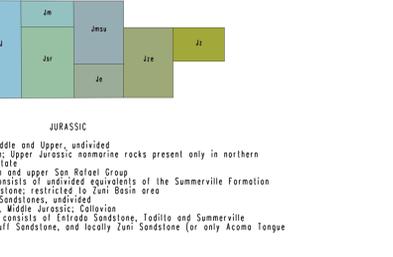
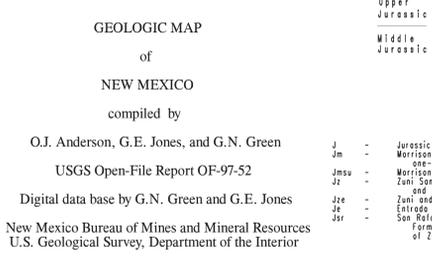
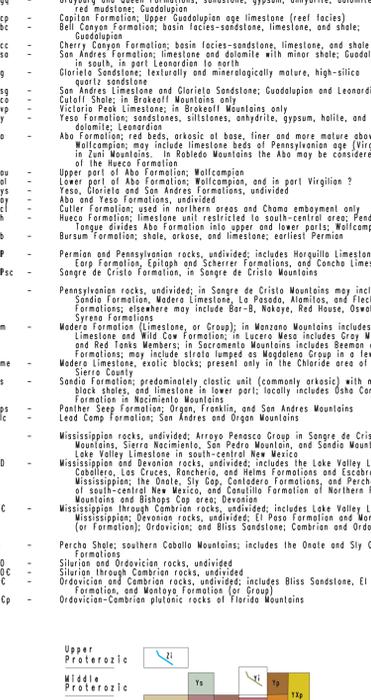
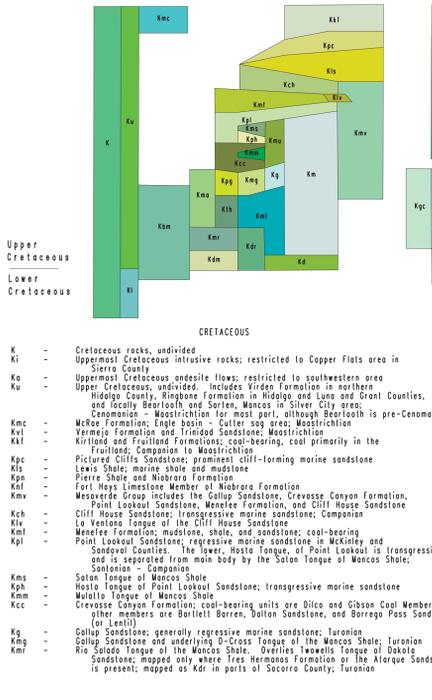
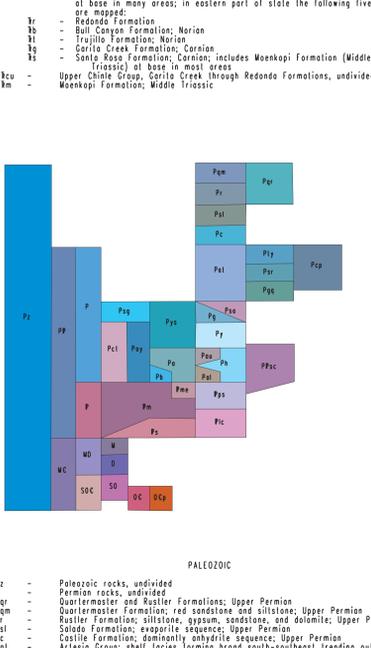


- QUATERNARY**
- ds - disturbed ground
  - Qa - Alluvium; upper and middle Quaternary
  - Qm - Pleistocene deposits and colluvium
  - Qe - Eolian deposits
  - Qs - Symbiotic eolian deposits
  - Qd - Glacial deposits; till and outwash; upper and middle Pleistocene
  - Qp - Lacustrine and playa-lake deposits; includes associated alluvial and eolian deposits of major lake basins; upper Quaternary
  - Op - Piedmont alluvial deposits; upper and middle Quaternary; includes deposits of higher order terraces bordering major stream valleys; alluvial veneers of the piedmont slope, and alluvial fans
  - Qb - Basalt and andesite flows and local vent deposits
  - Qv - Silicic volcanic rocks
  - Qr - Basaltic volcanics; tuff rings, cinders, and proximal lavas
  - Qs - Basalt or basaltic andesite; middle and lower Pleistocene
  - Qv - Valley Rhyolite; Jemez Mountains area only
  - Qst - Borealis tuff; Jemez Mountains area only
  - Qoa - Older alluvial deposits of upland plains and piedmont areas, and caliche soils and eolian cover sediments of High Plains region; includes scattered lacustrine, playa, and alluvial deposits of the Taha, Double Tanks, Tule, Blanco, Blackwater Draw, and Gatona Formations; the latter of which may be Pleistocene in base; outcrops, however, are basically of Quaternary deposits; upper Quaternary to uppermost Pleistocene(?)
- QUATERNARY AND TERTIARY**
- Qtp - Older piedmont alluvial deposits and shallow basin fill; includes Ogemod Formation and in northeast, high level pediment gravel
  - Qtb - Basaltic and andesite volcanics; interbedded with Pleistocene and Pliocene sedimentary units
  - Qtl - Travertine
  - Qta - Gila Group; includes Wimbres Formation and several informal units in southwestern basins; Middle Pleistocene to uppermost Oligocene
  - Qts - Santa Fe Group; undivided; Basin fill of Rio Grande rift region; middle Pleistocene to uppermost Oligocene
  - Qst - Upper Santa Fe Group; includes Camp Rice, Fox Hancock, Palomas, Sierra Ladrones, Ache, Page, and Homans Formations; middle Pleistocene to uppermost Pliocene(?)
- TERTIARY**
- Tus - Upper Tertiary sedimentary units; includes Bidachi Formation, the Picuris Formation, and Los Hornos Formation, and locally tonalites; Pliocene to upper Miocene
  - Ttl - Fence Lake Formation; conglomerate and conglomeratic sandstone, coarse fluvial volcanoclastic sediments, minor eolian facies, and pedogenic carbonates of the southern Colorado Plateau region; Miocene
  - Tsf - Lower and Middle Santa Fe Group; includes Hayner Ranch, Rincon Valley, Popocate, Cochiti, Tesguero, Chamita, Abiquiu, and other formations; Miocene and uppermost Oligocene
  - To - Ogallala Formation; alluvial and eolian deposits, and petrocalcic soils of the southern High Plains; Lower Pliocene to middle Miocene (locally includes unit Qoa)
  - Tlp - Los Hornos Formation of Lower Santa Fe Group (Miocene and upper Oligocene); includes Carson Conglomerate (Dane and Bachman, 1965) in Jemez Mountains-Santa Fe Basin area
  - Tos - Mostly Oligocene and upper Eocene sedimentary and volcanoclastic sedimentary rocks with local andesite to intermediate volcanics; includes Estanillo, Sycamore, Bell Top, and Palm Park Formations; basin fill interbedded with Bell Top and Palm Park Formations
  - Tth - Hinsdale Basalt; northern Taz, and eastern Rio Arriba Counties; basalt and andesite flows; Miocene
  - Tnb - Basalt and andesite flows; Miocene; includes flows interbedded with Santa Fe and Gila Formations
  - Tpb - Basalt and andesite flows; Pliocene
  - Tmb - Basalt and andesite flows; Miocene

- TERTIARY (continued)**
- Tar - Silicic to intermediate volcanic rocks; mainly quartz latite and rhyolite Neogene; may locally include flows interbedded with Santa Fe Group
  - Tav - Neogene volcanic rocks; primarily in Jemez Mountains
  - Tc - Chuska Sandstone; restricted to Chuska Mountains
  - Tv - Middle Tertiary volcanic rocks, undifferentiated
  - Ttl - Middle Tertiary felsic shallow-intrusive rocks; phonolites and trachytes of northern N.M.; includes the rhyolite of Ash Mountain
  - Tuv - Volcanic and some volcanoclastic rocks, undifferentiated; Lower Miocene and Upper Oligocene (younger than M)
  - Tlv - Lower Oligocene and Eocene volcanic rocks, undifferentiated; dominantly intermediate composition, with interbedded volcanoclastic rocks; (31-44 Ma)
  - Tuol - Low Miocene and uppermost Oligocene basaltic andesites (22-26 Ma); includes Borealis tuff; Jemez Mountains area only
  - Tual - Upper Oligocene andesites and basaltic andesites (26-29 Ma); includes La Jora Peak Basaltic Andesite, Uva Basalt, the basaltic andesite of Poverty Creek, and Squirrel Springs Andesite, the Ratonook, Bear Springs Canyon, Salt Creek, Gila Flat, and Middle Mountain Formations, and the Alum Mountain Group; locally includes more silicic flows
  - Tarp - Upper Oligocene rhyolitic pyroclastic rocks (ash-flow tuffs); includes Davis Canyon Tuff, South Crosby Peak Formation, La Jencia, Vick's Peak, Lemton, South Canyon, Bloodgood Canyon, Shelley Peak Tuffs, Tuff of Horseshoe Canyon, Peak Tuff, Rhyolite Canyon Tuff, Apache Springs Tuff, Diamond Green, Jordan Canyon, Garcia Camp Tuffs, the Turkey Springs Tuff, the Tuff of Little Mineral Creek, the Amalia Tuff, and others. Some contain volcanoclastic and reworked volcanoclastic rocks, and eolian sandstone; (24-29 Ma)
  - Tirp - Lower Oligocene silicic pyroclastic rocks (ash-flow tuffs); includes Hell's Mesa, Kneeling Nun, lower part of Bell Top formation, Laballo Blanco, Bell Hill, Leyba Well, Rock House Canyon, Blue Canyon, Sugarlump and Tobacco Ridge Tuffs, the tuffs of the Organ caudex, Treasure Mountain Tuff (now known as Chiquito Peak Tuff), Bill Creek Tuff, Oak Creek Tuff, Tuff of Sierra Mountain, Tuff of Black Hill Canyon, Tuff of Farr Ranch, Woodhaul Canyon, Gillespie and Box Canyon Tuffs, Cooney Tuff, and other volcanic and interbedded fluvial and pumaceous units; (31-36.5 Ma)
  - Tur - Upper Oligocene silicic (or felsic) flows and masses and associated pyroclastic rocks; includes Taylor Creek, Fanny, and Rocky Canyon Rhyolites
  - Tir - Lower Oligocene silicic (or felsic) flows, domes, and associated pyroclastic rocks and intrusions; includes Wimbres Peak Formation
  - Ti - Tertiary intrusive rocks; undifferentiated
  - Tui - Miocene to Oligocene silicic to intermediate intrusive rocks; dikes, sills, dykes, and dikes
  - Tujm - Upper and Middle Tertiary mafic intrusive rocks
  - Til - Quaternary monoxites (tephra) in the Silver City and Los Pinos Range, intermediate intrusives of the Cooke's Range (Oligocene), and other intermediate to felsic dikes and plugs of Oligocene and Eocene age
  - Tlo - Lower Tertiary (Lower Oligocene and Eocene) andesite and basaltic andesite flows, and associated volcanoclastic units; includes Rubio Peak Formation, and andesite of Dry Legall Canyon
  - Tps - Paleogene sedimentary units; includes Boca, Galisteo, El Rito, Blanco Basin, Lower Raton, Lobo, Sanders Canyon, Shum Ranch, Timberlake, and Oak Mountain Formations
  - Tsa - San Jose Formation; Eocene, San Juan Basin
  - Ts - Macmillan Formation; Paleocene, San Juan Basin
  - Tm - Animas Formation; Paleocene, San Juan Basin
  - Tpc - Poison Canyon Formation; Paleocene, Raton Basin
- TERTIARY AND CRETACEOUS**
- Tkr - Raton Formation; in Raton Basin; may contain conformable K/T boundary
  - Tkp - Poison Canyon and Raton Formations; undivided
  - Tka - Animas Formation; in northeast San Juan Basin
  - Tkv - Andesite volcanics
  - Tki - Paleogene and Upper Cretaceous intrusive rocks; includes Hueco, Fierro, Tyrone, and Lordsburg granodiorite-quartz monzonite gneisses



**GEOLOGIC MAP**  
of  
**NEW MEXICO**  
compiled by  
**O.J. Anderson, G.E. Jones, and G.N. Green**  
USGS Open-File Report OF-97-52  
Digital data base by G.N. Green and G.E. Jones  
New Mexico Bureau of Mines and Mineral Resources  
U.S. Geological Survey, Department of the Interior

**JURASSIC**

- J - Jurassic rocks, Middle and Upper, undivided
- Jm - Morrison Formation; Upper Jurassic nonmarine rocks present only in northern one-third of state
- Jsu - Morrison Formation and upper San Rafael Group
- Jz - Zuni Sandstone; consists of undivided equivalents of the Summerville Formation and Bluff Sandstone, restricted to Zuni Basin area
- Jze - Zuni and Entrada Sandstones, undivided
- Jsr - Entrada Sandstone, Middle Jurassic; Collignon San Rafael Group; consists of Entrada Sandstone, Tadiello and Summerville Formations, Bluff Sandstone, and locally Zuni Sandstone (or only Acme Tongue of Zuni)

**PRECAMBRIAN**

- Zi - Upper Proterozoic; mafic dikes
- Yi - Middle Proterozoic; mafic dikes, diabase, meladiabase, metadiabase mainly of Burro Mountains; age not well constrained
- Ys - Middle Proterozoic sedimentary rocks of the Sacramento Mountains
- Yp - Middle Proterozoic plutonic rocks (younger than 1600 Ma)
- Ym - Middle and lower Proterozoic plutonic rocks, undivided
- Xs - Lower Proterozoic rocks, undivided
- Xms - Lower Proterozoic metasedimentary rocks (1650-1700 Ma). Essentially equivalent to Honda Group; locally includes high-grade quartzite-pelitic schists of unknown age
- Xm - Lower Proterozoic metamorphic rocks, dominantly felsic volcanic, volcanoclastic and plutonic rocks (1650-1700 Ma); includes Yodito Group; locally includes high-grade felsic gneisses of unknown age
- Xp - Lower Proterozoic plutonic rocks (older than 1600 Ma)
- Xmo - Lower Proterozoic metamorphic rocks, dominantly mafic (1720-1760 Ma)
- Xmu - Lower Proterozoic metamorphic rocks, undivided