Geologic Map of the San Pedro River, Babocomari River and Aravaipa Creek Corridors, Southeastern Arizona

by

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Digital Map DM-RM-1D, version 1.1

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USGS 24k quadrangle series topographic base maps.
North American Datum of 1983. Projection and 1000-meter grid ticks (blue): Universal Transverse Mercator, zone 12.

Figure 7

Figure 8

Figure 9

Map Unit Descriptions

Other units

- **d** — **Disturbed ground** - heavily disturbed ground due to agriculture, extensive excavation, or construction of earth dams
- **Plowed areas** - historically or actively plowed fields, irrigated pastures, and other lightly disturbed ground
- **Qdc** — **Quaternary hillslope talus and colluvium** - unconsolidated to weakly consolidated, very poorly sorted angular rock debris deposited at the base of bedrock slopes

River alluvium

- **Qyf** — **Active river channel deposits** - unconsolidated, very poorly sorted sandy to cobbly beds in active river channels
- **Qyf** — **Flood channel and low terrace deposits** - unconsolidated sand, gravel and silt deposits on bars, low terraces and flood channels
- **Qyf** — **Historical river terrace deposits** - unconsolidated sand, gravel and silt deposits on low terraces inset below the abandoned early historical floodplain
- **Qyf** — **Latest Holocene to historical river terrace deposits** - silt, clay, sand and minor gravel deposits underlying the early historical floodplain
- **Qyf** — **Late to early Holocene river terrace deposits** - silt, clay, sand and minor gravel terrace deposits slightly above the early historical floodplain
- **Qyf** — **Late Pleistocene river terrace deposits** - gravelly, sandy river terrace deposits up to 25 m above the active river channel
- **Qyr** — **Middle to late Pleistocene river terrace deposits** - older, higher gravelly, sandy river terrace deposits
- **Qyf** — **Early to middle Pleistocene river terrace deposits** - oldest, highest preserved gravelly, sandy river terrace deposits
- **Qyf?** — **Possible early to middle Pleistocene river terrace deposits** - deposits strongly resembling the oldest, highest preserved gravelly, sandy river terrace deposits

Piedmont alluvium and surficial deposits

- **Qay** — **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
- **Qyf** — **Latest Holocene alluvium** - unconsolidated, very poorly sorted silty to cobbly low terrace and overflow channel deposits
- **Qyaf** — **Late Holocene alluvium, active fan deposits** - active portions of young fan deposits exhibiting distributary drainage patterns
- **Qyf** — **Late Holocene alluvium** - planar terrace deposits located along incised drainages, broad low-relief distal fan deposits entrapping onto Holocene river alluvium, and infrequently active tributary drainage deposits
- **Qyf** — **Older Holocene alluvium** - broad, low-relief, undulating fan deposits ehxibiting widespread, shallow braided drainage patterns
- **Qyf** — **Holocene fine-grained deposits** - unconsolidated alluvium derived predominantly from basin fill deposits
- **Qfi** — **Late Pleistocene alluvial fan and terrace deposits** - weakly consolidated sandy gravel deposits with moderate soil development
- **Qdb** — **Middle to late Pleistocene alluvial fan and terrace deposits (youngest member)** - broad planar fan terraces found capping Quaternary basin fill deposits, typically inset into slightly older Q2 and Q2s deposits
- **Qya** — **Middle to late Pleistocene alluvial fan and terrace deposits (younger member)** - broad planar fan terraces found capping Quaternary basin fill deposits, typically inset into slightly older Q2 deposits
- **Qfi** — **Middle to late Pleistocene alluvial fan and terrace deposits** - weakly consolidated sandy gravel deposits with strong soil development
- **Qfi** — **Early to middle Pleistocene alluvial fan and terrace deposits** - high, moderately consolidated gravelly deposits with strong soil development
- **Qfo** — **Early Pleistocene alluvial fan deposits** - highest standing Pleistocene alluvial surface in the landscape composed of moderately consolidated gravelly deposits with variable soil development
- **QTa** — **Late Pliocene to early Pleistocene fan gravel** - coarse, moderately to well-consolidated gravelly deposits capping high rounded ridges
- **QTc** — **Conglomerate (Pliocene to Pleistocene)** - massive to crudely stratified conglomerate
- **QTcs** — **Conglomerate and sandstone (Pliocene to Pleistocene)** - coarse, poorly sorted, tan sandstone, conglomeratic sandstone, and conglomerate

Tertiary basin fill alluvium

- **Tqc** — **Late Miocene to Pliocene Quiburis deposits, alluvial fan facies** - sandy to gravelly, moderately to strongly indurated alluvial fan deposits
- **Tqe** — **Pliocene Quiburis deposits, low energy fluvial deposits** - alternating thin weakly-consolidated beds of gypsum, silt, and very fine sand with sparse pebble stringers
- **Tqs** — **Pliocene Quiburis deposits, distal fan to axial valley deposits** - alternating thin unconsolidated beds of silt to very fine sand with sparse pebble stringers

Bedrock

- **Tsmc** — **Conglomerate, San Manuel Formation, volcaniclastic Soza Canyon facies** - clasts are derived primarily from volcanic rocks like those that make up most of the Galiuro mountains as well as locally exposed volcanic rocks beneath the conglomerate in lower Soza Canyon
- **Tsmm** — **Conglomerate, San Manuel Formation, metamorphiclastic Paige Canyon facies** - clasts are derived primarily from metamorphic tectonites like those that form nearby bedrock in the Little Rincon Mountains
- **Tmv** — **Mafic volcanics of lower Soza Canyon (Oligo-Miocene)** - dark gray to black, somewhat crystal poor lava-flow breccia and local flow cores
- **Tcg** — **Conglomerate (Miocene)** - generally poorly to moderately bedded and poorly sorted conglomerate with bed dips of 10° to 50°
- **Trs** — **Red sandstone, silty sandstone, and siltstone** - massive to bedded, reddish brown (5YR to 10YR) sandstone
- **KJb** — **Bisbee Group, undivided (Cretaceous to Jurassic)** - Carbonate, siltstone, sandstone, and conglomerate of the Bisbee Group
- **Kb** — **Bisbee Group, undivided (Cretaceous to Jurassic)** - siltstone, sandstone, and conglomerate of the Bisbee Group, undivided
- **PMAm** — **Marble tectonite derived from Horquilla Limestone and Escabrosa Limestone, undivided (Mississippian to Pennsylvanian protolith)** - typically calcite marble and slightly siliceous calcite marble (mapped by Lingrey, 1982)
- **PPmt** — **Tectonite derived from Earp Formation (Pennsylvanian to Permian protolith)** - generally consists of medium to light gray limestone, silty limestone, sandy limestone, and beds of quartzite
- **PPmt** — **Tectonite derived from Horquilla Limestone and Earp Formation, undivided (Pennsylvanian to Permian protolith)** - interbedded marble and calc-silicate gneiss (Lingrey, 1982)
- **Mc** — **Escabrosa Limestone (Mississippian)** - typically massive medium to pale gray limestone
- **Xgj** — **Johnny Lyon granodiorite (Paleoproterozoic)** - medium-grained biotite granodiorite with blocky, 1-4 cm long, K-feldspar megacrysts that make up 10-25% of the rock unit, and ~5-10% mafic minerals, most of which is probably biotite
- **Xdj** — **Dioritic rocks associated with Johnny Lyon granodiorite (Paleoproterozoic)** - dark colored, mafic rich dioritic rock that forms local, small irregular bodies in Johnny Lyon Granodiorite. Texturally similar to non-porphyritic parts of Johnny Lyon Granodiorite

Boundaries of Holocene River Alluvium

Thin, Solid Line
Clearly defined, accurately located contacts between Holocene river alluvium and bounding geologic units such as bedrock hillslopes, abruptly incised channels or alluvial terraces, and distinct edges of small, steep alluvial fans and talus slopes. Line location accurate to within 50 feet.

Thin, Dashed Line
Subtle or gradational contacts between Holocene river alluvium and bounding geologic units. These boundaries are often associated with very low relief distal alluvial fan onlap onto Holocene river alluvium and are often located in historically plowed fields. Line location accurate to within 100 feet.

Thin, Dotted Line
Approximately located boundary between Holocene river alluvium and bounding geologic units. Dotted line boundaries are reserved for areas which are significantly disturbed by anthropogenic activity. Placement of dotted line boundaries is based on a combination of field verification and historical aerial photo and topographic data interpretation. Line location accurate to within 500 feet depending on level of disturbance (plowed vs. paved, original topography maintained/obliterated etc.)

Waypoint Location, showing station identification

Other Geologic Lines

- **Thin, Solid Line** — Accurate contact
- **Thin, Dashed Line** — Approximate contact
- **Thin, Dotted Line** — Concealed contact
- **Hashed Line** — Gradational Contact
- **Solid, Bold Line** — Accurate Fault
- **Dashed, Bold Line** — Approximate Fault
- **Dotted, Bold Line** — Concealed Fault

Bedrock and surficial geologic mapping for areas outside the lateral limits of Holocene river alluvium was compiled from the following sources

Cook, J.P. and Spencer, J.E., 2009, Geologic Map of the Redington 7½' Quadrangle, Cochise, Graham, and Pima Counties, Arizona: Arizona Geological Survey Digital Geologic Map 60 (DGM-60) version 2.0, 1 sheet, layout scale 1:24,000, with text.

Spencer, J.E., Richard, S.M., Cook, J.P., Dickinson, W.R., Lingrey, S.H., and Guynn, J.H., 2009, Geologic Map of the Soza Canyon 7½' Quadrangle, Cochise and Pima Counties, Arizona: Arizona Geological Survey Digital Geologic Map 61 (DGM-61) version 2.0, 1 sheet, layout scale 1:24,000, with text.

Spencer, J.E., Cook, J.P., Lingrey, S.H., Richard, S.M., and Guynn, J.H., 2009, Geologic Map of the Wildhorse Mountain 7½' Quadrangle, Cochise County, Arizona: Arizona Geological Survey Digital Geologic Map 62 (DGM-62) version 2.0, 1 sheet, layout scale 1:24,000, with text.

Youberg, A., Spencer, J.E., Richard, S.M., and Cook, J.P., 2009, Geologic Map of the Galleta Flat East 7½' Quadrangle, Cochise County, Arizona: Arizona Geological Survey Digital Geologic Map 56 (DGM-56) version 2.0, 1 sheet, layout scale 1:24,000, with text.

1:24,000 Scale

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Statewide Location Map

Location of each sheet shown in black

Sheet 1 · Sheet 2 · Sheet 3 · Sheet 4 · Sheet 5 · Sheet 6

Figures on this Sheet

Figure locations shown in red

Figure 9 · Figure 8 · Figure 7