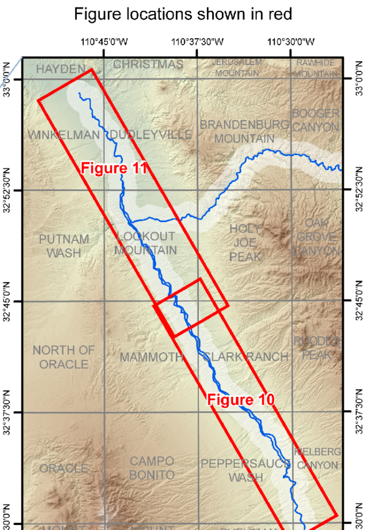
Statewide Location Map

Location of each sheet shown in black

Figures on this Sheet

Figure locations shown in red



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

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Digital Map DM-RM-1E

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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.

1:24,000 SCALE

1 0.5 0 1 Miles

1 0.5 0 1 Kilometers

0 1000 2000 3000 4000 5000 Feet

N

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Map Unit Descriptions

Other units

- d — **Disturbed ground** - heavily disturbed ground due to agriculture, extensive excavation, or construction of earth dams.
- (light blue) — **Mine tailings** - Tailings derived from processing ore from the San Manuel mine.
- (hatched) — **Plowed areas** - historically or actively plowed fields, irrigated pastures, and other lightly disturbed ground.
- Qtc — **Quaternary hillslope talus and colluvium** - unconsolidated to weakly consolidated, very poorly sorted angular rock debris deposited at the base of bedrock slopes

River alluvium

- Qy_cr — **Active river channel deposits** - unconsolidated, very poorly sorted sandy to cobbly beds in active river channels
- Qy_4r — **Flood channel and low terrace deposits** - unconsolidated sand, gravel and silt deposits on bars, low terraces and flood channels
- Qy_3r — **Historical river terrace deposits** - unconsolidated sand, gravel and silt deposits on low terraces inset below the abandoned early historical floodplain
- Qy_2r — **Latest Holocene to historical river terrace deposits** - silt, clay, sand and minor gravel deposits underlying the early historical floodplain
- Qy_1r — **Late to early Holocene river terrace deposits** - silt, clay, sand and minor gravel terrace deposits slightly above the early historical floodplain
- Qi_3r — **Late Pleistocene river terrace deposits** - gravelly, sandy river terrace deposits up to 25 m above the active river channel
- Qi_2r — **Middle to late Pleistocene river terrace deposits** - older, higher gravelly, sandy river terrace deposits
- Qi_1r — **Early to middle Pleistocene river terrace deposits** - oldest, highest preserved gravelly, sandy river terrace deposits

Piedmont alluvium and surficial deposits

- Qy_c — **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
- Qyaf — **Late Holocene alluvium, active fan deposits** - active portions of young fan deposits exhibiting distributary drainage patterns
- Qy_2 — **Late Holocene alluvium** - planar terrace deposits located along incised drainages, broad low-relief distal fan deposits onlapping onto Holocene river alluvium, and infrequently active tributary drainage deposits
- Qy_1 — **Older Holocene alluvium** - broad, low-relief, undulating fan deposits ehxibiting widespread, shallow braided drainage patterns
- Qys — **Holocene fine-grained deposits** - unconsolidated fine grained alluvium derived from basin fill deposits
- Qs — **Surficial deposits, undivided** - includes fine-grained colluvium and alluvium, talus, and some pediment and terrace gravels
- Qi_3 — **Late Pleistocene alluvial fan and terrace deposits** - weakly consolidated sandy gravel deposits with moderate soil development
- Qi_2 — **Middle to late Pleistocene alluvial fan and terrace deposits** - weakly consolidated sandy gravel deposits with strong soil development
- Qi_1 — **Early to middle Pleistocene alluvial fan and terrace deposits** - high, moderately consolidated gravelly deposits with strong soil development
- Qiu — **Pleistocene alluvial terrace - undivided** - coarse clastic alluvial fan and terrace deposits with slightly to moderately reddened soils
- Qo — **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
- Tqp — **Late Miocene to Pliocene Quiburis deposits, playa facies** - silty, moderately to strongly indurated alluvial playa deposits
- Tqr — **Late Pliocene (?) Quiburis deposits, fluvial facies** - sandstone and conglomerate, fluvial deposits
- Tqs — **Pliocene Quiburis deposits, sandy fan toe facies** - sandy fan-toe, lake-margin, and delta-front sandflat facies
- Tqse — **Pliocene Quiburis deposits, delta front subfacies** - sandstone, locally pebbly, with multiple thin mudstone interbeds

Bedrock

- Tgv — **Galiuro Volcanics** - lateral equivalent of Cloudburst Formation
- Trx — **Rhyolite intrusion and intrusive breccia** - at the south edge of the map area, this unit consists of crystal-poor, massive to flow-banded rhyolite and clast-supported brecciated rhyolite
- Ta — **Basaltic andesite lava (Oligocene to lower Miocene)** - Lava flows and autobreccia with 1-10%, generally <5 mm pyroxene and up to 10%, <6 mm, plagioclase phenocrysts. Matrix commonly contains abundant <0.1 mm plagioclase needles and equant magnetite.
- Mzs — **Clastic sedimentary rocks** - sandstone and siltstone with basal conglomerate and chert-fragment breccia
- Me — **Escabrosa Limestone** - massive, cliff-forming, thick-bedded, mostly coarsegrained limestone
- Dm — **Martin Formation** - slope-forming shale unit with interbedded limestone beds
- _a — **Abrigo Formation** - Thin- to thick-bedded, cross bedded, dolomitic sandstone with local dolomite, siltstone, sandstone, and intraformational conglomerate. Dark chocolate-brown calcareous sandstone is characteristic of this unit in easternmost exposures.
- _b — **Bolsa Quartzite** - Fine- to locally medium-grained sandstone, plane bedded to cross bedded. Sandstone varies from chocolate brown to orangish tan to white. Sandstone is coarse to granule within basal several meters. Includes locally abundant, cylindrical trace fossils (burrows?), <1 cm diameter.
- Yd — **Diabase** - Dark greenish gray to olive gray, medium grained diabase forming sills and dikes in all Proterozoic rock units.
- Yt — **Troy Quartzite** - Thin-bedded sandstone and granule to small pebble 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
- Tql — **Pliocene Quiburis deposits, playa-lacustrine facies** - fine-grained, laminated playa and lacustrine 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
- Tqm — **Pliocene Quiburis deposits, prodelta mudstone facies** - massive prodelta mudstone deposited as foredelta facies of "Eskiminzin Delta"
- Ym — **Mescal Limestone** - Thick to thin bedded, brown to gray dolomite and silty to cherty dolomite, less abundant laminated limestone, and brown dolomitic sandstone locally at base (Krieger, 1968). Asbestos veins are locally present near intrusive contact with diabase.
- Yds — **Dripping Spring Quartzite** - Feldspathic, arkosic, and quartzose sandstone and less abundant siltstone. Sands are typically fine to medium grained and appear feldspathic with red K-feldspar grains. Sandstone is locally cross bedded.
- Ydsb — **Barnes Conglomerate Member, Dripping Spring Quartzite** - Up to 4 m of pebble and cobble conglomerate, with well rounded clasts up to 12 cm diameter of quartzite, vein quartz, and red jasper, in a matrix of red to gray arkosic sandstone (Krieger, 1968).
- Yp — **Pioneer Formation** - Very fine grained to coarse-grained, locally cross-bedded sandstone. Grain size generally decreases up section (Krieger, 1968).
- Yo — **Oracle Granite** - Porphyritic, medium- to coarse-grained biotite granite ("quartz monzonite" of Krieger [1968]). Microcline phenocrysts are as large as 2 x 4 cm and somewhat poikilitic, with included mafic minerals imparting a speckled appearance. K-feldspar is commonly pink to reddish, and mafic minerals are generally abundant (7-12%).
- Yoa — **Oracle Granite, alaskitic** - Equigranular, medium to coarse grained, dark orange to pale red alaskite that is gradational with the Oracle Granite (Krieger, 1968). Local porphyry, aplite, and potassic granite were included with this map unit by Krieger (1968).
- Xp — **Pinal Schist** - Faintly laminated, very fine-grained, medium to dark gray, foliated to weakly schistose sandstone to siltstone.

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.)

H1105 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