

Holocene Aggradation  
Of The Colorado River In  
Grand Canyon

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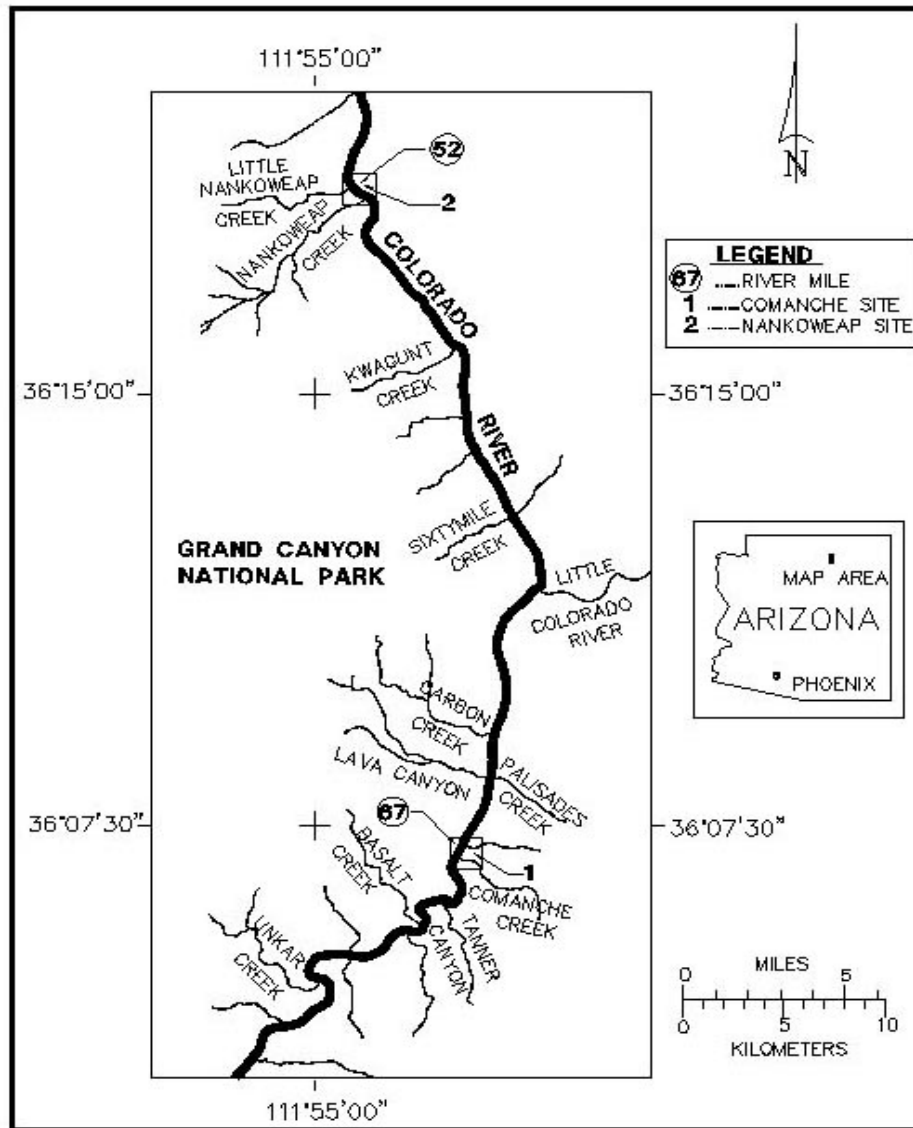
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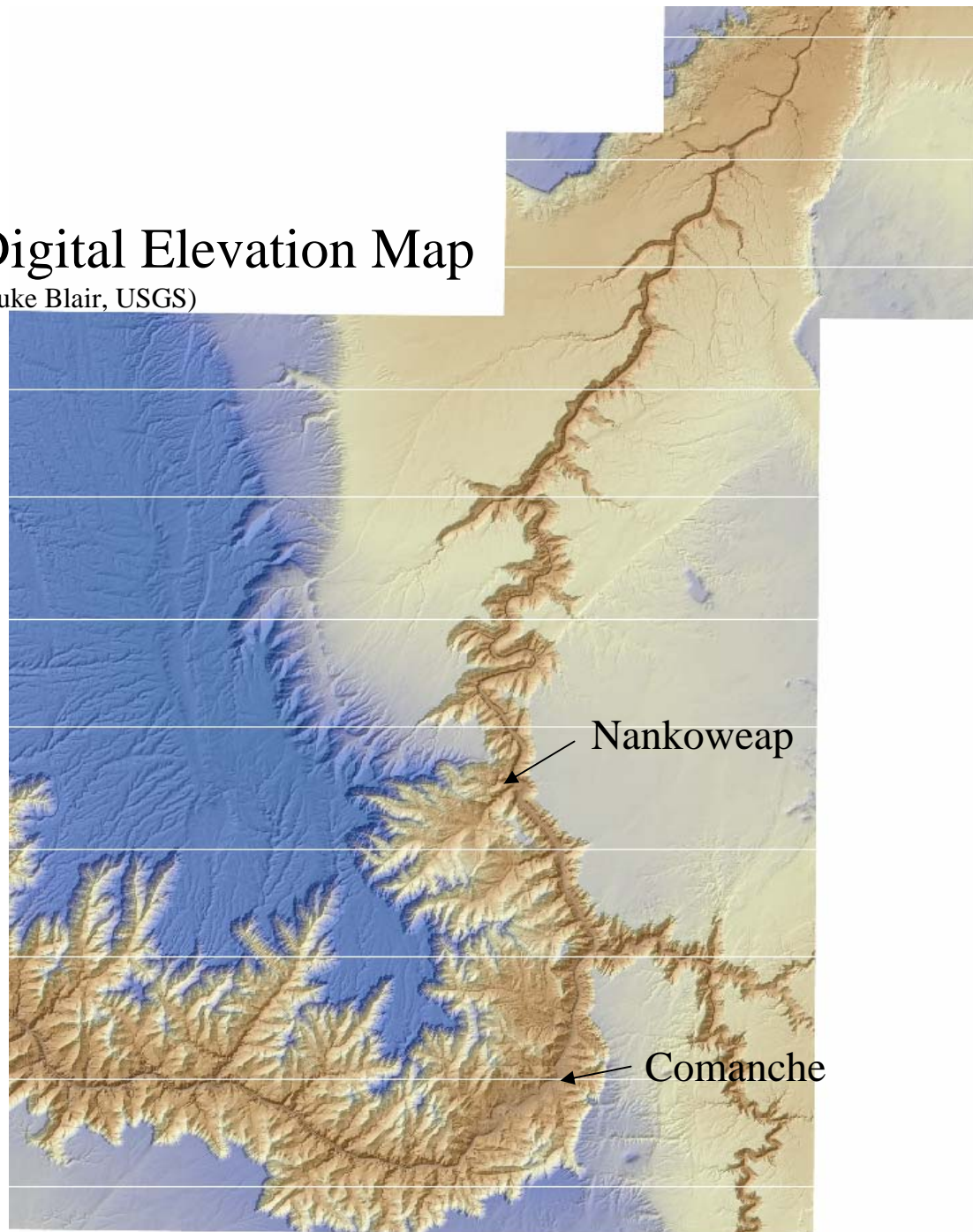
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# Digital Elevation Map

(Luke Blair, USGS)



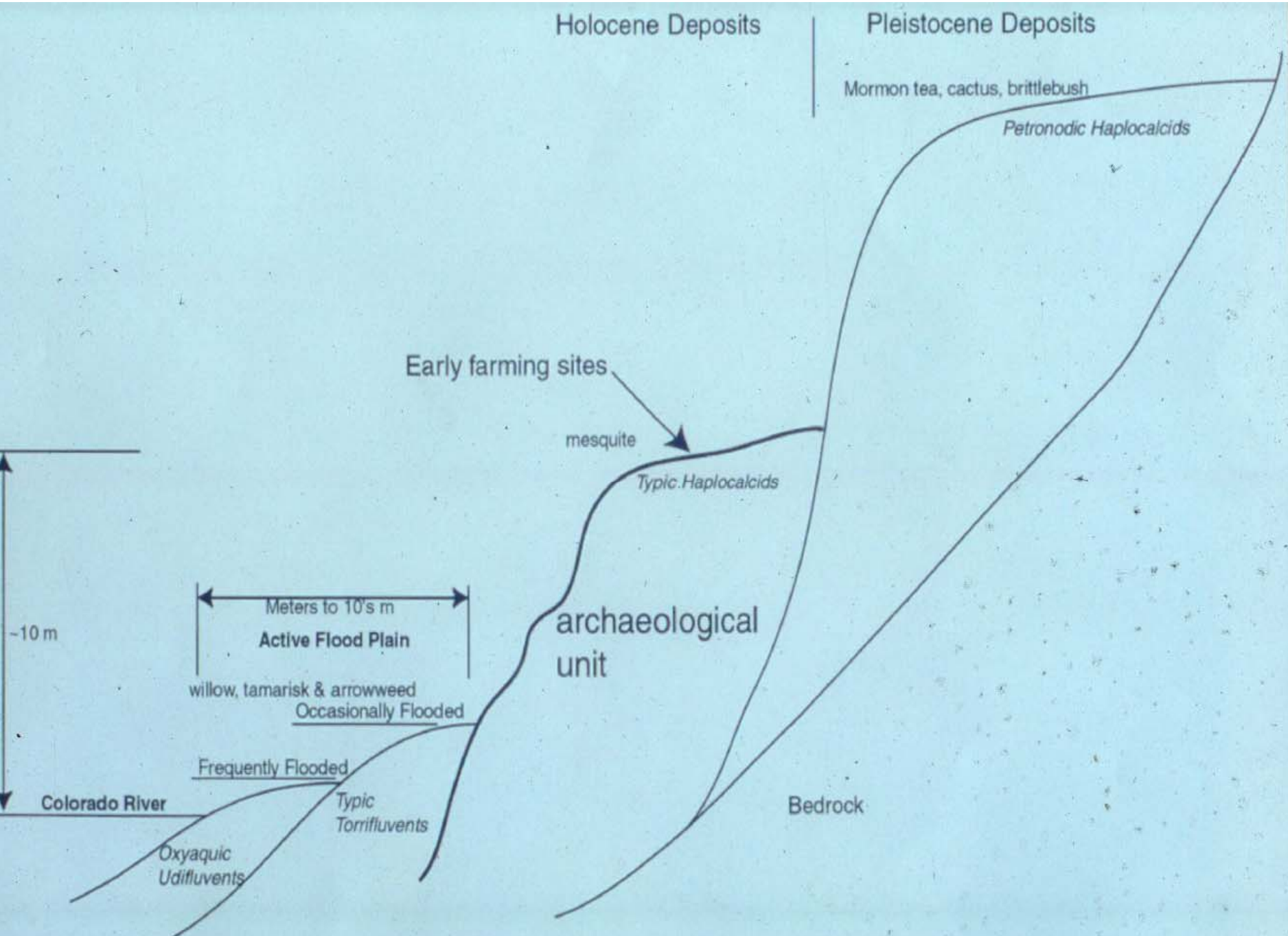


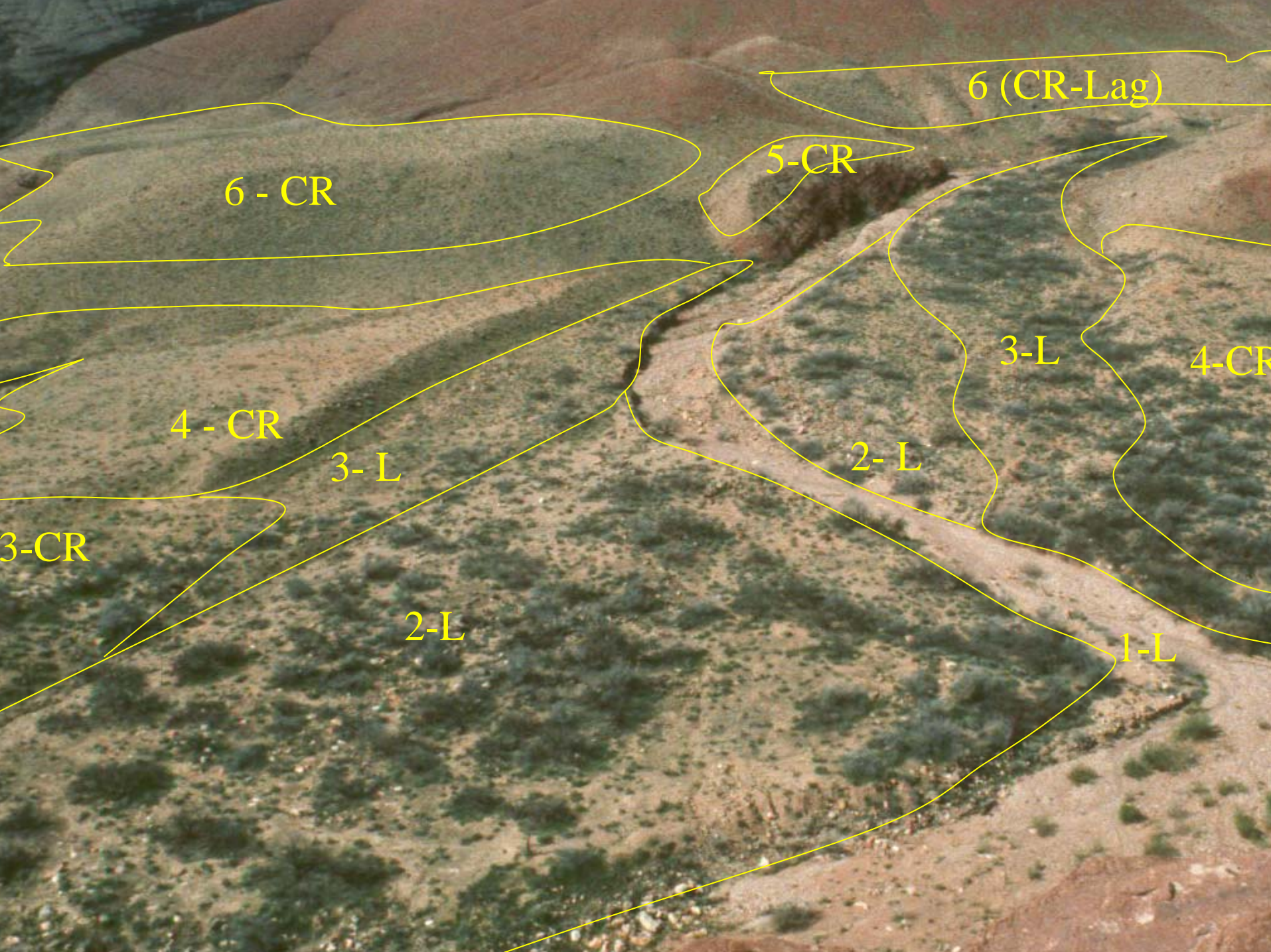
Holocene Deposits



Pleistocene Deposits







6 (CR-Lag)

6 - CR

5-CR

4 - CR

3-L

4-CR

3-L

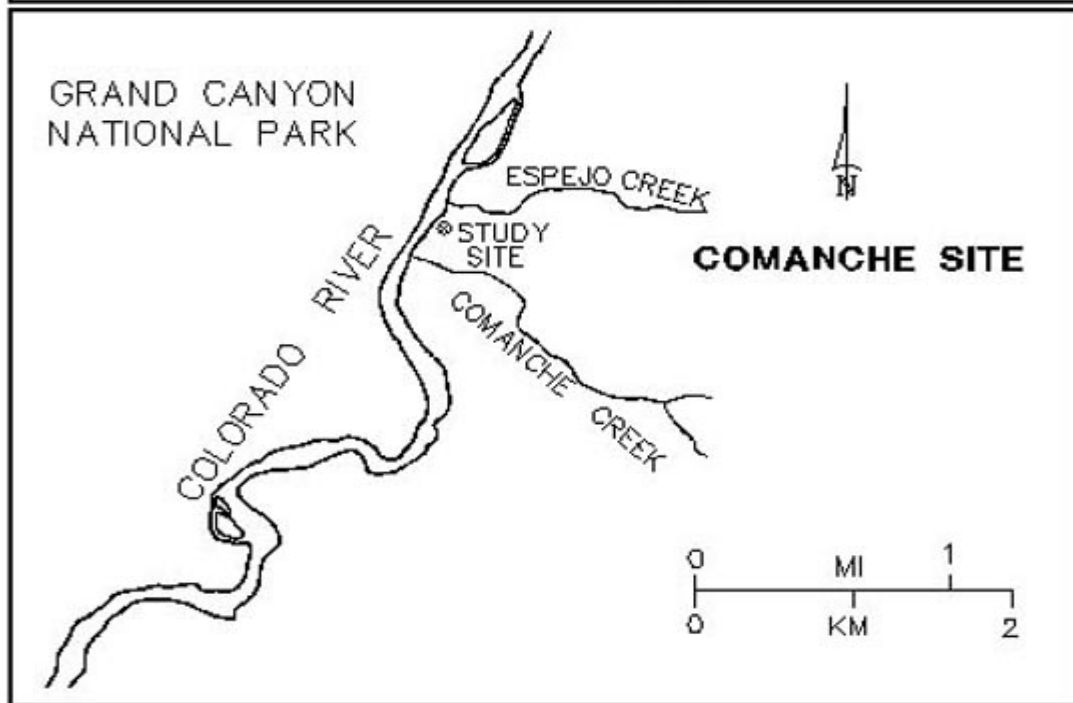
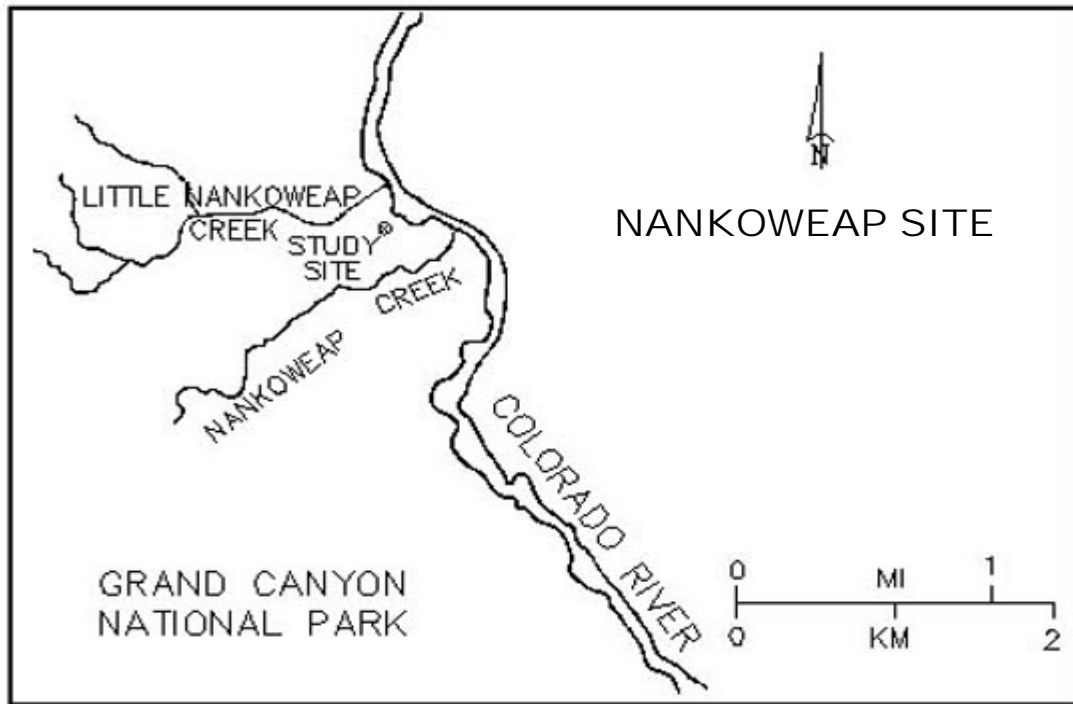
2-L

3-CR

2-L

1-L









Archaeological Unit



Soil Pit At Nankoweap

A

C

2Ab

2C1b

2C2b

3Akb

3Bkb





Archaeological  
Unit

A photograph of a river valley. In the foreground, a river with a blueish-green hue flows from the bottom left towards the right. The riverbank is lined with green grass and some small shrubs. Above the river, a wide, flat valley floor covered in light-colored, scrubby vegetation extends towards the base of a massive canyon. The canyon walls are steep and show distinct horizontal geological layers in shades of brown, tan, and grey. The sky is a clear, bright blue. The text "Comanche Cr. Area" is written in a yellow, serif font across the middle of the image, centered over the valley floor.

Comanche Cr. Area







C

Akb

Bkb

2Akb

2Bkb1

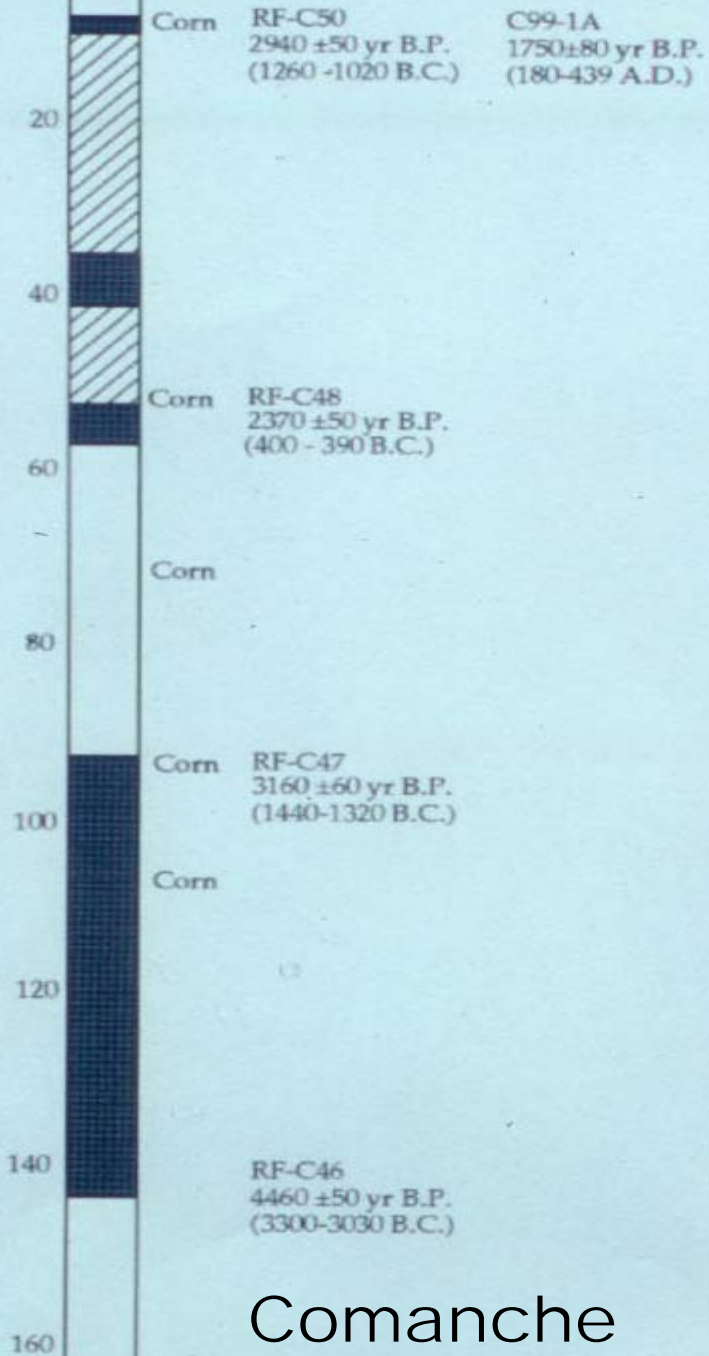
2Bkb2

3Akb

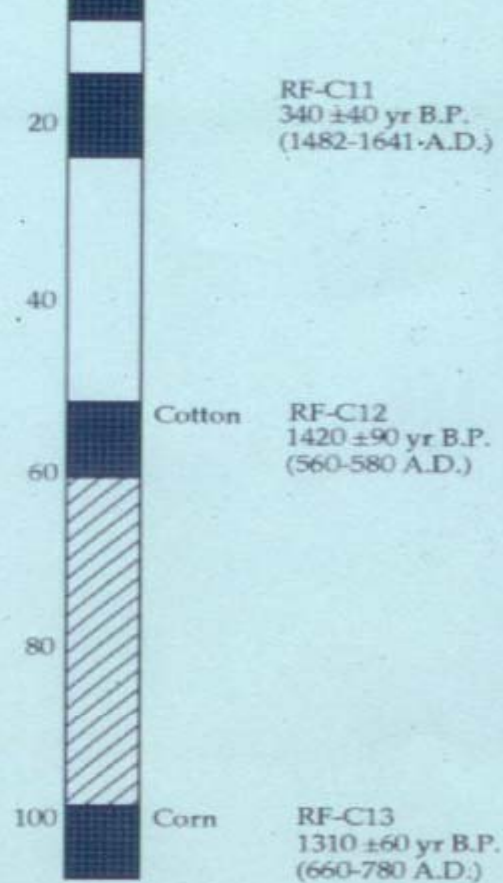
3Bkb

4Ab

4C1&2





Comanche



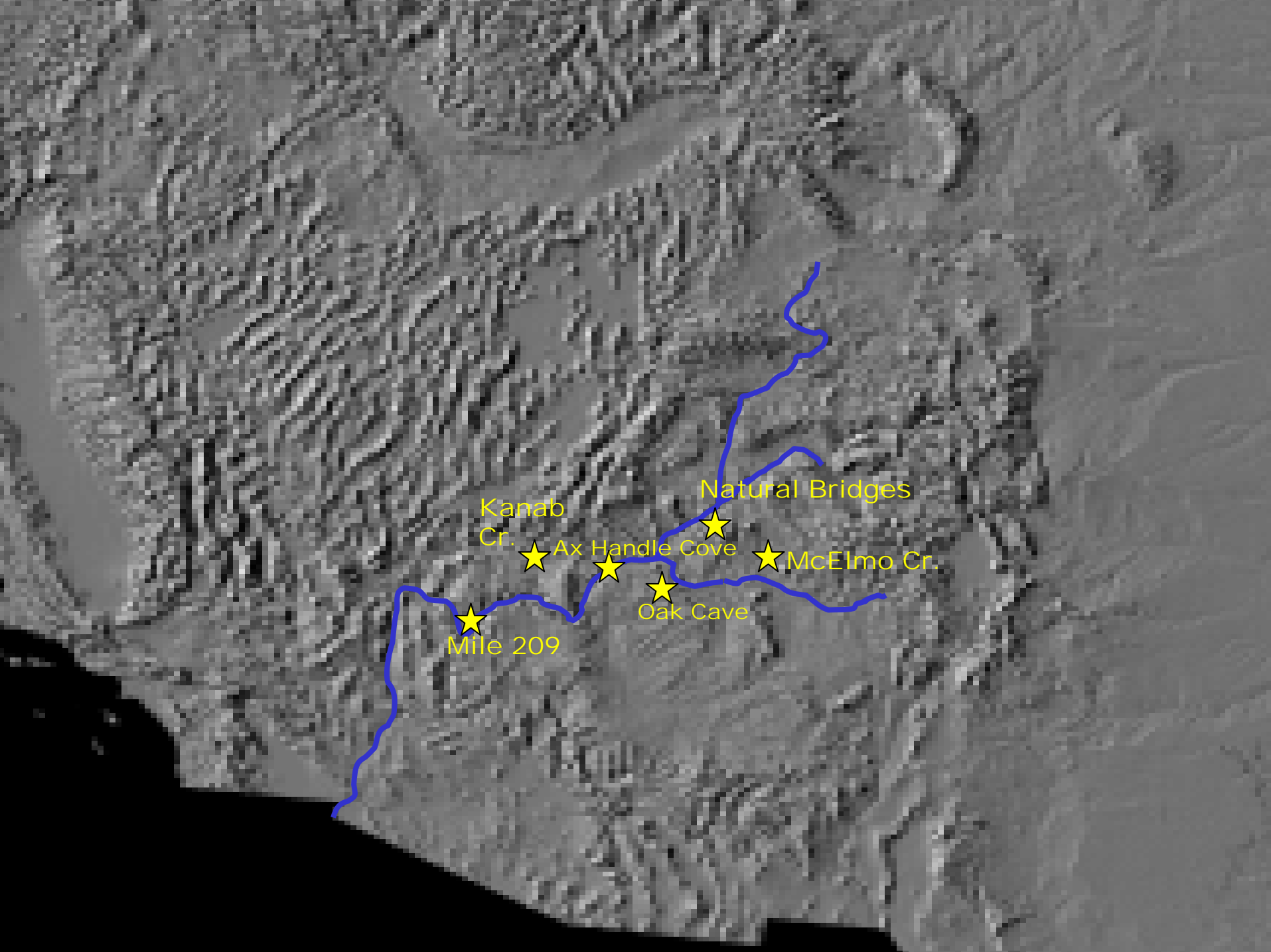
Nankoweap

LEGEND:

-  A / Ab Horizon
-  Bkb Horizon

# Southwest Chronology

Date	Four Corners Chronology (Lipe)	Eastern Grand Canyon Chronology (Fairley, et al.)	<sup>14</sup> C Ages in association with cultigen pollen Comanche Nankoweap	
1500	Pueblo IV (1350-1600)	Late Prehistoric (1250-1600)		
	Pueblo III (1150-1350)	Pueblo III (1100-1250)		
1000	Pueblo II (900-1150)	Pueblo II (1000-1100)		
	Pueblo I (750-900)	Pueblo I (800-1000)		
500	Basketmaker III (500-750)	Basketmaker III (400-800)		(560 - 580)
A.D.	Basketmaker II (Late) (50-500)		(180-439)	
0		Basketmaker II (400 A.D. - 300 B.C.)		
B.C.				
500				(410-390)
	Basketmaker II (Early) (50 A.D. - 1500 B.C.)	Archaic (>300 B.C.)		
1000			(1260-1020)	
			(1440-1320)	
1500	Archaic (>1500 B.C.)			



Mile 209

Kanab  
Cr.



Ax Handle  
Cove



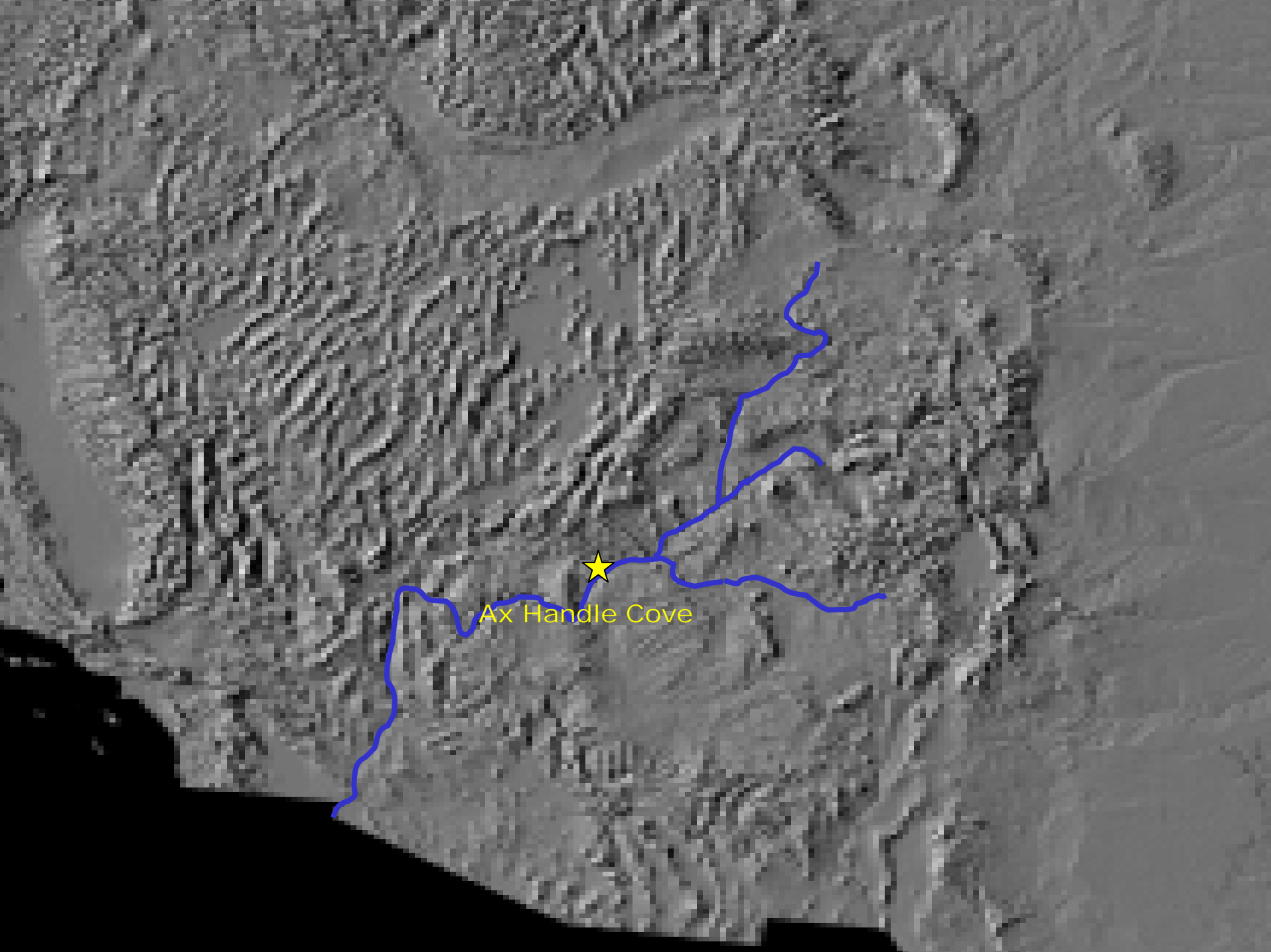
Oak Cave



Natural Bridges



McElmo Cr.



Ax Handle Cove



Archaeological Unit

Ax Handle Cove

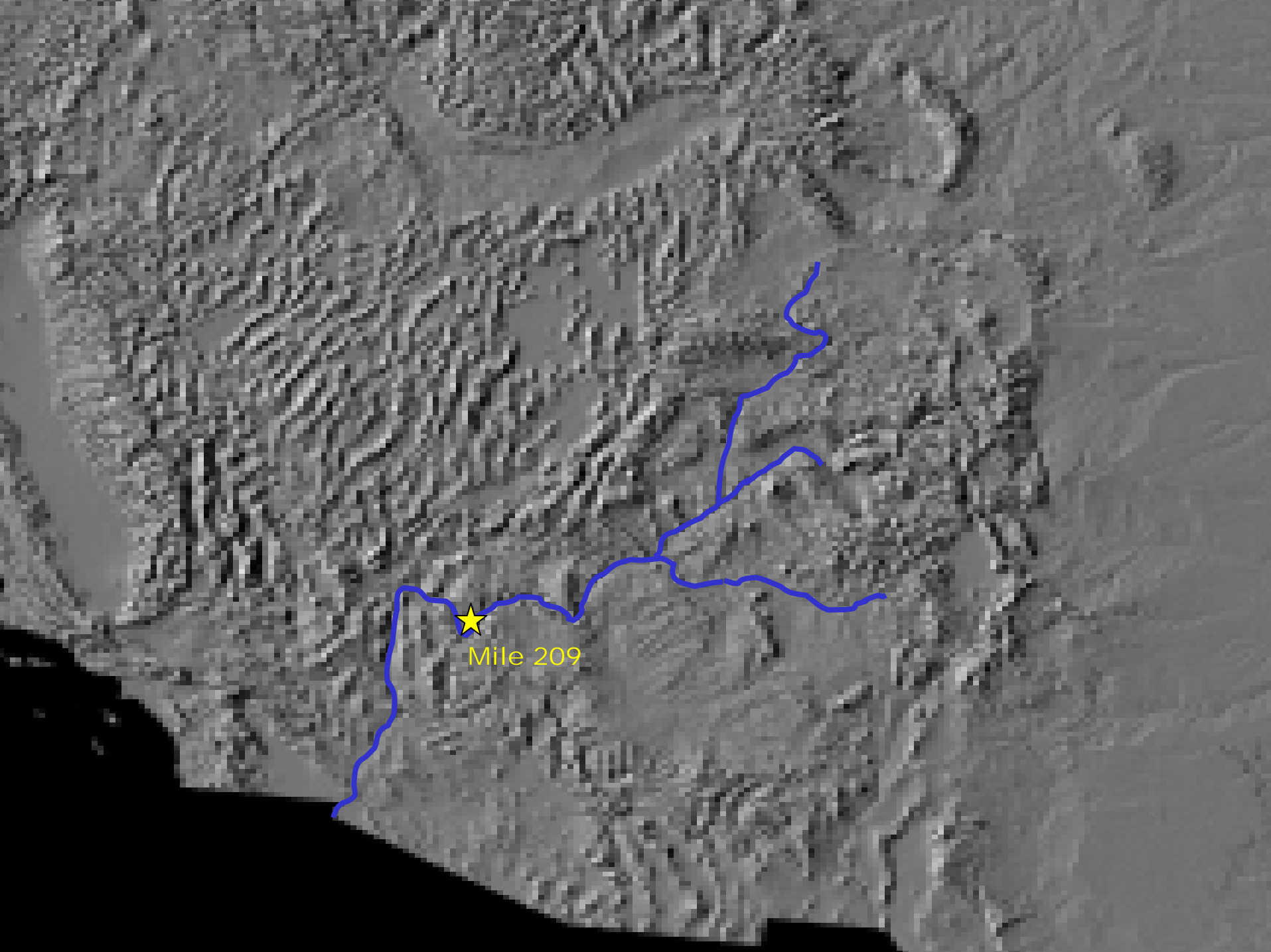
# C<sup>14</sup> ages – Ax Handle Cove

Depth	C <sup>14</sup> age Yr. BP
~ 1.5m	2470 ± 85
	2940 ± 90
~ 2.5m	3915 ± 85
	4480 ± 50

Source: Finkel, R. (unpublished, 1995)

O'Conner, et. al., 1994

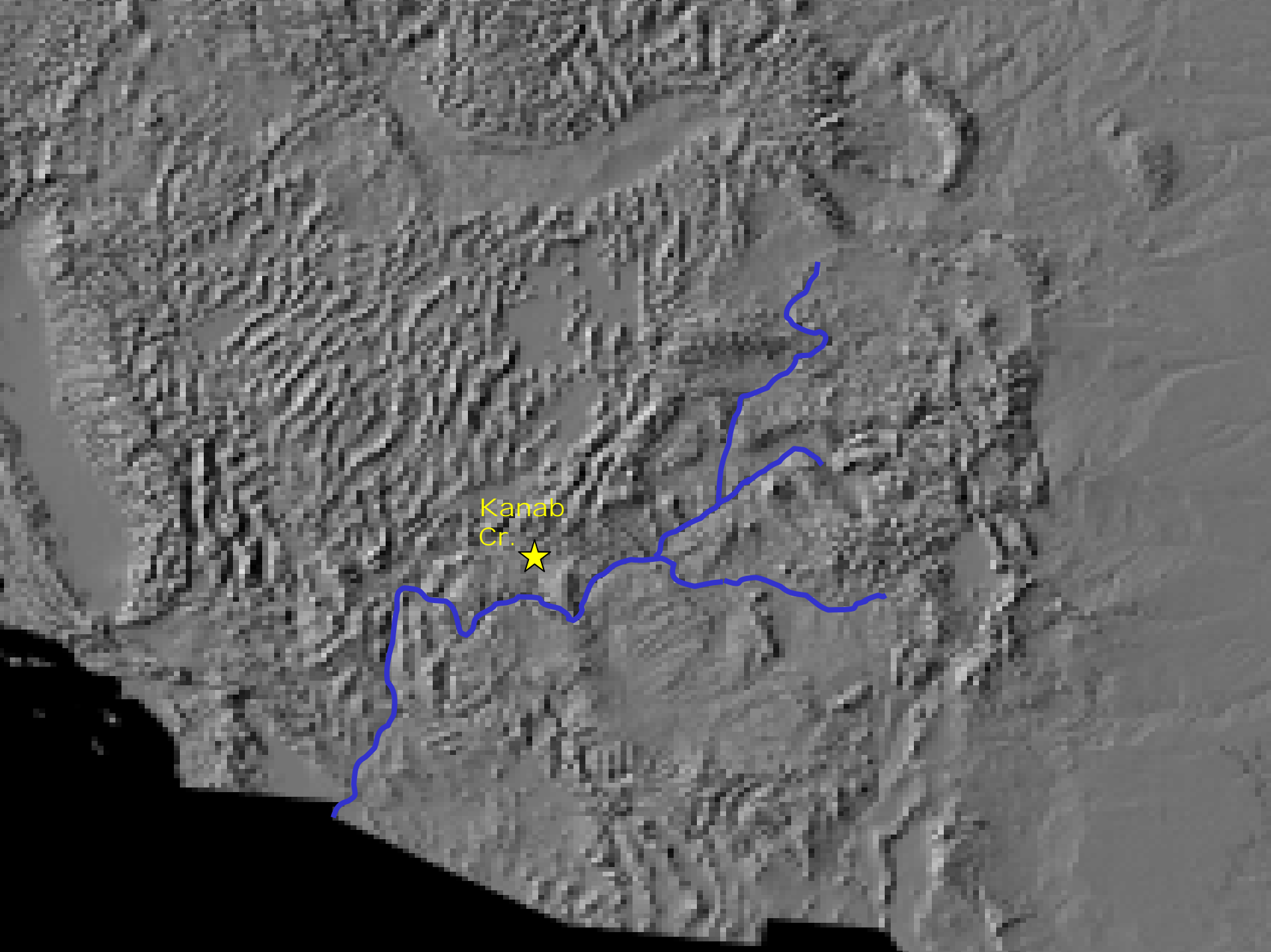




Mile 209







Kanab  
Cr.



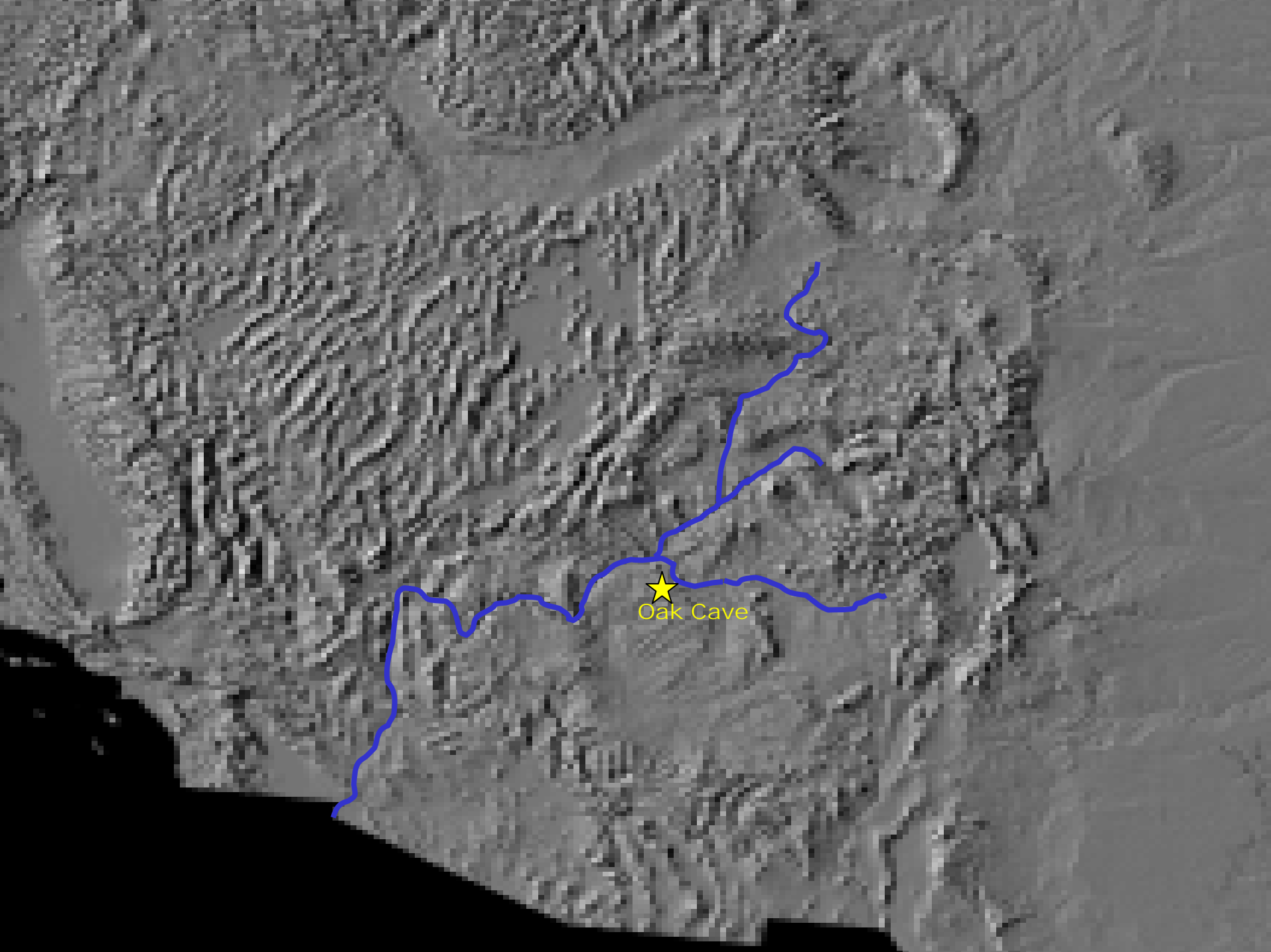


# Kanab Section

(Lucchitta, Finkel, Smith, Davis, Unpublished)

## Buried Paleosols





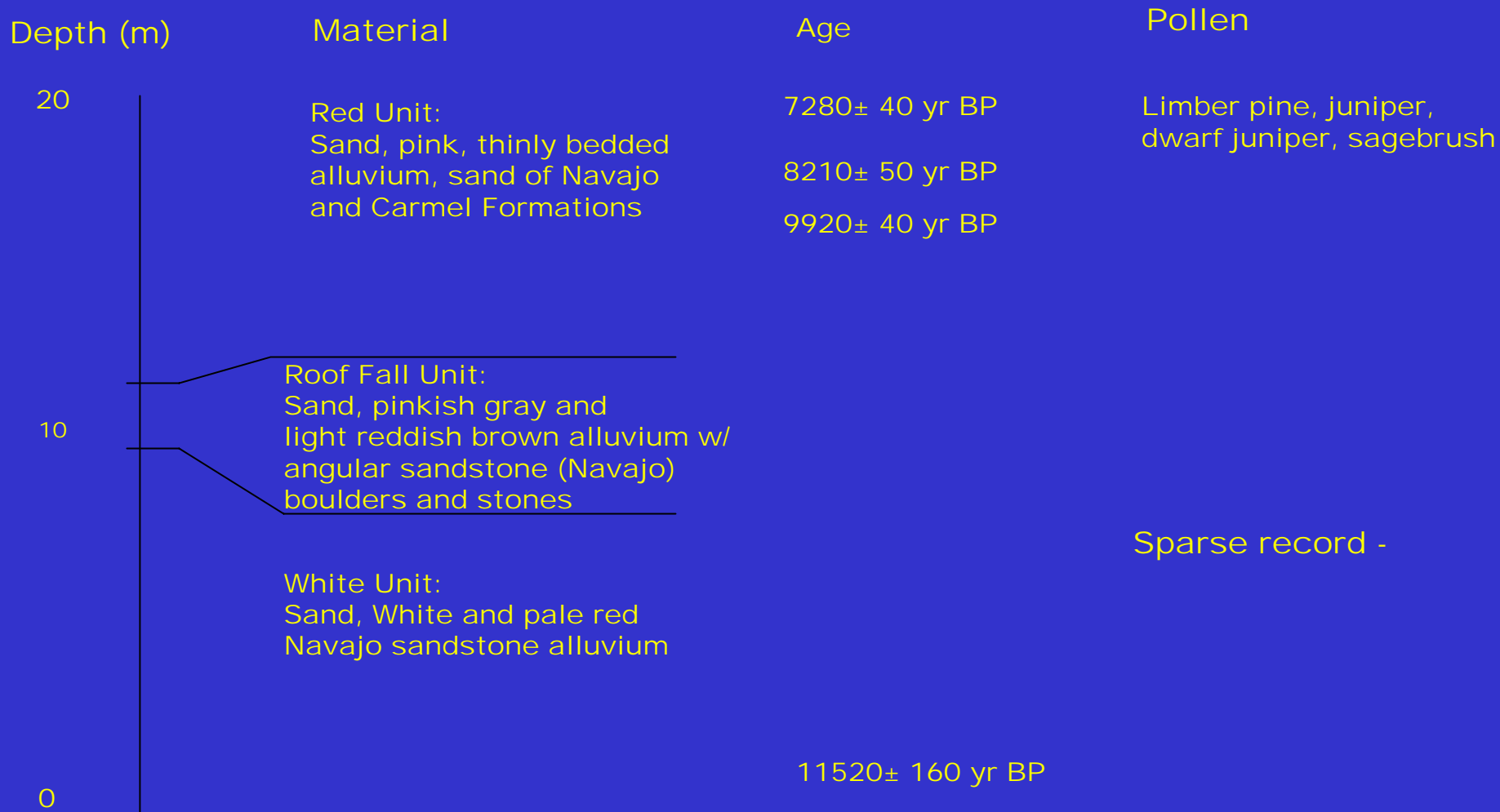
Oak Cave





# Oak Cave Section

(unpublished data – Lucchitta, Hanks, Davis, Davis, Finkel, Smith, Dehler)





# Conclusions and Interpretations

- Main stem aggradation began sometime before 5,000 yr BP and ended ~ 700 yr BP. Tributary aggradation began ~ 10 ka.
- Local tributaries grade to and interfinger with the Archaeological Unit consistent with a rising base level.
- Far-traveled gravels, present in the modern channel and in Pleistocene-age deposits, are absent in the AU – indicative of a low-energy aggradational regime.
- Fine sand deposits of the AU occur randomly, preserved not only at inside river bends and eddies, but along straight reaches and outside river bends.
- Time-sequence of prehistoric occupation is preserved in constrained reaches – occasional catastrophic floods would have scoured and redeposited, obliterating the ascending archaeological record.

