GEOLOGIC MAP UNITS
Peach Springs Quadrangle, AZ

Richard A. Young, Mapping 1962-2011

(See also separate accompanying document with expanded descriptions of Cenozoic rocks.)

CENOZOIC

Qal / Qc — Quaternary alluvium and colluvium.
Somewhat more extensive than actually shown on map in small washes and on local slopes.

Ql — Quaternary landslides, slump blocks (age somewhat uncertain, but probably Quaternary).

Tcs — Late Miocene-Pliocene Coyote Springs Formation (locally derived fluvial conglomerate).
Includes clasts from local Paleozoic and local basaltic volcanic rocks. (Possibly continues upward into Pleistocene time elsewhere, such as in adjacent Truxton Valley). Note: Where Tcs directly overlies Tbd (without nearby volcanic outcrops) contact might be gradational and unit could be time transgressive (Oligocene at base to Pliocene).

Tps / Tb — Miocene basalts (Tb) with interbedded Peach Spring Tuff (Tps: Dated as 18.5 Ma regionally).
Includes volcanic agglomerate and fluvially reworked volcanic sediments at base. Basalt flows occur both above and below Peach Spring Tuff in adjacent areas on Hualapai Plateau (14.63 Ma to 19.94 Ma age range).
Basalt on Peach Springs Quadrangle dated as 19.94 Ma at site along road 2.1 km north of Peach Springs.

Tbp — Buck and Doe Conglomerate; Peach Springs Member. Fluvial. Oligocene. Poorly cemented, arkosic; contains local lower Paleozoic rock clasts and far-traveled clasts from Precambrian exposures in adjacent Truxton Valley.
Contains 23.97 ±.03 Ma ash near top in Peach Springs Wash (Sect. 13, See "*" on map.). Ash source: Aquarius Mts.(?)

Tbd — Buck and Doe Conglomerate, Milkweed Member. Oligocene (ash date in Tbp), but possibly latest Eocene(?) at base.
Locally derived, Paleozoic limestone-clast-dominated, fluvial conglomerate. Typically more indurated than Tcs.
Differs visually from similar Coyote Springs Fm (Tcs) in absence of local volcanic clasts, stronger cementation.

Unconformity: Significant post Laramide erosion interval

Tw — Eocene West Water Formation. Reddish soils, lacustrine clays, and white-colored, fresh-water limestone and/or marl; transitional with Music Mountain Formation below. Deeply weathered soil horizon with evidence of local lakes formed during late Laramide tectonism. Lakes formed regionally on upstream sides of monoclines (Young, 1989). Might also reflect, in part, Eocene thermal maximum circa 53.7 Ma?

Thf / Tmm — Tmm: Paleocene(?)-early Eocene Music Mountain Formation (arkosic, highly weathered "Arizona rim gravels"); p€ rock & Laramide volcanic rock clasts; abundant quartzite clasts. Dated by Early Eocene gastropods near top of truncated exposure near Long Point, AZ, 70 km east of quadrangle. Thf: Hindu Fanglomerate; Locally derived fanglomerate facies with large angular meter-sized limestone blocks in finer-grained orange matrix; occurs mainly in areas of steep paleorelief. DZ: Detrital zircon analysis sample site for Tmm (Section 2 near Peach Springs spring). Tmm represents through-flowing Laramide drainage in incised paleochannels trending generally NE and converging on Hurricane fault. Laramide volcanic clast date sites marked by solid circle. (Young, 1999, 2001a, 2001b; Young and Hartman, 2011, 2012)

Unconformity

PALEOZOIC

₽mw — Lower Supai Group: Manakacha and Watahomigi Formations undivided

Mr — Mississippian Redwall Limestone

Dt — Devonian Temple Butte Formation

Unconformity

€m — Cambrian Muav Limestone

€b — Cambrian Bright Angel Shale

€t — Cambrian Tapeats Sandstone

SYMBOLS

- Normal fault (ball downthrown)
- Fault concealed
- Fault inferred
- Small thrust structure in Tbd
- Fold axes, monoclines
- 1,2,3,5 — Approximate well log locations by N.H. Darton (Young, 1979)
- A — A' — Geologic cross cection
- * — Tbp ash date (23.97+ 0.03Ma) (T25N, R11W, Section 13)
- DZ — Detrital zircon analysis site (Young et.al, 2010)
- ● 70 (Ma) — Volcanic clast dating sites in Tmm (Young, 2001b, Fig. 4)

[See Billingsley et al.,(1999), USGS Map I-2554 for details of Paleozoic stratigraphy and detailed Appendix describing Tertiary rocks. Also see Wenrich et al., 1995, for locations and ages of dated volcanic rocks]