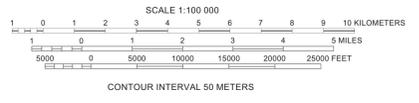
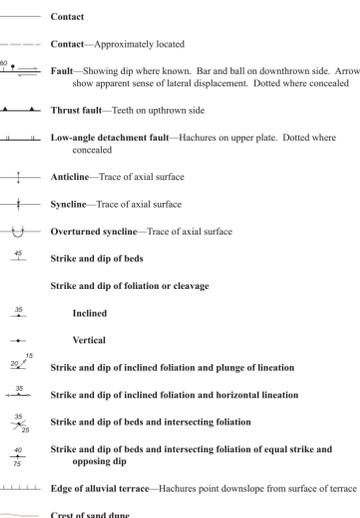
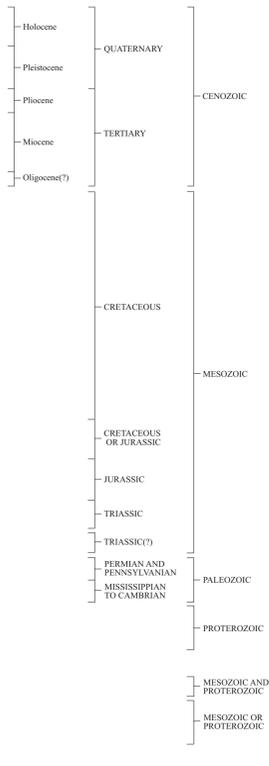
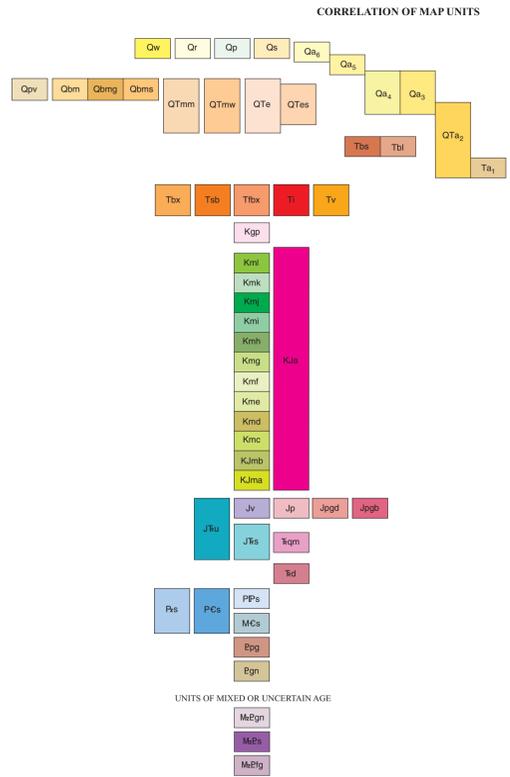


Base from U.S. Geological Survey, Blythe, 1986. Universal Transverse Mercator projection.



Geology compiled in 1988-1990 and 2004. Digital database by Techni Graphic Systems, Inc., and Paul Stone. Edited by Carolyn Dornin. Manuscript approved for publication April 6, 2006.



MAP UNIT	GEOMORPHIC SURFACE OF BULL (1991)	ESTIMATED AGE (KA)	EPOCH
Qw	Q4b	0	HOLOCENE
Qa <sub>6</sub>	Q4a	0.1-2	
	Q3c	2-4	
Qa <sub>5</sub>	Q3b	4-8	PLEISTOCENE
	Q3a	8-12	
	Q2c	12-70	
	Q2b	70-200	
Qa <sub>3</sub> , Qa <sub>4</sub>	Q2a	400-730	PLEISTOCENE
	Q1	>1200	

Correlation of units Qa<sub>3</sub>, Qa<sub>4</sub>, Qa<sub>5</sub>, and Qw with alluvial geomorphic surfaces of Bull (1991)

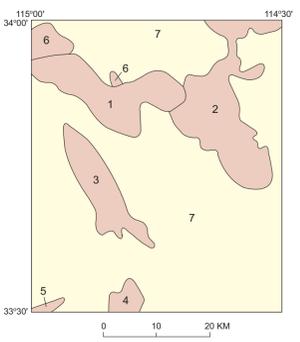
LIST OF MAP UNITS [See pamphlet for Description of Map Units]

- Qw** Alluvium of modern washes (Holocene)
- Qr** Alluvium of the modern Colorado River flood plain (Holocene)
- Qp** Playa lake deposits (Holocene)
- Qs** Eolian sand (Holocene)—Brown lines mark dune crests
- Qa<sub>6</sub>** Unit 6 (Holocene)
- Qa<sub>5</sub>** Unit 5 (Holocene)
- Qa<sub>4</sub>** Unit 4 (Holocene and Pleistocene)
- Qa<sub>3</sub>** Unit 3 (Holocene and Pleistocene)
- Qa<sub>2</sub>** Unit 2 (Pleistocene to Miocene)
- Ta<sub>1</sub>** Unit 1 (Miocene)
- Qpv** Alluvial deposits of the ancestral Colorado River (Pleistocene and Pliocene)
- Qbm** Alluvial deposits east of the Big Maria Mountains (Pleistocene)
- Qbmg** Gravel-dominated deposits
- Qbms** Sand-dominated deposits
- Qtm** Alluvial deposits of the Mule Mountains (Pleistocene or Pliocene)
- Qtmw** Alluvial deposits of the McCoy Wash area (Pleistocene and/or Pliocene)
- Qte** Alluvial deposits of the Ehrenberg area (Pleistocene and/or Pliocene)
- Qtes** Sand-dominated deposits
- Tbs** Bouse Formation (Pliocene and/or Miocene)
- Tbl** Fine-grained clastic sedimentary rocks
- Tbx** Limestone
- Tab** Sedimentary breccia (Miocene and Oligocene?)
- Tbx** Slide blocks (Miocene and Oligocene?)
- Tbx** Funglomerate, sedimentary breccia, and slide blocks, undivided (Miocene and Oligocene?)
- Ti** Felsic intrusive rocks (Miocene and Oligocene?)
- Tv** Volcanic rocks (Miocene and Oligocene?)
- Kgp** Gneiss porphyritic granite (Cretaceous)
- Kia** Andesite (Cretaceous or Jurassic)

- McCoy Mountains Formation (Cretaceous and Jurassic?)**
- Kmi** Member L (Cretaceous)
  - Kmk** Member K (Cretaceous)
  - Kmj** Member J (Cretaceous)
  - Kmi** Member I (Cretaceous)
  - Kmh** Member H (Cretaceous)
  - Kmg** Member G (Cretaceous)
  - Kmf** Member F (Cretaceous)
  - Kme** Member E (Cretaceous)
  - Kmd** Member D (Cretaceous)
  - Kmc** Member C (Cretaceous)
  - Klmb** Member B (Cretaceous or Jurassic)
  - Klma** Member A (Cretaceous or Jurassic)
  - Jsu** Volcanic and sedimentary rocks, undivided (Jurassic and Triassic)
  - Jv** Volcanic rocks (Jurassic)
  - Jp** Plutonic rocks (Jurassic)
  - Jpgd** Foliated granodiorite and diorite
  - Jpgb** Hornblende gabbro
  - Jts** Sedimentary rocks (Jurassic and Triassic)
  - Jsqm** Quartz monzonite and monzodiorite (Triassic)
  - Jtd** Diorite and gabbro (Triassic?)
  - Ps** Sedimentary rocks, undivided (Paleozoic)
  - Pcs** Sedimentary rocks (Permian to Cambrian)
  - Pps** Sedimentary rocks (Permian and Pennsylvanian)
  - Mcs** Sedimentary rocks (Mississippian to Cambrian)
  - Epg** Porphyritic granite and augen gneiss (Proterozoic)
  - Egn** Gneiss and amphibolite (Proterozoic)
- UNITS OF MIXED OR UNCERTAIN AGE
- MEgn** Gneissic rocks, undivided (Mesozoic and Proterozoic)
  - MEts** Schist (Mesozoic or Proterozoic)
  - MElg** Fine-grained gneiss (Mesozoic or Proterozoic)

	STONE, 1990; THIS REPORT	PELKA, 1973	HARDING AND CONEY, 1985	
MCCOY MOUNTAINS FORMATION	Member L	McCoy Mountains Formation, undifferentiated	Conglomerate Mbr. (structurally repeated)	
	Member K	Unit 14	Siltstone member	
	Member J	Unit 13		
	Member I	Unit 12		
	Member H	Unit 11		
	Member F	Member G	Unit 10	Sandstone member
			Unit 9	
			Unit 8	
	Member E		Unit 7	Conglomerate member
			Unit 6	
			Unit 5	
			Unit 4	
		Unit 3		
Member D	Unit 2	Basal sandstone member 2		
Member C	Unit 1	Basal sandstone member 1		

Correlation of members A-L of the McCoy Mountains Formation with units of Pelka (1973) and Harding and Coney (1985)



- Primary sources of geologic mapping, west half of Blythe 30' by 60' quadrangle, California and Arizona**
- Ballard, 1990 (Bedrock of Little Maria Mountains and northwestern Big Maria Mountains)
  - Hamilton, 1964, 1984, W.B. Hamilton, unpublished mapping of bedrock in Big Maria and Riverside Mountains, 1982
  - Stone and Pelka, 1989 (Bedrock of McCoy Mountains)
  - Tosdal, 1988 (Bedrock of Mule Mountains)
  - R.E. Fowell, unpublished mapping of surficial deposits, 2004. Blythe Graben mapped by Fugro, Inc. (1975)
  - P. Stone, unpublished mapping of small bedrock areas in the northern Little Maria Mountains, 1990
  - P. Stone, unpublished mapping of surficial deposits, 2004. Blythe Graben mapped by Fugro, Inc. (1975)

Note: 1. A preliminary map of this area was presented by Stone (1990). 2. See accompanying pamphlet for reference information.

Any use of trade, firm, or product names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government. This map was printed on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters and between X and Y directions on the same plotter, and paper may change size due to atmospheric conditions; therefore, scale and proportions may not be true on plots of this map. For sale by U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225, 1-888-ASK-USGS. Digital files available on World Wide Web at <http://pubs.usgs.gov/sim/2006/2922/>

Geologic Map of the West Half of the Blythe 30' by 60' Quadrangle, Riverside County, California, and La Paz County, Arizona

Compiled by Paul Stone 2006