Geologic map of the Hereford 7 ½' Quadrangle and the northern part of the Stark 7 ½' Quadrangle, Cochise County, Arizona

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Arizona Geological Survey

Digital Geologic Map 57 (DGM-57), version 3.0

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1:24,000 scale

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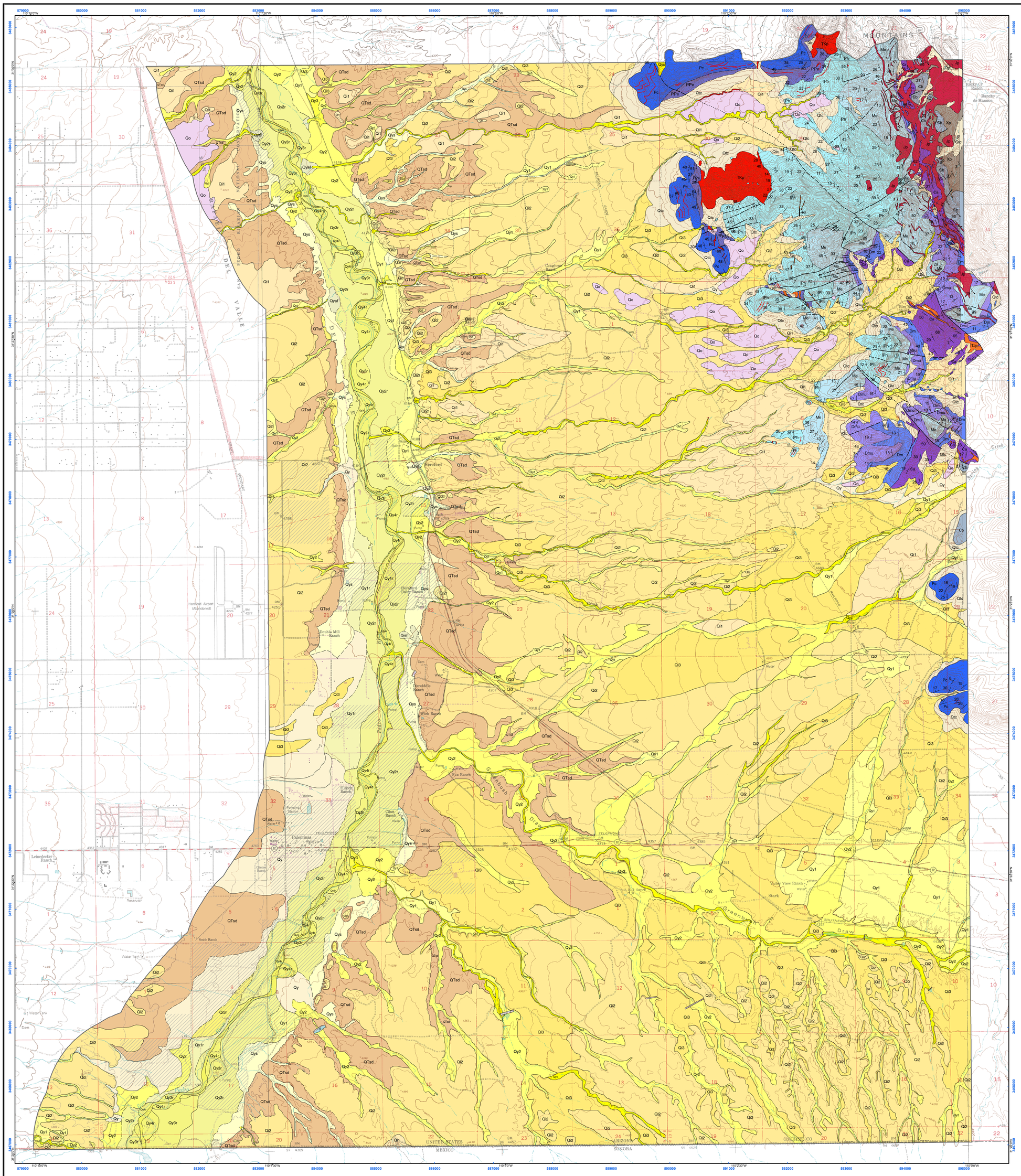


Map Unit Descriptions

Piedmont Deposits

- **Qy** — **Undifferentiated Holocene alluvium**
- **Qyaf** — **Late Holocene alluvium, active fan deposits** - active portions of young fan deposits exhibiting distributary drainage patterns
- **Qys** — Fine-grained Holocene alluvium derived from the Saint David Formation - Holocene alluvium derived from distal Saint David basin fill deposits
- **Qyc** — **Modern stream channel deposits** - active channel deposits composed of very poorly-sorted sand, pebbles, and cobbles with some boulders to moderately-sorted sand and pebbles
- **Qy_3** — **Latest Holocene alluvium** - unconsolidated, very poorly sorted silty to cobbly low terrace and overflow channel deposits
- **Qy_2** — **Late Holocene alluvium** - young deposits in floodplains, low terraces and small channels that are part of the modern drainage system
- **Qy_1** — **Older Holocene alluvium** - planar to undulating terrace deposits standing higher than adjacent Qy2 surfaces found mostly along the margins of incised drainages
- **Ql_3** — **Late Pleistocene alluvial fan and terrace deposits** - slightly dissected, fairly smooth terraces and alluvial fans consisting of pebbles, cobbles, and finer-grained sediment exhibiting weak rock varnish
- **Ql_2** — **Middle to late Pleistocene alluvial fan and terrace deposits** - moderately dissected relict alluvial fans and terraces with moderate to strong soil development and moderately varnished surface clasts
- **Ql_1** — **Early to middle Pleistocene alluvial fan and terrace deposits** - moderately to deeply dissected relict alluvial fans with strong soil development and moderately to strongly varnished surface clasts
- **Qo** — **Early Pleistocene alluvial fan deposits** - moderately to deeply dissected relict alluvial fan deposits with moderate to strong calcic soil development capping eroded ridges or high mesas depending on local preservation
- **QTsd** — **Pliocene to early Pleistocene St. David Formation** - middle member of the St. David formation (Lindsay et al, 1990) dominated by coarse distal fan environments and fine-grained floodplain deposition associated with a north-flowing axial drainage

River Deposits

- **Qycr** — **Active river channel deposits** - unconsolidated, very poorly sorted sandy to cobbly beds in active river channels.
- **Qyr** — **Flood channel and low terrace deposits** - unconsolidated sand, gravel, and silt deposits on bars, low terraces, and flood channels
- **Qyr** — **Historical river terrace deposits** - unconsolidated sand, gravel, and silt deposits on low terraces inset below the abandoned early historical floodplain
- **Qyr** — **Latest Holocene to historical river terrace deposits** - silt, clay, sand, and minor gravel deposits underlying the early historical floodplain
- **Qyr** — **Late to early Holocene river terrace deposits** - silt, clay, sand, and minor gravel terrace deposits slightly above the early historical floodplain
- **Qlr** — **Late Pleistocene river terrace deposits** - gravelly, sandy river terrace deposits from 5 to 20 m above the active river channel
- **Ql_3ra** — **Late Pleistocene river terrace deposits (older member)**
- **Qlr** — **Middle to late Pleistocene river terrace deposits** - higher intermediate terraces composed of a mix of river gravel, sand, silt, and clay from 15 to 35 m above the active river channel

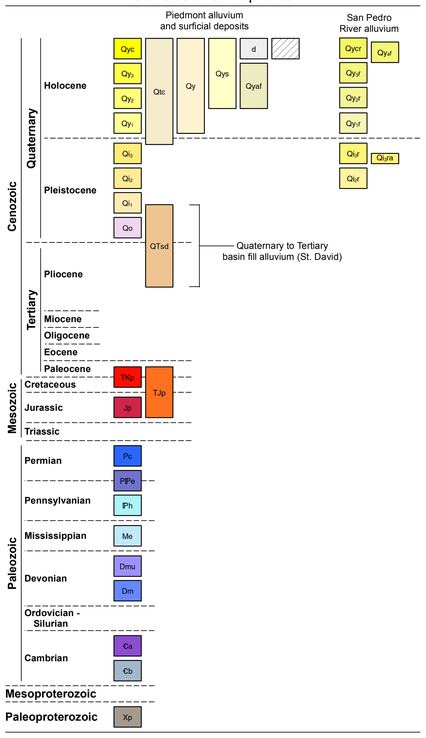
Bedrock Units

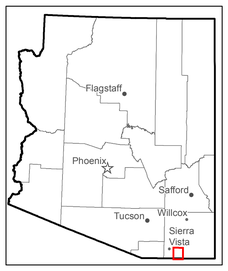
- **TKp** — **Coarse-grained rhyolite porphyry (Late Cretaceous-Early Tertiary)** - felsic porphyry containing 10-30% phenocrysts of subhedral quartz (2-6 mm), euhedral to subhedral potassium feldspar (1-5 mm), euhedral to subhedral plagioclase (1-3 mm), and biotite (1-3 mm)
- **TJp** — Phenocryst-poor rhyolite porphyry and aplite (Late Cretaceous-Early Tertiary or Jurassic) - phenocryst-poor rhyolite porphyry containing <5-7% <2-3 mm feldspar phenocrysts that grades into aplite towards the margins of dikes
- **Jp** — **Coarse-grained rhyolite porphyry (Jurassic)** - felsic porphyry containing 10-30% phenocrysts of subhedral quartz (2-6 mm), euhedral to subhedral potassium feldspar (1-5 mm), euhedral to subhedral plagioclase (1-3 mm), and biotite (1-3 mm)
- **Pc** — **Colina limestone** - medium-to dark-gray limestone
- **PPe** — **Earp Formation (Permian - Pennsylvanian)** - interbedded thin- to medium-bedded red shale, mudstone, silty mudstone, and fine-grained ripple cross-laminated sandstone with subordinate thin- to medium-bedded carbonate beds, dominated by massive micrite and skeletal wackestone
- **IPh** — **Horquilla Limestone (Pennsylvanian)** - medium- to thick-bedded cherty limestone with subordinate interbedded siliciclastic units; dark shale throughout the main part of the unit and red shale, silty shale and rare fine-grained ripple cross-laminated and cross-stratified sandstone in the upper part
- **Me** — **Escabrosa Limestone (Mississippian)** - Typically massive medium to pale gray limestone.
- **Dmu** — **Upper Martin Limestone (Devonian)** - a two-part sequence that grades upward from lithologies typical of the lower Martin; recessive, medium-bedded micritic carbonate and sparsely skeletal wackestone (typically dolostone) with shale or mudstone interbeds, into lithologies typical of the Escabrosa; medium- to thick-bedded crinoid columnal skeletal packstone and grainstone
- **Dm** — **Lower Martin Limestone (Devonian)** - dolostone, limestone, and shale. A complex sequence of thin- to medium-bedded skeletal wackestone, sparsely skeletal micrite, rare skeletal packstone, shale, calcareous mudstone, and minor quartz sandstone
- **Ca** — **Abrigo Formation (Cambrian)** - Very fine grained, somewhat calcareous, quartzose sandstone that is pale to medium orangish tan to yellowish orange, and is laminated to thin bedded.
- **Cb** — **Bolsa Quartzite (Cambrian)** - medium- to thick-bedded, cross-stratified quartz sandstone, and pebbly feldspathic quartz sandstone
- **Xp** — **Pinal Schist (Paleoproterozoic)** - medium- to fine-grained sericitic schist ranging from light green to dark gray

Other units

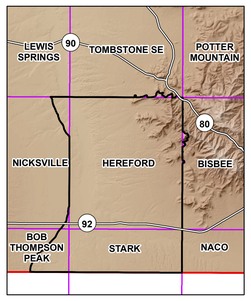
- **Plowed areas** - historically or actively plowed fields, irrigated pastures, and other lightly disturbed ground
- **d** — **Disturbed ground** - areas of substantial excavation or anthropogenic deposition, for example, sewage treatment facilities or gravel pits
- **Qtc** — **Talus and colluvium** - unconsolidated to moderately consolidated talus and colluvium deposits mantling the lower slopes of bedrock outcrops

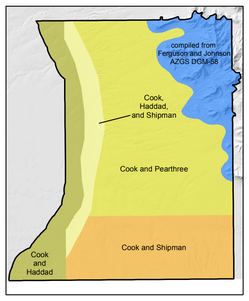
Correlation of map units





Location of map area





SCALE 1:24,000

1 0.5 0 1 Miles

1 0.5 0 1 Kilometers

0 1000 2000 3000 4000 5000 Feet

CONTOUR INTERVAL 25 FEET

TRUE NORTH
MAGNETIC NORTH
9.4°
Approximate mean declination, 2018

Topographic base map derived from the Hereford 7.5' USGS topographic quadrangle map originally with NAD27 datum. Reprojected to UTM NAD83 datum (zone 12) using iGage All Topo Maps V9. UTM NAD 83 grid and lat-lon markers produced using ESRI ArcMap v. 10.4.

Map Symbols

Contacts

- Contact, accurate
- Contact, approximate
- Contact, concealed

Faults

- Fault, accurate
- Fault, approximate
- Fault, concealed

Structure symbols

- Bedding, inclined
- Bedding, inclined with tops known
- Generic foliation, inclined
- Fault attitude
- Vein orientation

Other

- Mafic dike
- Marker bed

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