COMPILATION GEOLOGIC MAP FROM THE BABOQUIVARI MOUNTAINS TO THE TRANSITION ZONE OF THE COLORADO PLATEAU

by

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PLATE 1 of 2

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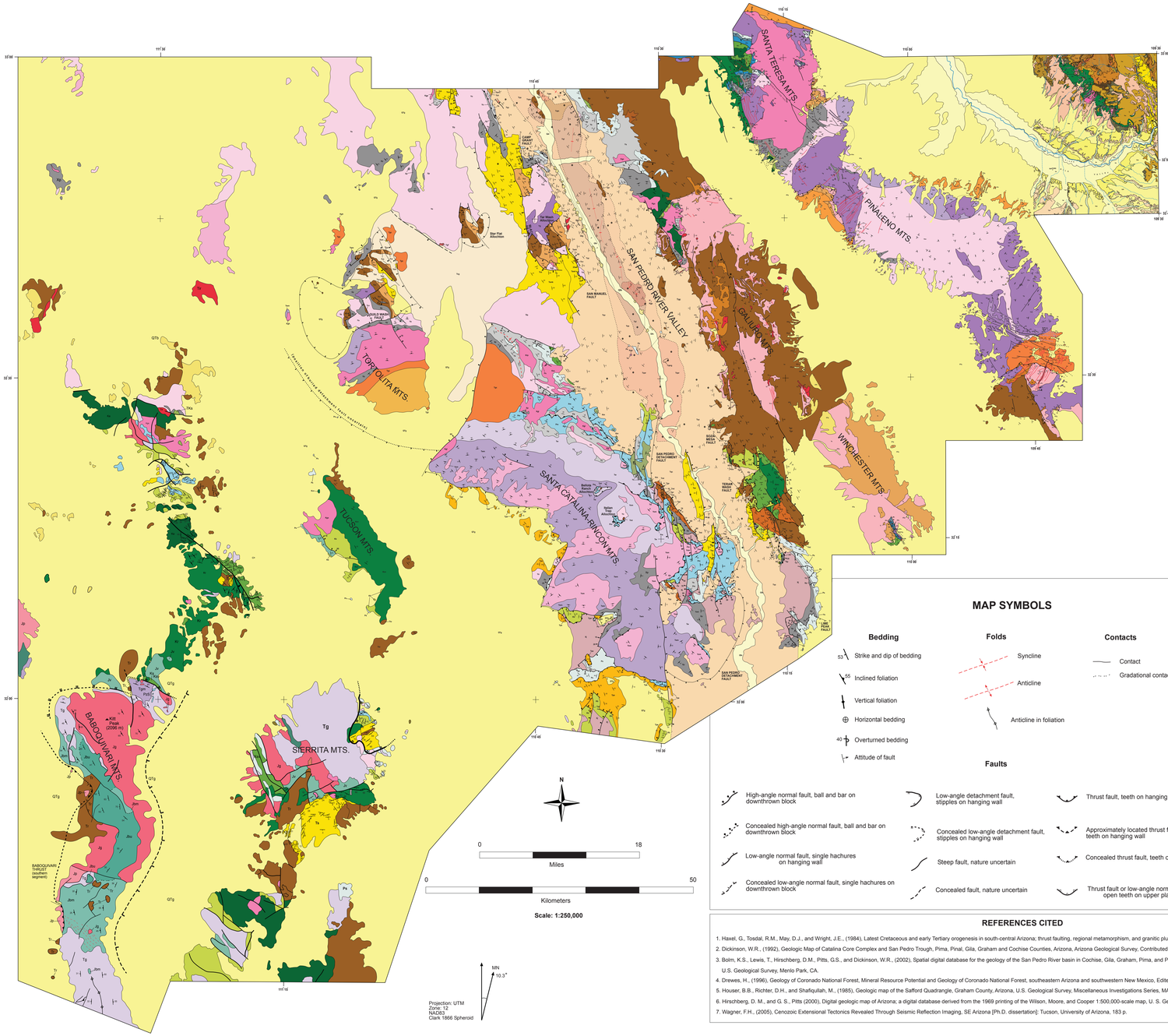

MAP UNITS

BABOQUIVARI/SIERRITA MOUNTAINS

- Qtg — Dissected Neogene basin fill with gravel and conglomerate (Late Tertiary)
- Ts — Tertiary sedimentary rocks, undifferentiated
- Tv — Volcanic, hypabyssal, and sedimentary rocks (Middle and Late Tertiary)
- Tgp — Garnet-two-mica granite and related granite porphyry (Early Tertiary); Tgm: mylonite
- Tp — Porphyritic rhyolite and aplogranite dike swarm related to garnet-two-mica granite (Early Tertiary)
- Rhyolitic volcanic rocks (Late Cretaceous)
- Sandstone, conglomerate, and volcanic rocks (Cretaceous)
- Plutonic rocks of Comobabi and Artesa Mountains (Middle and Late Jurassic)
- Volcanic rocks of Comobabi and Artesa Mountains (Middle and Late Jurassic)
- Granitoid rocks of Baboquivari Mountains (Middle and Late Jurassic)
- Volcanic, hypabyssal, and sedimentary rocks of Baboquivari Mountains (Early Jurassic)
  - Metamorphosed schistose
  - Unmetamorphosed to weakly metamorphosed
- (latest Cretaceous and early Tertiary metamorphism)
- Schist, granofels, calcsilicate rocks, marble, quartzite, skarn; derived from Bolsa, Abrigo, and Martin Formations (Paleozoic)

Rosaire-Vaiot Backpitch thrust; Rosaire to Baboquivari thrust complex; Upper plate of Backpitch fault; Lower plate of Backpitch fault

CATALINA CORE COMPLEX

INTRUSIVE ROCK UNITS

- Rhyolitic plugs and dikes
- Tortolita granitic pluton
- Fortified Peak pluton
- Catalina granitic pluton
- Eocene Wilderness granite suite (two-mica granite)
- Tgm, mylonitic

Mid-Tertiary (Oligocene-Miocene) Suite

- Cropper Creek granodiorite stock
- Rice Peak granodiorite porphyry
- Granitic porphyry dikes and sills
- Leatherwood quartz diorite
- Chinese Wash granodiorite
- Amole granitic pluton

"Laramide" Intrusions

- Oracle/Ruin granite suite (Middle Proterozoic) Ton, mylonitic
- Yg, granodiorite and Yd, diorite
- Johnny Lyon granodiorite suite (Lower Proterozoic) Kjm, mylonitic

STRATIFIED ROCK UNITS

- stream valley alluvium (shown along SR and Gila Rivers only)
- dissected Neogene basin fill; together with overlying terrace and pediment gravel sheets and local alluvium
- gravels of Camp Grant (Pliocene)

post-mid-Miocene

- undifferentiated
- Kannally Member
- Tucson Wash Member
- Suza Canyon facies (volcanic clasts)
- Kelsey Canyon facies (volcanic clasts)
- Paige Canyon facies (volcanic clasts)

San Manuel Formation (Upper Member) of San Pedro Trough

- Pantano Formation (Oligocene-Miocene) of Cienega Gap and Tucson basin
- Sedimentary upper member
- Hackberry Wash facies
- Volcanic lower member

Cloudburst Formation (Upper Member) (Oligocene-Miocene) of San Pedro Trough

- Tertiary volcanics (Oligocene) of Tucson Mountains
- Galiuro Volcanics (Upper Oligocene) Tgv; Galiuro Volcanic Conglomerate (shown locally only)
- Mineta Formation (Oligocene) of Cañada Arrenavaca and Teran Basin

mid-Oligocene to mid-Miocene volcanic and sedimentary sequences

- American Flag Formation
- Cascabel Formation
- Cat Mountain Rhyolite
- Ghory Hole Volcanics
- Muleshoe Volcanics

Upper Cretaceous to Paleocene(?) volcanic and sedimentary units

- Pinkard Formation (basal Upper Cretaceous)
- Bisbee Group (Lower Cretaceous): Km, metamorphosed
- Recreation Redbeds
- Walnut Gap Volcanics

mid-Jurassic(?) redbed units

- Paleozoic (Cambrian to Permian) strata Pm, metamorphosed
- Proterozoic Apache Group and Troy Quartzite (including Wilcox diabase sills and dikes)
- Proterozoic Pinal Schist, dominantly metasedimentary

Precambrian (Proterozoic) formations

SAN PEDRO TROUGH

- floodplain alluvium (Holocene)
- terrace gravels (Holocene-Miocene); tributary alluvial fans
- San Pedro River stream terrace gravels (Quaternary)
- gravelly alluvial-fan and bajadan facies (Moore-Pliocene?)
- sandy fan-toe, lake margin, and delta-front sandflat facies
- prominent delta-front subfacies (Redington Member)
- extensive alluvial plain subfacies (Redington Member)
- of sandstone beds
- area of 1-10 cm gypsum stringers in sandstone in Tvpr
- massive prodelta mudstone
- laminated lacustrine facies
- diatomaceous facies of Tvg

GALIURO/PINALEÑO MOUNTAINS

- Gravel, sand and conglomerate (Holocene to Miocene)
- Basalt (Pleistocene to Miocene)
- Sedimentary and volcanic rocks, undivided (Miocene to Eocene)
- Rhyolitic rocks (Moorne and Oligocene)
- Rhyolitic lava flows (Moorne and Oligocene)
- Rhyolitic tuffs (Moorne and Oligocene)

Galiuro Volcanics Tgv

- Rhyolite- Dikes and plugs (Miocene and Oligocene)
- Andesitic rocks (Oligocene)
- Granite (Oligocene)
- Intrusive rocks (Eocene to Late Cretaceous)
- Andesite (Eocene to Late Cretaceous)
- Rhyolite-Plugs and dikes (Eocene to Late Cretaceous)
- volcanic and sedimentary rocks (Eocene to Upper Cretaceous)
- Sedimentary and volcanic rocks, undivided (Upper Cretaceous)
- Rhyolite (Upper Cretaceous)
- Andesite (Upper Cretaceous)

Upper Cretaceous to Eocene volcanic and sedimentary units

- (Naco Group) - (Lower Permian and Pennsylvanian)
- Escabrosa Limestone (Mississippian)
- Lower Paleozoic formations, undivided (Upper Devonian to Middle Cambrian)

Pz (Paleozoic rocks)

- Diabase (Middle Proterozoic)
- Apache Group (Middle Proterozoic)
- Intrusive rocks (Middle Proterozoic)
- Gneiss (Middle and Early Proterozoic)
- Pinal Schist (Early Proterozoic)

SAFFORD BASIN-GILA MOUNTAINS

- Basin fill, Qal — Young Alluvial Deposits (Holocene and Pleistocene)
- Qtg — Alluvium on pediments
- Qtoa, Qtca — Colluvial and Alluvial Deposits, undivided (Holocene and Pleistocene)
- Qtoa — Older Alluvial Deposits (Pleistocene and Pliocene?)
- Qtg

Gila Conglomerate (Pleistocene, Pliocene, and Miocene)

- Tgcr — Lacustrine and fluvial beds of 111 (one-eleven) Ranch (Pliocene)
- Tgcd — Gravel of Rail End Canyon (Pliocene)
- Tgc — Silt and conglomerate of Sanchez (Pliocene)
- Tgcm — Conglomerate of Midnight Canyon (Pliocene and Miocene)
- Tr — Rhyolite Pyroclastic Deposits (Miocene)
- Tbc — Conglomerate of Bonita Creek (Miocene)
- Tag — Upper andesite flows (23.6 ± 0.5 my)
- Tat — Tuff and volcaniclastic rocks (within upper andesite unit) 0-20 m
- Tap — Porphyritic andesite flow (100 m)
- Tad — Dikes

Andesite of Guthrie Peak-Turtle Mountain (Miocene and Oligocene)

- Tcf — Flows (max thickness 160 m)
- Tcv — Volcaniclastic and pyroclastic rocks (0-105 m)
- Tcd — Dikes

Andesite and Dacite of Coyote Wash (Oligocene)

- Tdc — Dome or flow (exposed thickness ~80 m, base not exposed)
- Tdd — Dikes

Dacite of Bonita Creek (Oligocene)

- Tcr — Central rhyolite dome (max thickness 480 m)
- Tcb — Dome breccia
- Tcd — Domes, flows, and pyroclastic deposits (max thickness 50 m)
- Tcu — Upper dacite flows (max thickness 370 m)
- Tcc — Pyroclastic cone deposits (Thickness 0-60 m)
- Tcl — Lower dacite flow (~ 220 m) (25.9 ± 0.6 my)
- Tcp — Upper porphyritic dacite flow (max thickness 160 m)
- Tcv — Lower porphyritic dacite flows and breccias (max thickness 210 m)
- Tcg — Rhyolite agglutinates and flows (max thickness 120 m)
- Tbw, Tbpw — Hornblende porphyry and rhyolite dikes-Tbhd as wide as 30 m
- Tcbc — Rhyolite breccia cone (diameter of ~6 km) (24.5 ± 0.6 my, 26.5 ± 0.6 my)

Volcano of Bear Spring (Oligocene)

- Tal — Lower andesite flows (28.6 ± 0.6 my) 0-260 m → Andesite of Guthrie Peak-Turtle Mountain (Miocene and Oligocene)
- Trf — Flows (~110 m)
- Trt — Pyroclastic rocks (~ 30 m)

Rhyolite of Coyote Wash (Oligocene)

- Pz — Paleozoic with volcaniclastic and pyroclastic deposits (Oligocene Eocene, and Paleocene)
- Tbp — Small plutons, irregular dikelike bodies, and plugs
- Pzd, Pzp — Hornblende-plagioclase porphyry and rhyolitic quartz-eye porphyry dikes, undifferentiated (67.6 ± 1.4 my)
- Tbr — Breccia pipes
- Tbt — Rhyolitic breccias and subvolcanic rock (thickness 0-150 m)
- Tbl — Andesitic to dacitic effusives and associated volcaniclastic rocks (exposed thickness 530 m, drilling indicated a maximum thickness of 1700 m)

Volcano-Plutonic Rocks of Safford (Paleocene and Upper Cretaceous)

MAP SYMBOLS

Bedding

- Strike and dip of bedding
- Inclined foliation
- Vertical foliation
- Horizontal bedding
- Overturned bedding
- Attitude of fault

Folds

- Syncline
- Anticline
- Anticline in foliation

Contacts

- Contact
- Gradational contact

Faults

- High-angle normal fault, ball and bar on downthrown block
- Concealed high-angle normal fault, ball and bar on downthrown block
- Low-angle normal fault, single hachures on hanging wall
- Concealed low-angle normal fault, single hachures on downthrown block
- Low-angle detachment fault, stipples on hanging wall
- Concealed low-angle detachment fault, stipples on hanging wall
- Steep fault, nature uncertain
- Concealed fault, nature uncertain
- Thrust fault, teeth on hanging wall
- Approximately located thrust fault, teeth on hanging wall
- Concealed thrust fault, teeth on hanging wall
- Thrust fault or low-angle normal fault, open teeth on upper plate
- Strike-slip fault
- Oblique-slip fault composite of strike-slip and normal normal movement likely
- Shear zone, low-angle normal

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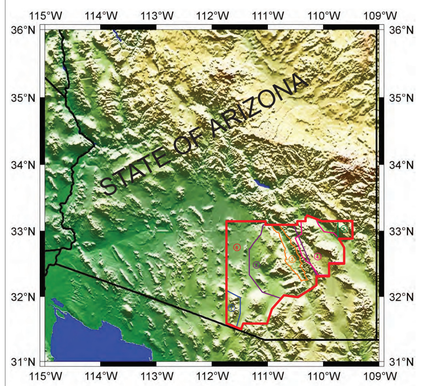
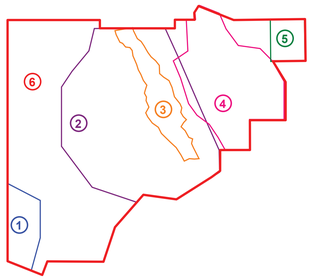
LOCATION MAP
Red area showing map location



SOURCE INDEX MAP



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