GEOLOGIC MAP OF THE NARROWS 7.5' QUADRANGLE AND THE SOUTHERN PART OF THE RINCON PEAK 7.5' QUADRANGLE, EASTERN PIMA COUNTY, ARIZONA

By
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Arizona Geological Survey Digital Geologic Map 10

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GEOLOGIC MAP SYMBOLS

Bedding
- Horizontal planar bedding
- Inclined planar bedding
- Inclined planar bedding with stratigraphic facing direction known
- Vertical planar bedding
- Vertical planar bedding with stratigraphic facing direction known
- Overturned planar bedding
- Overturned planar bedding with stratigraphic facing direction known
- Contorted or variable bedding
- Indistinct or crudely measured bedding
- Apparent dip of bedding
- Horizontal apparent dip of bedding
- Inclined transposed bedding
- Inclined planar tectonite foliation

Foliation
- Vertical planar tectonite foliation
- Superimposed schistosity
- Weak shape (protomylonite) fabric
- Well-developed S-tectonite (protomylonite) fabric
- Strong protomylonitic tectonite fabric
- Mylonitic foliation, with stretching lineation
- Mylonitic foliation, with stretching lineation showing normal sense of shear
- Mylonitic foliation, with stretching lineation showing reverse sense of shear
- Inclined gneissic foliation
- Inclined eutaxitic foliation

Cleavage
- Inclined close disjunct cleavage
- Vertical close disjunct cleavage
- Inclined cleavage parallel to bedding
- Spaced cleavage
- Vertical spaced cleavage

Joints
- Inclined joint
- Vertical joint

Other Symbols
- Dip and dip direction of a minor fault surface
- Eutaxitic lineation
- Paleocurrent lineation
- Generic lineation showing plunge direction
- Sample location / geochronology point

Dikes and Marker Beds
- Felsic dike
- Intermediate dike
- Mafic dike
- Terra rosa
- Chert bed
- Karst (Mek) marker bed
- Marker bed in PPeh
- Unspecified marker bed

Contacts
- Contact, showing dip and dip direction of contact surface (dashed where approximately located; queried where location guessed; dotted where concealed)
- Gradational contact
- Scratch contact (indicates a contact necessary for polygon closure; not mapped based on geologic observation)

Faults
- Normal fault, showing dip and dip direction of fault surface (dashed where approximately located; queried where location guessed; dotted where concealed; ball and bar symbol indicates hanging wall)
- Thrust fault (dashed where approximate; dotted where concealed)
- Detachment fault (dashed where approximate; dotted where concealed)
- Low-angle fault (dashed where approximate; dotted where concealed)
- Mylonitic shear zone

Folds
- Anticline (dashed where approximate; dotted where concealed)
- Syncline (dashed where approximate; dotted where concealed)
- Overturned anticline (dashed where approximate; dotted where concealed)
- Overturned syncline (dashed where approximate; dotted where concealed)
- Inverted anticline (dashed where approximate; dotted where concealed)
- Inverted syncline (dashed where approximate; dotted where concealed)
- Monocline (dashed where approximate; dotted where concealed)

GEOLOGIC MAP UNITS

Quaternary and Late Tertiary map units

Piedmont alluvium
- Qyc — Late Holocene active channel deposits (< ~100 y)
- Qy_2 — Late Holocene alluvium (<~2 ka)
- Qy_1 — Older Holocene alluvium (~2 to 10 ka)
- Qy — Undifferentiated Holocene alluvium (0 to ~10 ka)
- Ql — Late Pleistocene alluvium (~10 to 130 ka)
- Qml — Undifferentiated late to middle Pleistocene alluvium (~10 to 500 ka)
- Qm — Middle Pleistocene alluvium (~130 to 500 ka)
- Qmo — Middle to early Pleistocene alluvium (~500 ka to 1 Ma)
- Qo — Early Pleistocene alluvium (~1 Ma to 2 Ma)

Axial stream deposits
- Qycr — Modern river channel deposits (< 100 years)
- Qyr — Holocene floodplain and terrace deposits (<~10 ka)
- Qlr — Late Pleistocene river terrace deposits (~10 to 130 ka)
- Qmr — Middle Pleistocene river terrace deposits (~130 to 500 ka)
- Qmor — Middle to early Pleistocene river terrace deposits (~500 ka to 1 Ma)
- Qor — Early Pleistocene river terrace deposits (~1 to 2 Ma)

Hillslope deposits
- Qc — Quaternary hillslope colluvium

Other Quaternary to late Tertiary deposits
- d — Disturbed ground (<100 years)
- v — Area of thick vegetation developed on undivided surfical deposits (<100 years)
- Qs — Surficial deposits, undivided (Quaternary)
- QTs — Surficial deposits, undivided (Quaternary to late Tertiary)
- QTd — Diatomite? (Quaternary or late Tertiary)
- QTsc — Tertiary deposits mantled with hill slope deposits and some alluvium

Tertiary map units
- Tqv — Quartz veins and hydrothermal silica - hematite breccia (Oligocene or early Miocene)
- Barite
- x — Crushed rock (Tertiary?)

Conglomerate of Agua Verde Creek (Miocene)
- Tavc — Conglomerate
- Tavcs — Conglomeratic sandstone
- Tavs — Sandstone and sparse pebbly sandstone

Unit of Wakefield Canyon (Miocene)
- Twc — Conglomerate
- Twsc — Sandy conglomerate
- Twcs — Conglomeratic sandstone
- Twss — Sandstone

Pantano Formation (Oligocene to early Miocene)
Breccia facies, Pantano Formation (Oligocene to early Miocene)
- Txc — Rock avalanche breccia derived from Paleozoic carbonate units
- Txm — Rock avalanche breccia derived from various rock types
- Txsc — Rock avalanche breccia derived from silty carbonate and siltstone of Paleozoic age
- Txq — Rock avalanche breccia derived from Cambrian Bolsa Quartzite
- Txg — Rock avalanche breccia derived from granite or granodiorite of map unit YXg

Clastic sedimentary strata, Pantano Formation (Oligocene to early Miocene)
- Tpf — Fine-grained siltstone and claystone
- Tps — Sandstone and silty sandstone
- Tpc — Coarse-grained sandstone and conglomerate, undivided
  - Tpcc — Coarse-grained sandstone and conglomerate, limestone clasts only
  - Tpcg — Coarse-grained sandstone and conglomerate, granite clasts only
- Tpu — Upper Pantano Formation, undivided
  - Tpfu — Fine-grained siltstone and claystone, upper Pantano Formation
  - Tpcu — Coarse-grained sandstone and conglomerate, upper Pantano Formation
- Tpl — Lower Pantano Formation, undivided
  - Tpfl — Fine-grained siltstone and claystone, lower Pantano Formation
  - Tpcl — Coarse-grained sandstone and conglomerate, lower Pantano Formation

Volcanic rocks associated with the Pantano Formation (Oligocene to early Miocene)
- Tt — Tuff (Late Oligocene) (26.42 ± 0.04 Ma $^{40}Ar/^{39}Ar$ Sanidine [2 sigma uncertainty])
- Tas — Andesitic volcaniclastic rocks (Late Oligocene)
- Ta — Porphyritic andesite lava flows (Late Oligocene)
- Tr — Rhyolitic tuff (Early Oligocene) (33.01 ± 0.76 Ma $^{40}Ar/^{39}Ar$ Sanidine [2 sigma uncertainty])

Conglomerate beneath pre-Pantano tuff (Tertiary)
- Tc — Pebble conglomerate beneath pre-Pantano tuff

Tertiary or Cretaceous igneous rocks
- TKf — Felsite (Tertiary or Cretaceous)
- TKm — Mafic hypabyssal intrusive rock (Tertiary or Cretaceous)
- TKgm — Muscovite granitoid (Tertiary or Cretaceous)
- Ke — Empire Mountains Stock (Cretaceous)

Mesozoic map units

Bisbee Group (lower Cretaceous to upper Jurassic)
- Kq — Turney Ranch lithofacies, Bisbee Group
- Ka — Apache Canyon lithofacies, Bisbee Group
- Kw — Sandstone and siltstone of the Willow Spring - Apache Canyon lithofacies of the Bisbee Group (lower Cretaceous)
- Cretaceous tuff bed (Kt)
- Kwa — Willow Canyon and Apache Canyon lithofacies, undivided, Bisbee Group
- Ksr — Reddish mudstone and sandstone (Lower Cretaceous)
- Kbu — Basaltic andesite lava, Bisbee Group
- Kb — Sandstone and siltstone of the Bisbee Group, undivided
- Kbu — Bisbee Group, undivided (Lower Cretaceous)

Glance conglomerate of the Bisbee Group (lower Cretaceous to upper Jurassic)
- KJg — Conglomerate, undivided
  - KJgl — Monolithic limestone-clast conglomerate
  - KJgq — Monolithic quartzite-clast conglomerate
  - KJgg — Monolithic granitoid-clast conglomerate
  - KJgqg — Mixed quartzite-granitoid clast conglomerate

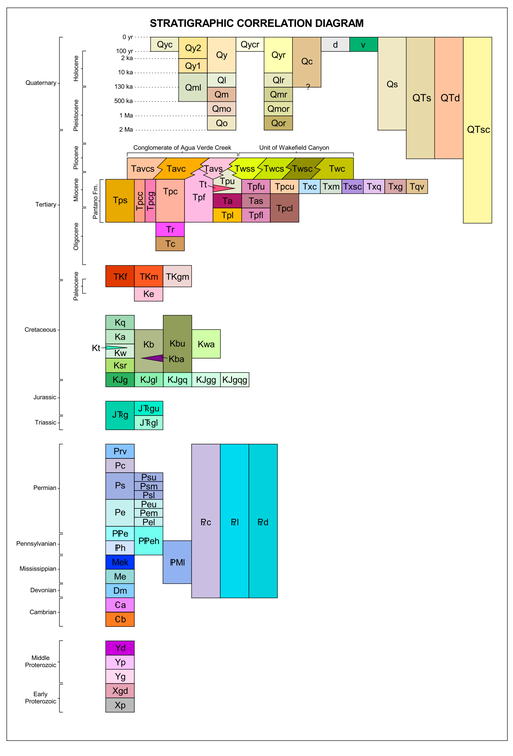
Gardner Canyon Formation (Jurassic and/or Triassic)
- JTg — Gardner Canyon Formation (Jurassic and/or Triassic)
  - JTgu — Upper sandstone and conglomerate, Gardner Canyon Formation
  - JTgl — Lower sandstone and mudstone, Gardner Canyon Formation

Paleozoic Sedimentary Rocks
- Rc — Carbonate rock (Devonian through Permian)
- Rd — Carbonate rock (Devonian through Permian)
- Rl — Limestone (Paleozoic)
- Prv — Rainvalley Formation (Permian)
- Pc — Concha Limestone (Permian)
- Ps — Scherrer Formation (Permian)
  - Psu — Upper Scherrer Formation
  - Psm — Middle Scherrer Formation
    - Psl — Lower Scherrer Formation
- Pe — Epitaph Formation (Permian)
  - Peu — Upper Epitaph Formation
  - Pem — Middle Epitaph Formation
  - Pel — Lower Epitaph Formation
- PPe — Earp Formation (Pennsylvanian to Permian)
- PPeh — Earp Formation and Horquilla Limestone, undivided (Pennsylvanian to Permian)
- PMl — Escabrosa Limestone and Horquilla Limestone, undivided (Pennsylvanian and Mississippian)
- Ph — Horquilla Limestone (Pennsylvanian)
- Mek — Karst deposits (Mississippian?)
- Me — Escabrosa Limestone (Mississippian)
- Dm — Martin Formation (Devonian)
- Ca — Abrigo Formation (Cambrian)
- Cb — Bolsa Quartzite (Cambrian)

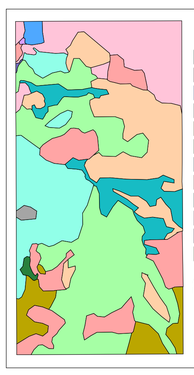
Proterozoic Map Units
- Yd — Sierra Ancha diabase (Middle Proterozoic)
- Yp — Pioneer Formation, Apache Group (Middle Proterozoic)
- Yg — Porphyritic granite (Middle Proterozoic)
- Xgd — Granodiorite (Early to Middle Proterozoic)
- Xp — Pinal Schist (Middle Proterozoic)

Rocks below the Catalina detachment fault of uncertain protolith age
- f — Fault rocks (Proterozoic to Tertiary protolith with probable Mesozoic to Tertiary deformation)
- cs — Calc-silicate tectonite (probable Paleozoic protolith age with probable Mesozoic to Tertiary deformation)

STRATIGRAPHIC CORRELATION DIAGRAM



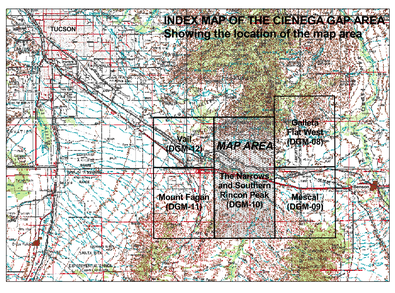
MAPPING RESPONSIBILITY

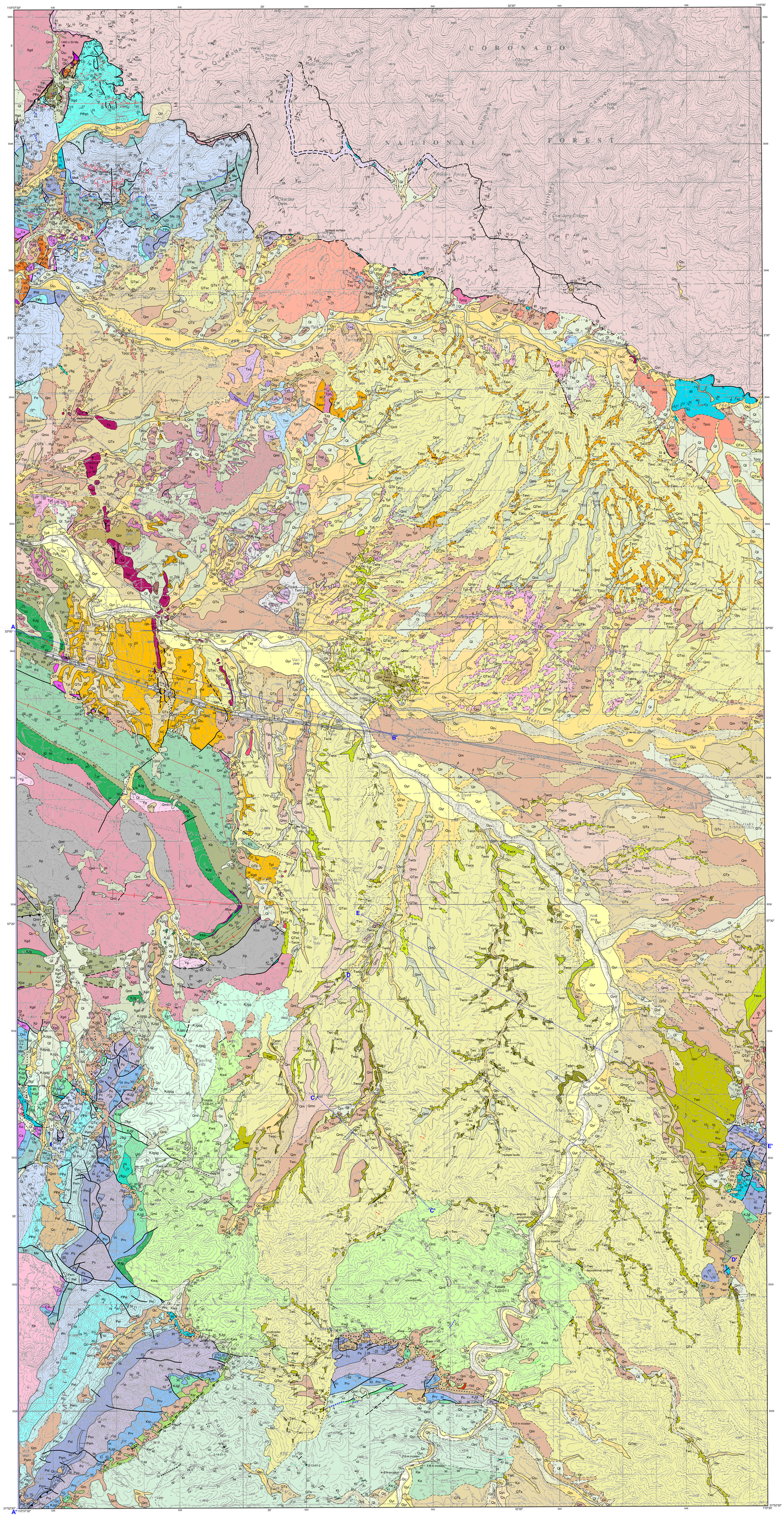


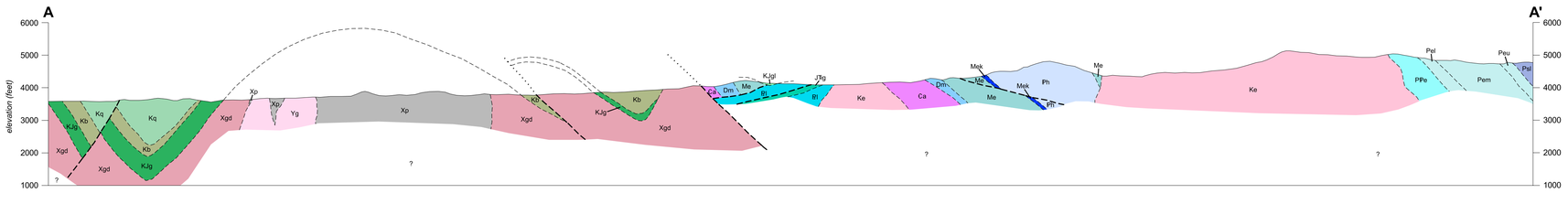
- Drewes (1988)
- Ferguson
- Finnell (1971 and unpublished)
- Gilbert
- Krantz
- Krantz & Richard
- Orr
- Pearthree
- Richard
- Richard & Ferguson
- Spencer
- Spencer & Ferguson

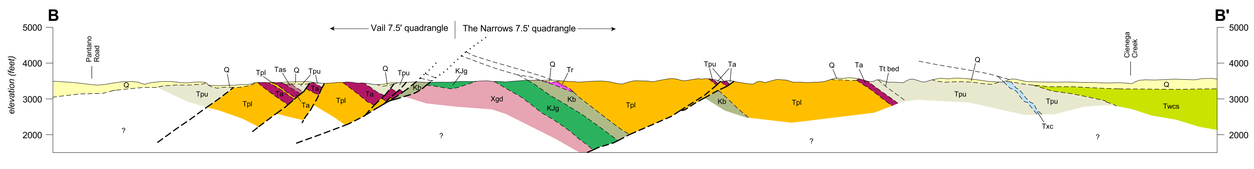
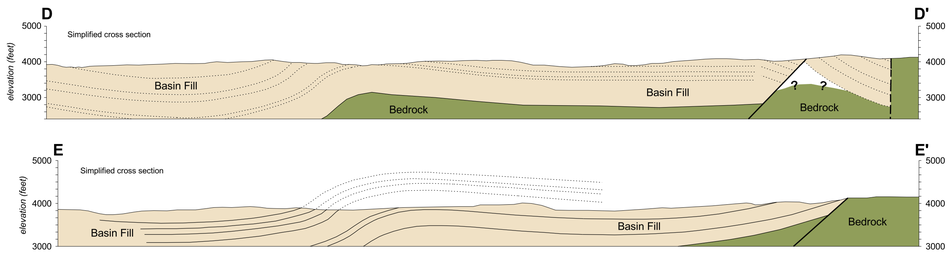
Additional surficial mapping by Pearthree throughout map area

INDEX MAP OF THE CIENEGA GAP AREA
Showing the location of the map area





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