PLATE 3



LIST 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)
- Qc** colluvium (Holocene and Upper Pleistocene)
- Qal** older alluvium (Holocene and Upper Pleistocene)
- Qgl** older till (Middle Pleistocene?)

Unconformity

UPPER CENOZOIC VOLCANIC AND SEDIMENTARY ROCKS QUATERNARY AND UPPER PLEISTOCENE VOLCANIC AND SEDIMENTARY ROCKS OF THE LATE HIGH CASCADES

PRODUCTS OF REGIONAL QUATERNARY VOLCANOES

- Qgc** gravel (lower Pleistocene)
- Qsdr** basaltic andesite of Dog River (lower Pleistocene)
1.87 ± 0.01 Ma (⁴⁰Ar/³⁹Ar; outside Mill Creek area); 1.7 ± 0.4 Ma (K-Ar)
- Qsdp** basaltic andesite of High Prairie (lower Pleistocene)
- Qsba** basalt of Agnes Spring (lower Pleistocene)
- Qsbr** basaltic andesite of Ward Creek (lower Pleistocene)
- Qsbh** basalt of Hessian Canyon (lower Pleistocene)
- Qsbj** basalt of Jacket Springs (lower Pleistocene)
- Qsbp** basalt of Bennett Pass Road (lower Pleistocene)
2.35 ± 0.03 Ma (K-Ar; outside Mill Creek area)
- Qsdf** basaltic andesite of Flag Point (lower Pleistocene or upper Pliocene)
2.57 ± 0.02 Ma (⁴⁰Ar/³⁹Ar; outside Mill Creek area)
- Qsbn** basalt of Knebel Spring (lower Pleistocene?) or upper Pliocene(?)

Disconformity

PLIOCENE VOLCANIC AND SEDIMENTARY ROCKS OF THE LATE HIGH CASCADES

- Qrpe** sedimentary deposits (lower Pliocene and/or upper Pliocene)
- Qpdl** dacite of Fivemile Creek (upper Pliocene)
3.02 ± 0.02 Ma (⁴⁰Ar/³⁹Ar; outside Mill Creek area);
2.85 ± 0.06 Ma (K-Ar; outside Mill Creek area)
- Qpaf** andesite of Fret Creek (upper Pliocene)
- Qpdl1** tuff breccia of Engineers Creek, lower unit (lower Pliocene)
3.71 ± 0.02 Ma (⁴⁰Ar/³⁹Ar; clast; outside Mill Creek area);
3.83 ± 0.02 Ma (⁴⁰Ar/³⁹Ar; basal tuff; outside Mill Creek area)
- Qpaf** trachyandesite of Fivemile Creek (lower Pliocene)
3.69 ± 0.01 Ma (⁴⁰Ar/³⁹Ar; outside Mill Creek area);
3.7 ± 0.2 Ma (K-Ar; outside Mill Creek area)

Disconformity

LOWER PLIOCENE AND UPPER MIOCENE VOLCANIC AND SEDIMENTARY ROCKS OF THE EARLY HIGH CASCADES

Dalles Formation

- Tmdl** Dalles Formation, undivided (lower Pliocene?) and upper Miocene)
- Tmdj** dacite of Jordan Butte (lower Pliocene or upper Miocene)
5.28 ± 0.5 Ma (K-Ar; outside Mill Creek area)
- Tmdk** andesite and dacite of East Fork (upper Miocene)
7.15 ± 0.8 Ma (K-Ar; outside Mill Creek area);
8.18 ± 0.06 Ma (K-Ar; outside Mill Creek area)

Mill Creek Buttes

- Tmdu** hornblende-porphyratic microdiorite of Mill Creek Buttes (upper Miocene)
- Tmdf** dacite of Fivemile Butte, upper flow (upper Miocene)
- Tmdv** dacite of Fivemile Butte, lower flows and domes (upper Miocene) 7.71 ± 0.17 Ma (K-Ar)
- Tmds** dacite of South Fork Fivemile Creek (upper Miocene)
- Tmdw** dacite of Wolf Run (upper Miocene) 7.91 ± 0.08 Ma (⁴⁰Ar/³⁹Ar; outside Mill Creek area);
8.2 ± 0.8 Ma (K-Ar)
- Tmdb** dacite of Bulb Point (upper Miocene)
- Tmdt** tuff breccia of Fivemile Creek (upper Miocene)
8.75 ± 0.05 Ma (⁴⁰Ar/³⁹Ar; clast; outside Mill Creek area)

Disconformity to angular unconformity(?)

MIDDLE AND LOWER MIOCENE VOLCANIC AND SEDIMENTARY ROCKS COLUMBIA RIVER BASALT GROUP

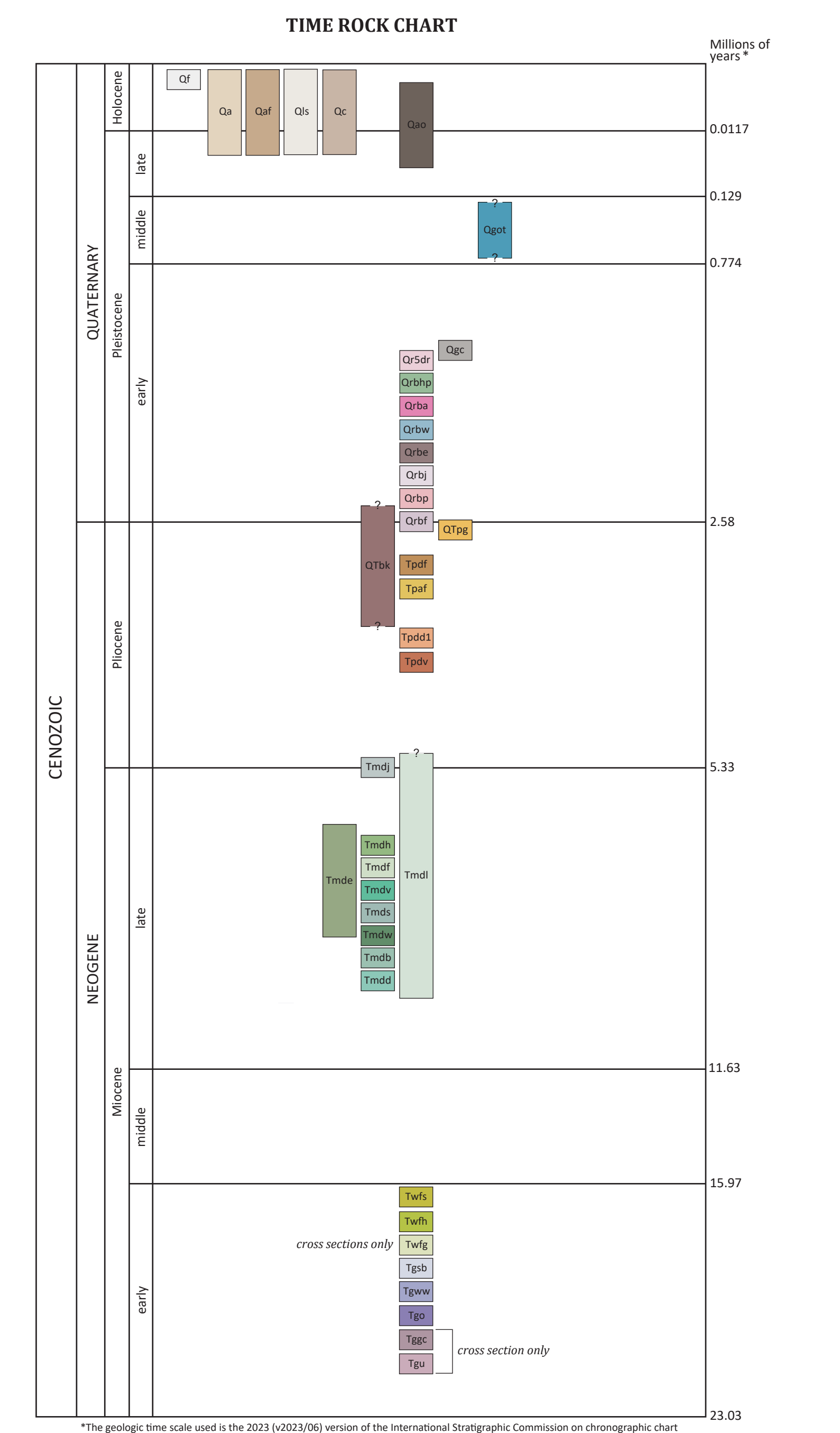
Wanapum Basalt

- Tpwm** Frenchman Springs Member
- Tpwl** Basalt of Sentinel Gap (lower Miocene)
- Tpwh** Basalt of Sand Hollow (lower Miocene)
- Tpwi** Basalt of Ginkgo (lower Miocene)
16.12 ± 0.05 Ma (⁴⁰Ar/³⁹Ar; outside Mill Creek area) (cross-section only)

Disconformity

Grande Ronde Basalt

- Tgrb** Normal-polarity (N2) magnetostratigraphic unit
- Tgrs** Sentinel Bluffs Member (lower Miocene)
16.13 ± 0.04 Ma; 16.15 ± 0.07 Ma (⁴⁰Ar/³⁹Ar; outside Mill Creek area)
- Tgrw** Winter Water Member (lower Miocene)
- Tgrt** Oriley member (lower Miocene)
- Tgrp** Reversed-polarity (R2) magnetostratigraphic unit
- Tgrm** Grouse Creek member (lower Miocene) (cross-section only)
- Tgrn** Undivided Grande Ronde Basalt
- Tgru** Grande Ronde Basalt, undivided (lower Miocene) (cross-section only)



The geologic time scale used is the 2023 (2023) version of the International Stratigraphic Commission on chronostratigraphic chart (https://stratigraphy.org/strat) revised from Gradstein and others (2004), Ogg and others (2008), and Cohen and others (2013).

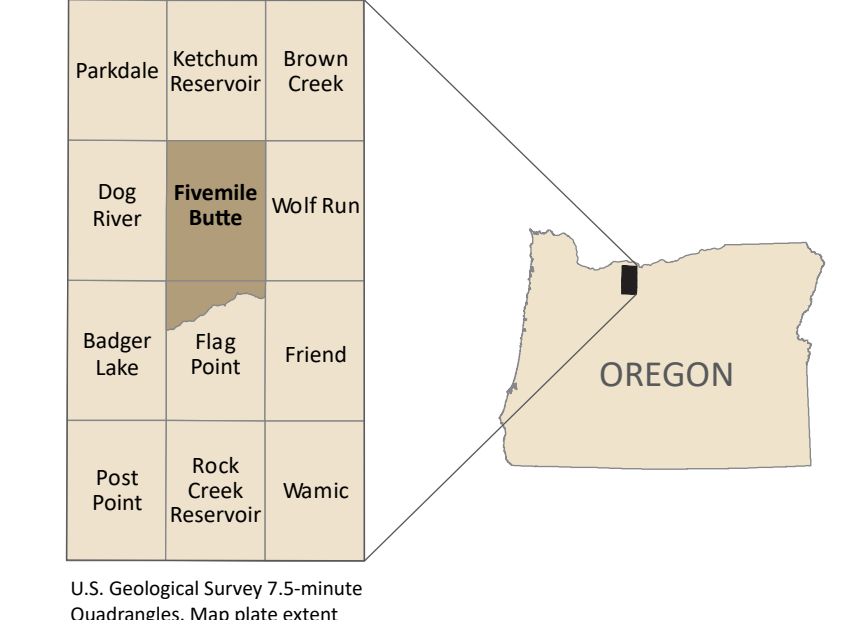
EXPLANATION OF SYMBOLS

- Stream
- Road
- County Boundary
- Cross Section
- Spring type of use unspecified
- Location of whole-rock XRF geochemical analysis sample
- Location of radiometric age in millions (Ma) of years
- Inclined bedding showing strike and dip
- Gently inclined (between 0 and 30) bedding as determined remotely or from aerial photographs — Showing approximate strike and direction of dip
- 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.
- Strike-slip fault, right-lateral offset — 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, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Oblique-slip fault, left-lateral offset (in cross section) — minus, away from observer; plus, towards observer. Short dashed line where inferred, dotted where approximate. Arrows show relative motion.
- Anticline — solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Syncline — solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.

Project Area



- 2011-2021 DOGAMI geologic mapping completed
- Plate 1
- Plate 2
- Plate 3 (this plate)
- USGS geologic mapping (FEDMAP in progress)
- Future DOGAMI/USGS mapping targets
- Rivers and streams
- Watershed boundary
- Town



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

Source Data: Oregon Lidar Consortium (OLC), 2015, 3-foot bare earth lidar digital elevation model (DEM) for the Fivemile Butte (45121-D4) and Flag Point (45121-C4) quadrangles. Water features from USGS High Resolution National Hydrography Dataset (NHD). Aquatic Resources Information (ARMI) (2017). Road features from the Oregon Department of Transportation (ODOT) (2016).

Projection: Oregon Statewide Lambert Conformal Conic, Unit: International Feet, Horizontal Datum: NAD 1983 HARN, UTM Coordinates: Zone 10N, NAD83.

Software: Esri ArcGIS 10.7.1 and Adobe Illustrator® 2024

References: Cohen, K. M., Finney, S. C., Gibbard, P. L., and Fan, J. X., 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 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.

Field Work: Field work conducted by Jason D. McLaughry in 2016 and 2017, with assistance from Heather H. Herinckx and Robert A. Houston.

Geology Reviewers: Charlie Cannon (USGS), Jim O'Connor (USGS), Kim Lee (formerly USGS), Robert A. Houston (Ecole River), and Lowell Anthony (DOGAMI).

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GEOLOGIC CROSS SECTION

Selected Quaternary units not shown in cross section.

Depth of exposure in the map area does not extend beneath the Oriley member (Tgrt).

