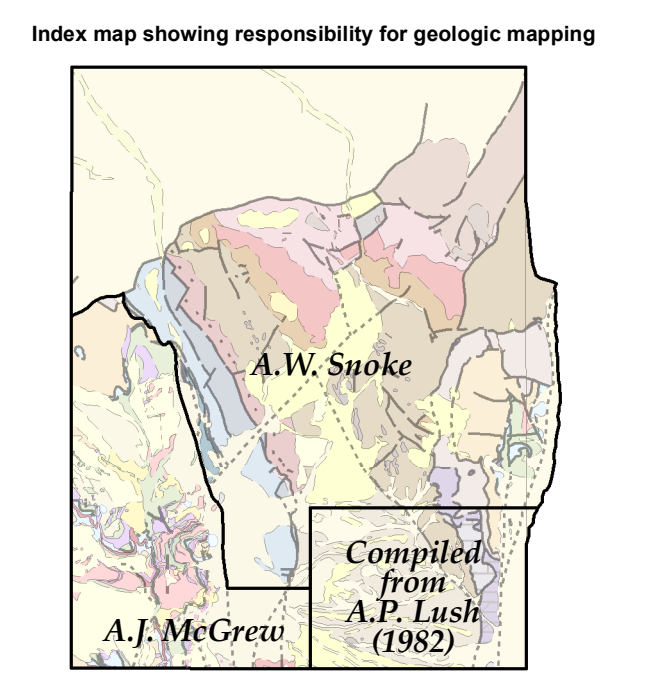


- Quaternary**
- Qy Youngest alluvium (upper Holocene)
- Qa Alluvium (Holocene)
- Qc Colluvium (Holocene)
- Qya Younger alluvium (Holocene)
- Qoa Older alluvium (Pleistocene)
- Qg Glacial deposits (Pleistocene)
- QTI Jasperoid breccia (Quaternary to Tertiary, age uncertain)
- UNCONFORMITY**
- Tu Tertiary unconformity
- Pliocene(?) or late Miocene**
- Tu Tertiary unconformity
- late Miocene**
- Tu Tertiary unconformity
- Tm1 Willow Creek rhyolite suite (middle Miocene)
- Tm2 Mason rhyolite with small phenocrysts of quartz and feldspar (P-C mix)
- Tm3 Volcaniclastic breccia
- Tm4 Quartz porphyry rhyolite
- Tm5 Rhyolite
- early Miocene(?) or middle Miocene**
- Tm6 Tertiary unconformity
- Tm7 Tertiary unconformity
- Tm8 Tertiary unconformity
- Tm9 Tertiary unconformity
- Tm10 Tertiary unconformity
- early Oligocene to middle Eocene**
- Tm11 Tertiary unconformity
- Permian**
- Pm1 Permian unconformity
- Pm2 Permian unconformity
- Pm3 Permian unconformity
- Pm4 Permian unconformity
- Pennsylvanian**
- Pp1 Pennsylvanian unconformity
- Pp2 Pennsylvanian unconformity
- Mississippian**
- Mm1 Mississippian unconformity
- Devonian**
- Dd1 Devonian unconformity
- Neoproterozoic to Neocambrian**
- Nz1 Neoproterozoic to Neocambrian unconformity
- Nz2 Neoproterozoic to Neocambrian unconformity
- Nz3 Neoproterozoic to Neocambrian unconformity
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- Nz100 Neoproterozoic to Neocambrian unconformity

Scale 1:24,000
0 0.5 1 kilometer
0 0.5 1 mile
0 1000 2000 3000 4000 5000 feet
CONTOUR INTERVAL 40 FEET (Hocome 7.5' quadrangle) or 20 FEET (Wells 7.5' quadrangle)
Projection: Universal Transverse Mercator, Zone 11, North American Datum 1927 (m)
Base map: U.S. Geological Survey Welcome 7.5' quadrangle (1997) and Wells 7.5' quadrangle (1988)



GEOLOGIC MAP OF THE WELCOME QUADRANGLE AND AN ADJACENT PART OF THE WELLS QUADRANGLE, ELKO COUNTY, NEVADA

Allen J. McGrew¹ and Arthur W. Snoke²
¹University of Dayton, Ohio
²University of Wyoming, Laramie
2015

Lithologic contact (dispositional or underlined) - solid where certain, dashed where approximately located, dotted where concealed.

Unconformity - Original unconformity subsequently faulted. Solid where certain, dashed where approximately located, dotted where concealed.

Plastic-to-brittle low-angle fault (detachment fault) - dashed where approximately located, dotted where concealed. Rectangles on upper plate.

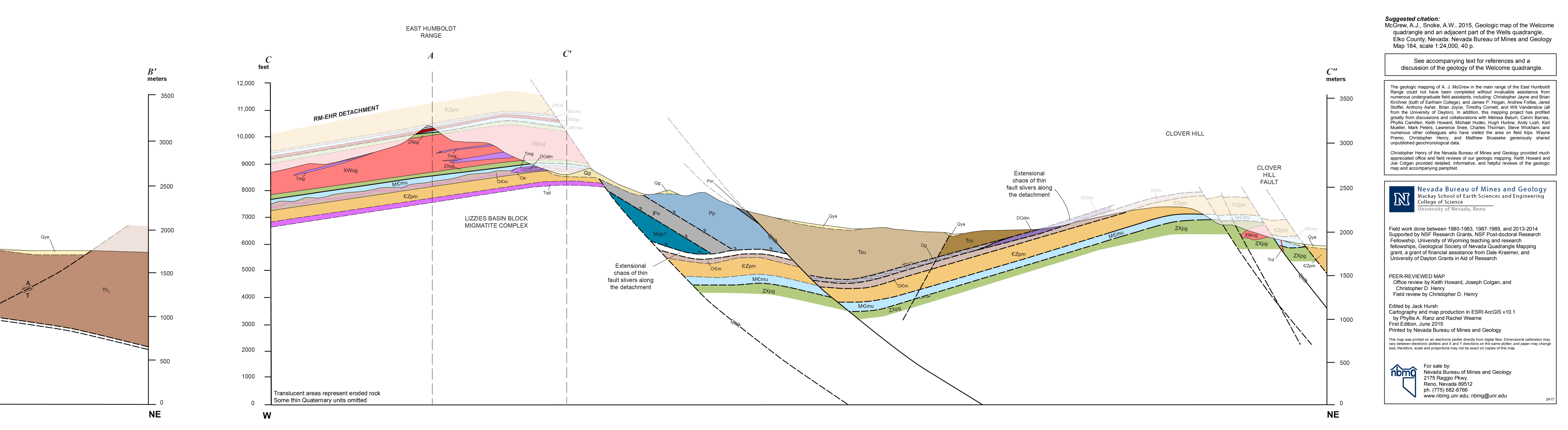
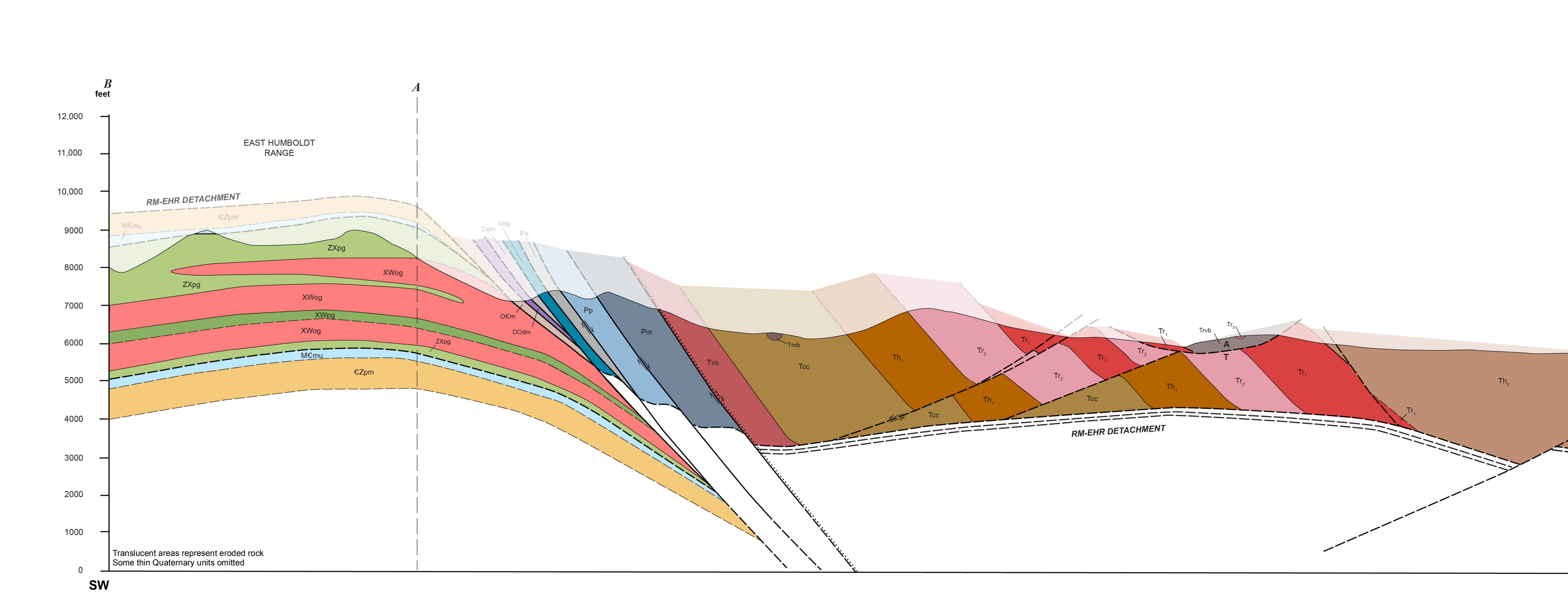
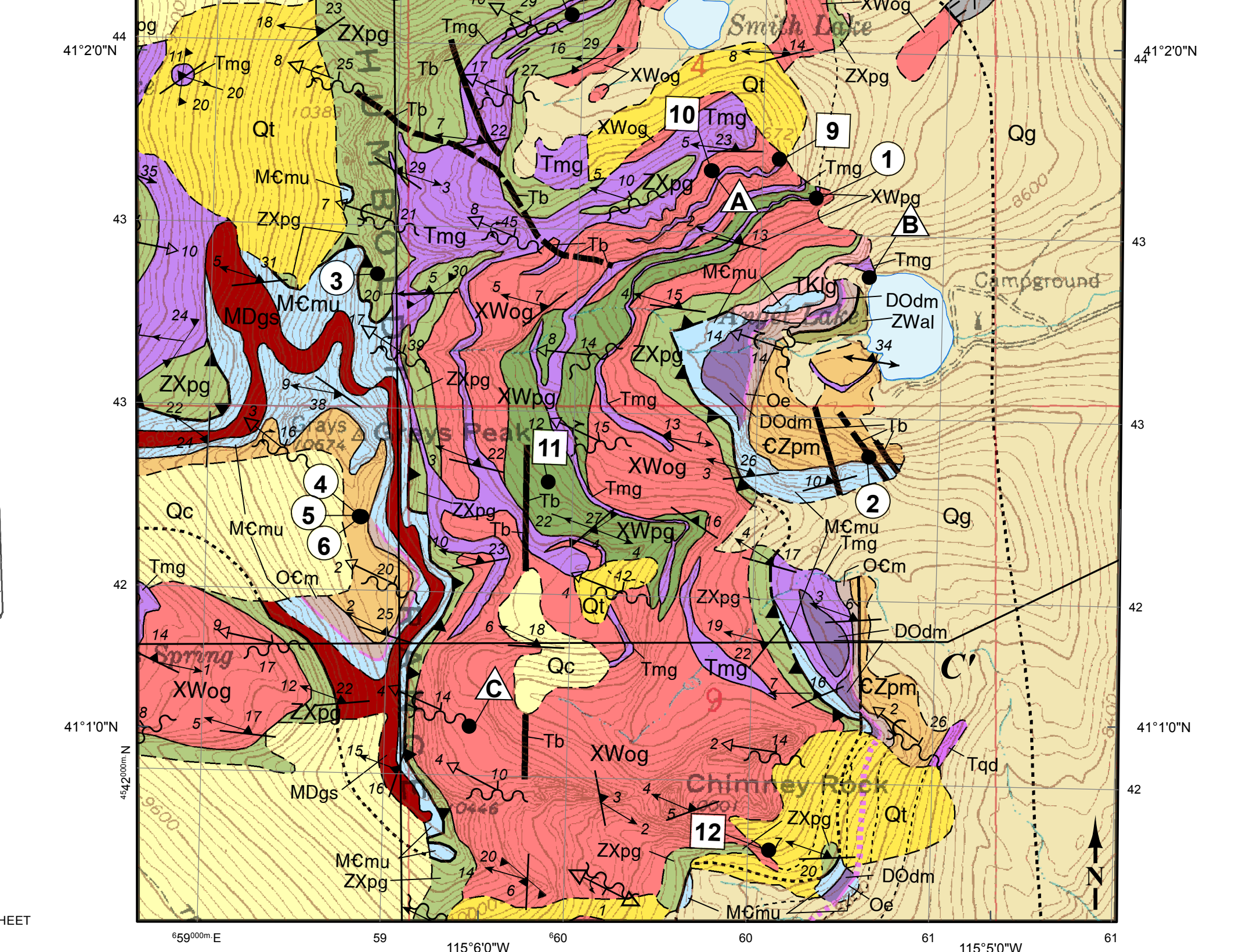
Brittle low-angle fault (detachment fault) - dashed where approximately located, dotted where concealed. Hashmarks on upper plate.

Normal fault - ball-and-bar on downthrow side; solid where certain, dashed where approximately located, dotted where concealed. Quarter of length line and vergence indicated where known. Clockwise arrow for dextral, counter-clockwise for sinistral.

Strike and dip of bedding
Strike and dip of slaty cleavage in rhyolite
Strike and dip of flow banding in rhyolite
Strike and dip of compositional layering or foliation
Bearing and plunge of elongation or mineral lineation. Symbol may be combined with location symbol.

Strike and dip of axial surface of small-scale fold with bearing and plunge of hinge line and vergence indicated where known. Clockwise arrow for dextral, counter-clockwise for sinistral.

U-Pb sample locality
Ar-Ar sample locality
K-Ar sample locality
Fossil locality in Tcc or Th
Sheldon fossil locality
Thermochronometric sample locality



Suggested citation:
McGrew, A.J., Snoke, A.W., 2015, Geologic map of the Welcome Quadrangle and an adjacent part of the Wells quadrangle, Elko County, Nevada, Nevada Bureau of Mines and Geology Map 184, scale 1:24,000, 63 p.

See accompanying text for references and a discussion of the geology of the Welcome quadrangle.

The geologic map of A. J. McGrew in the name range of the East Humboldt Range could not have been completed without the assistance from numerous colleagues and students, including Christopher Henry and Steve Smith, Arthur Anbar, Brian Aron, Timothy Conzel, and Bill Vandenberg, all from the University of Dayton. In addition, the geologic map was greatly improved by the assistance of students and staff at the Nevada Bureau of Mines and Geology, including: High School, Andy, Leah, and Kaitlyn; Nevada State University, Denver, Charles, Thomas, and Michael; University of Nevada, Reno, David, and Michael; University of Wyoming, Laramie, Joseph, and Christopher; and Nevada State University, Prater, and Joseph.

Christopher Henry of the Nevada Bureau of Mines and Geology provided such assistance that he has become an integral part of our geologic mapping. Steve Anbar and Joe Cooper provided information, and helpful reviews of the geologic map and accompanying text.

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Markus School of Earth Sciences and Engineering
University of Nevada, Reno

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