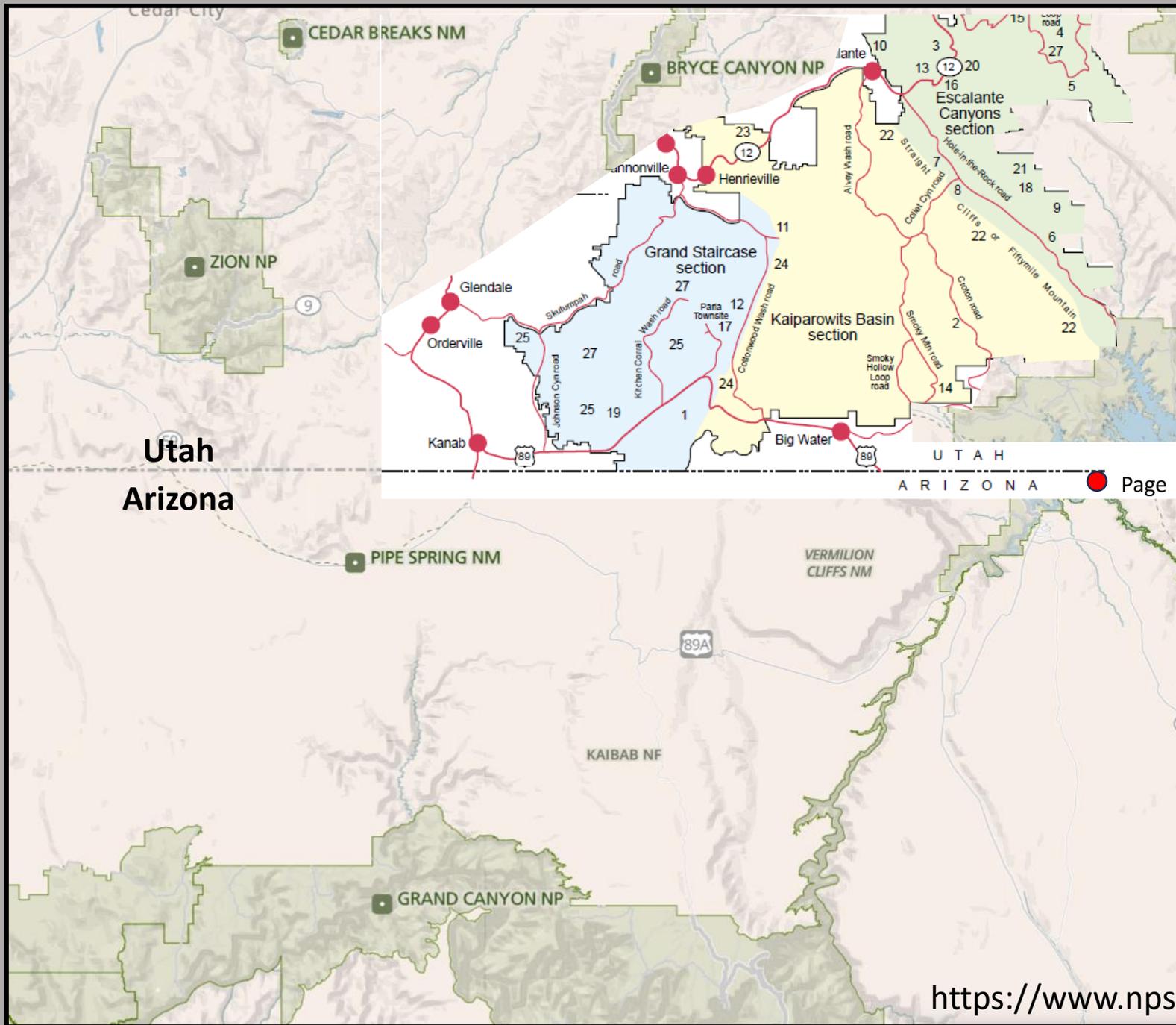


----- GEOLOGY ROAD GUIDE -----

COTTONWOOD CANYON

GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT

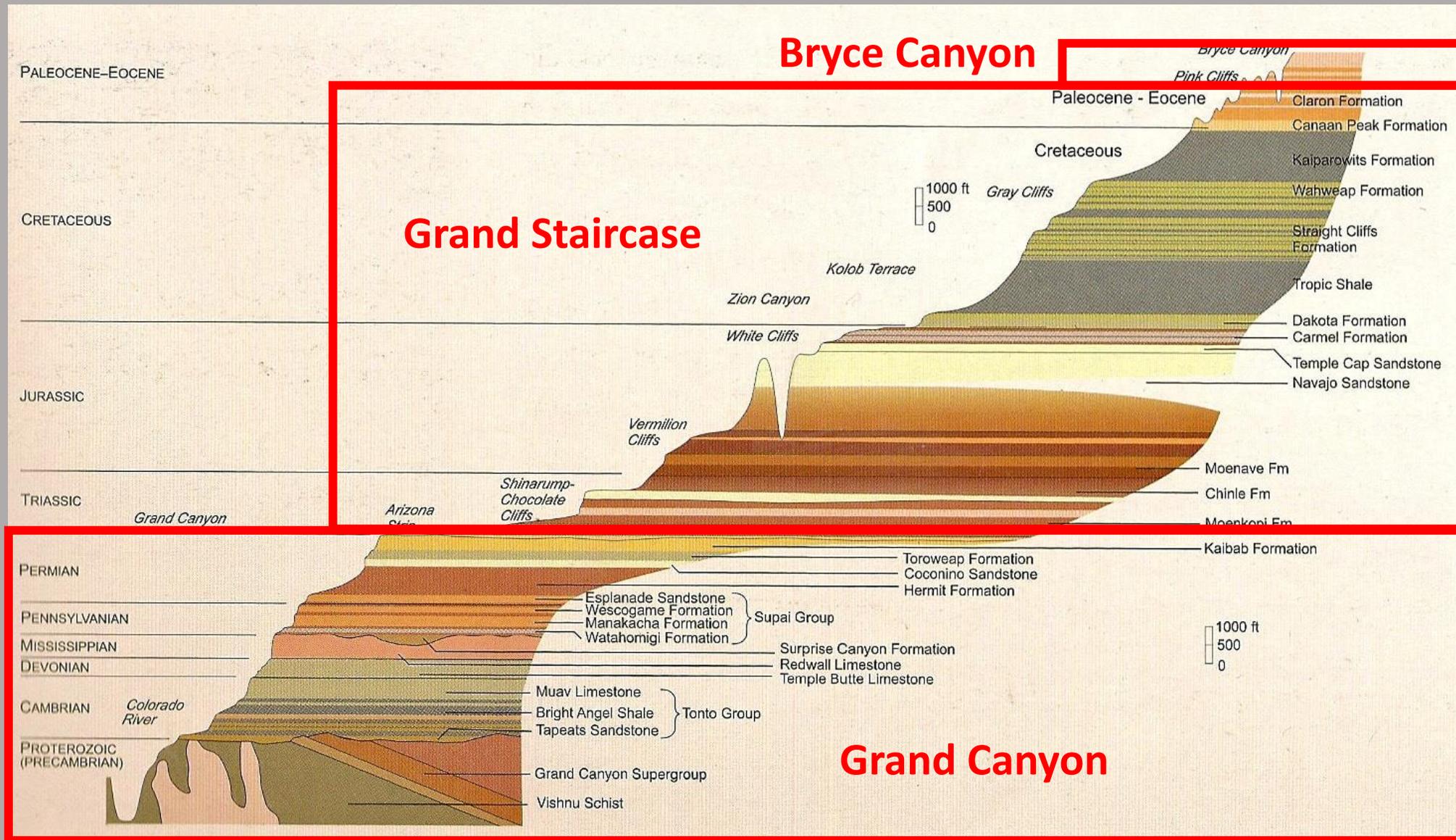
Photo credit: John Fowler

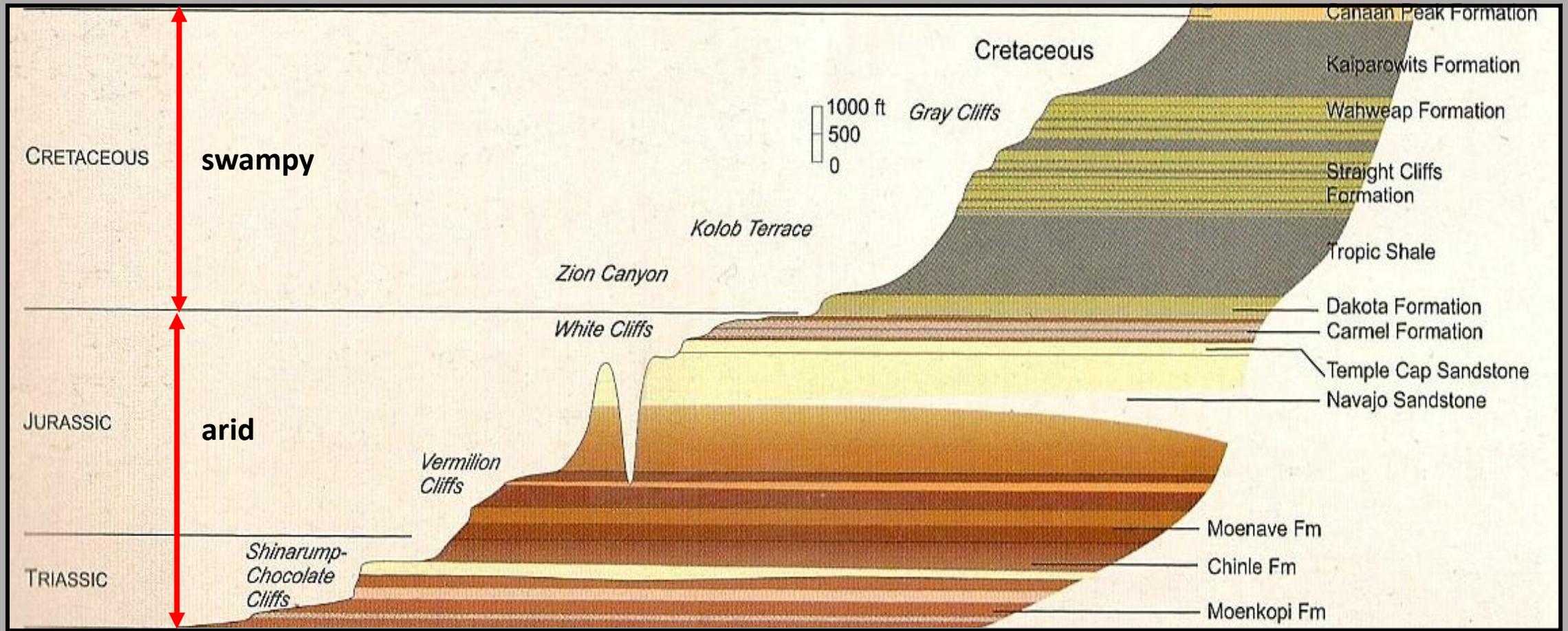


Cottonwood Road named for a reason

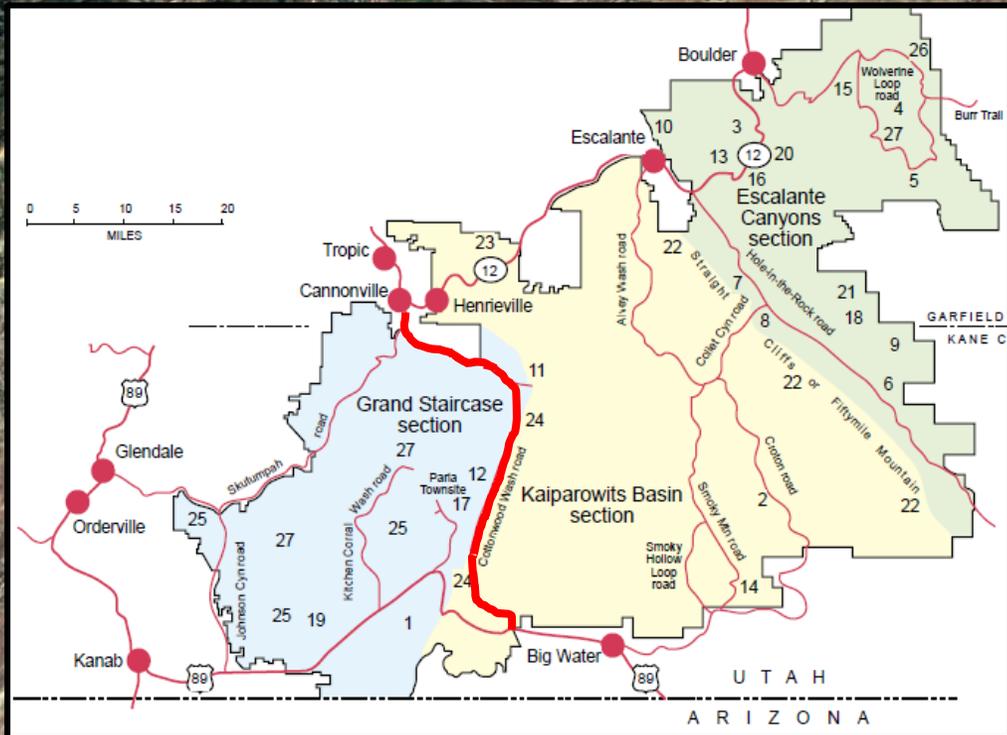
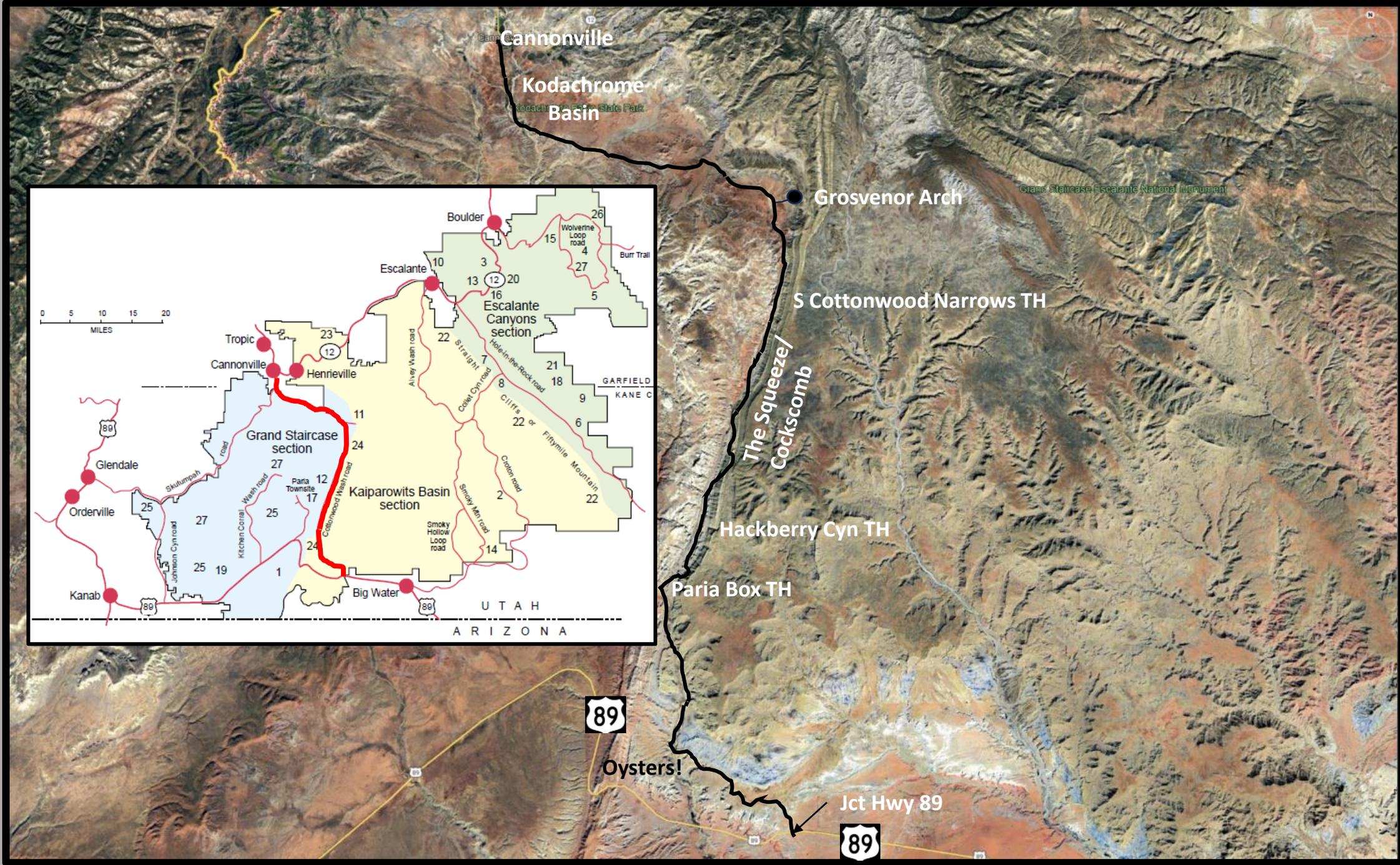


Photo by Bob Wick





Modified from Blakey and Ranney: Ancient Landscapes of the Colorado Plateau 2nd ed. 2024



Cannonville
Kodachrome Basin
Kodachrome State Park

Grosvenor Arch

S Cottonwood Narrows TH

The Squeeze/
Cockscomb

Hackberry Cyn TH

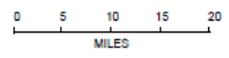
Paria Box TH

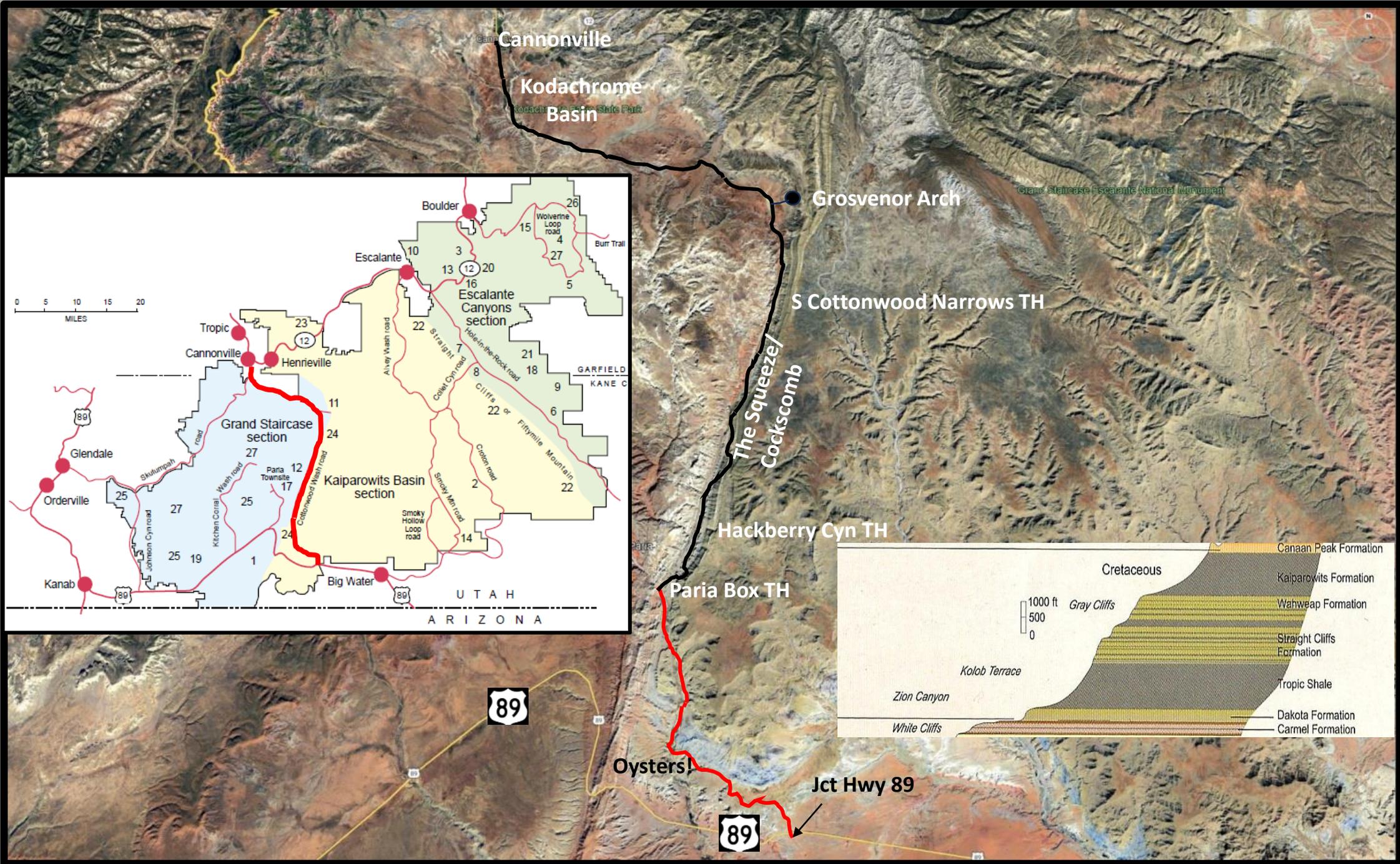
89

Oysters!

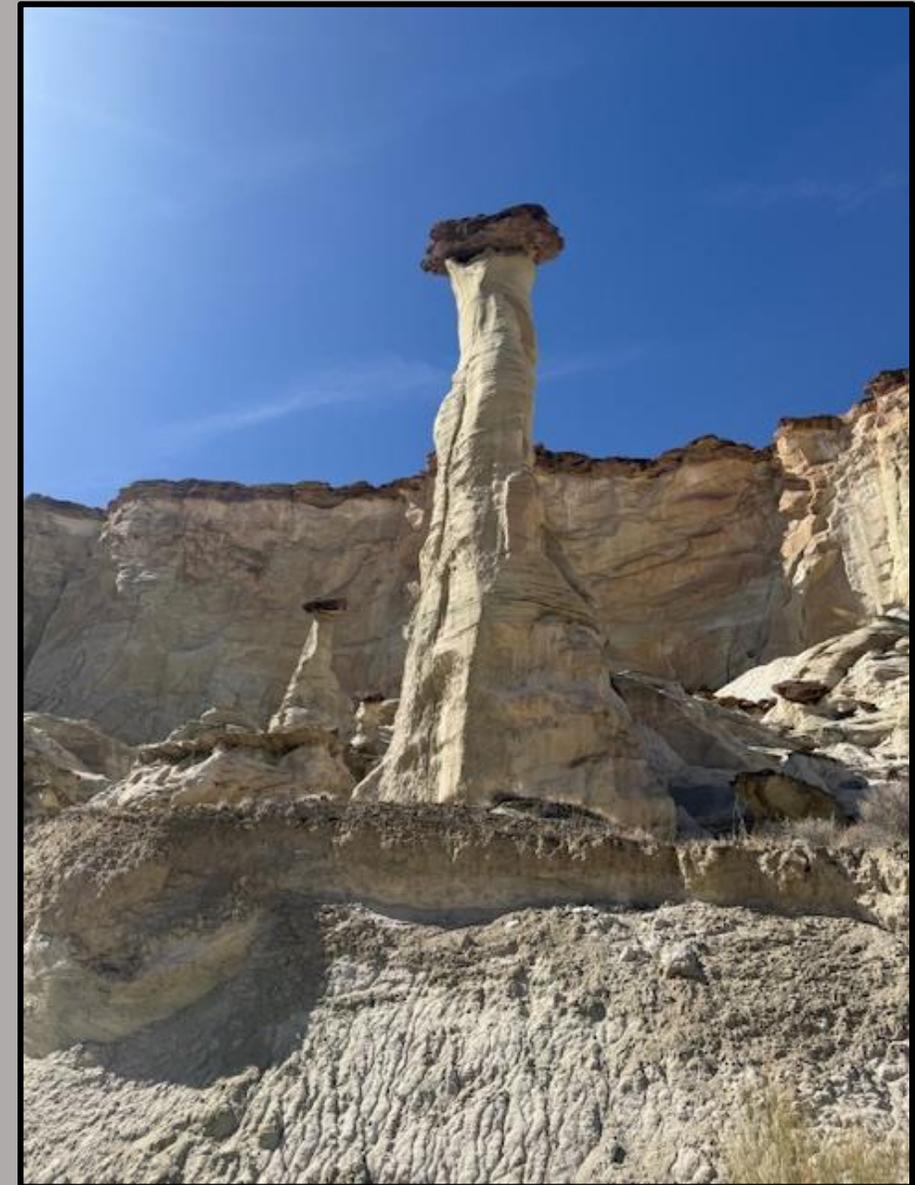
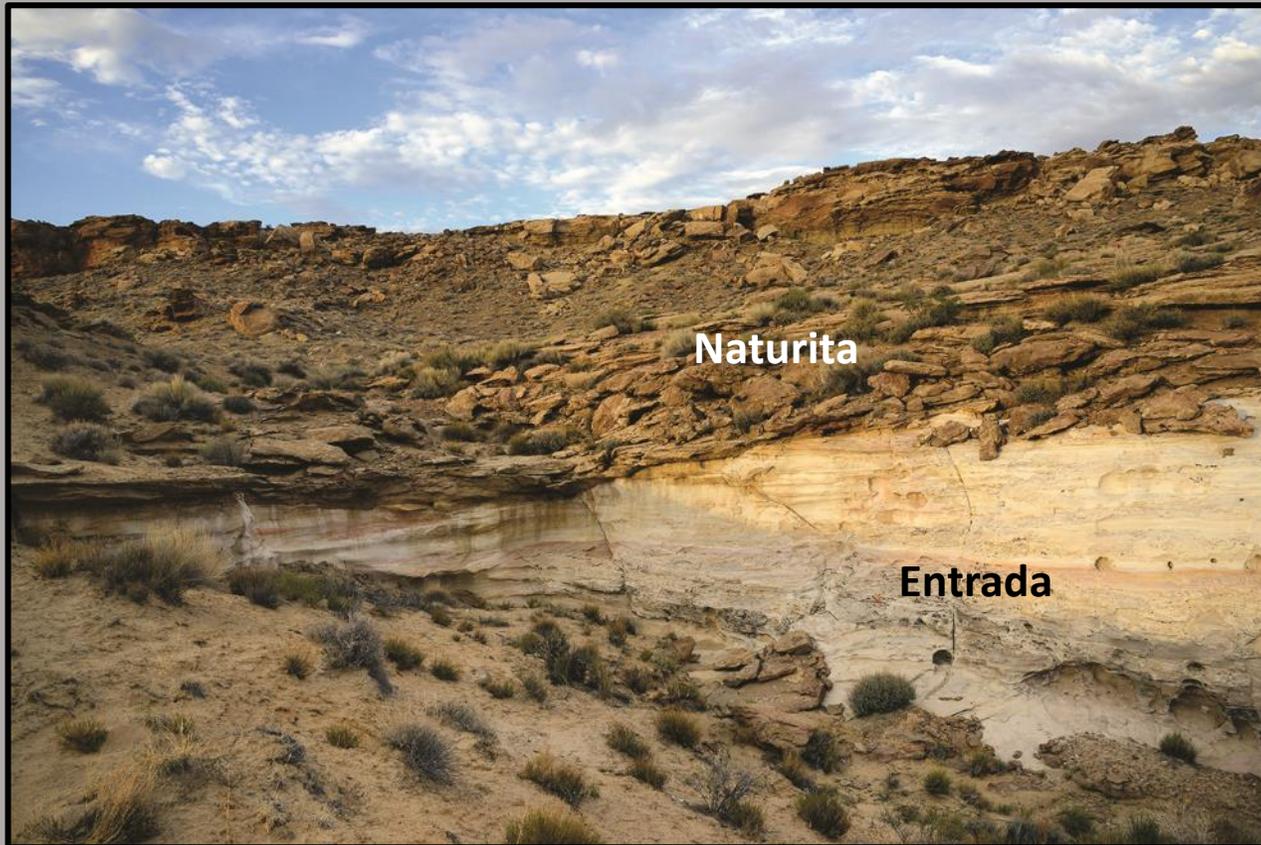
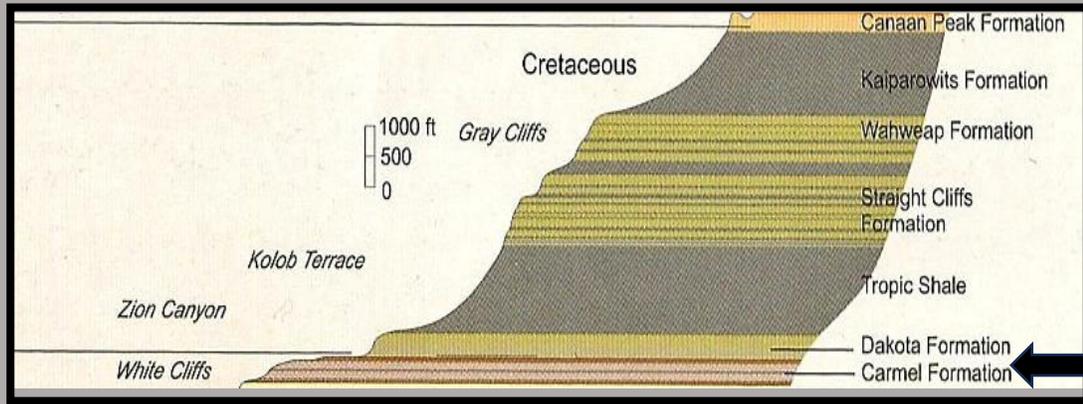
Jct Hwy 89

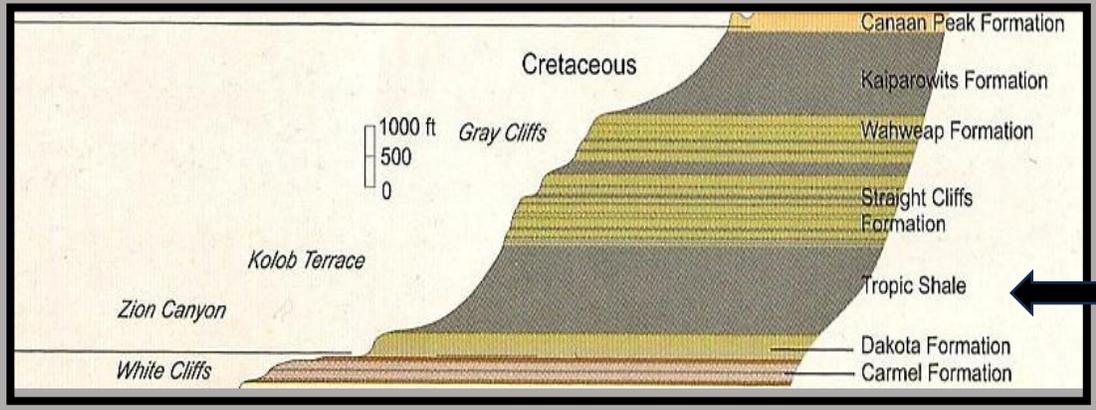
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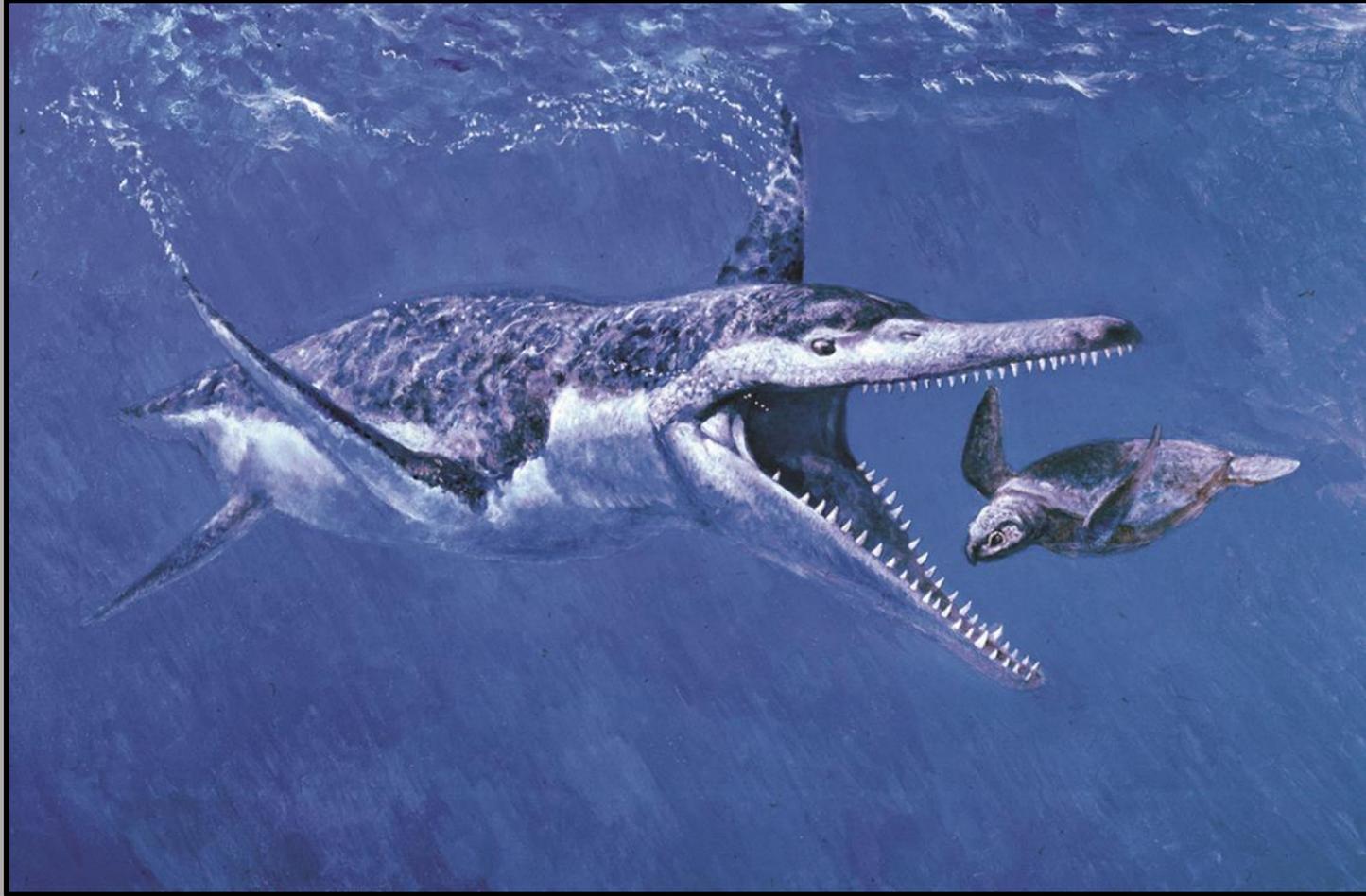
Kaiparowits Plateau Section





Ronald C. Blakey, Northern Arizona University
<http://jan.ucc.nau.edu/~rcb7/paleogeogwus.html>





Plesiosaur: Terror of the Cretaceous Sea • Museum of Northern Arizona



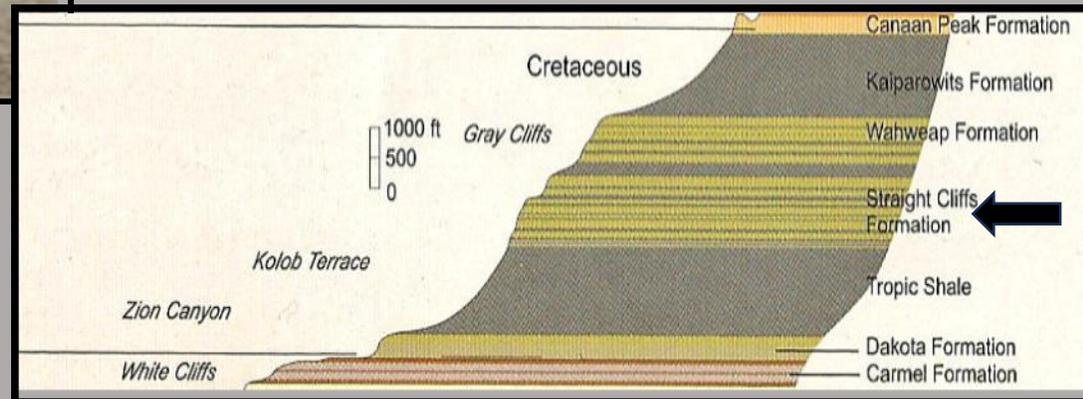
Marc Coles-Ritchie

Gypsum (var. selenite) crystals are common in the Tropic Formation





Ronald C. Blakey, Northern Arizona University
<http://jan.ucc.nau.edu/~rcb7/paleogeogwus.html>





Tropic Goldeneye or Paria Sunflower (*Heliomeris soliceps*); Imperiled



Photo by Web Staley

Tropic shale; poor soil



Blazingstar (*Mentzelia* sp.)



Spindle Buckwheat (*Eriogonum fusiforme*) aka trumpet flower



Galleta grass (*Pleuraphis jamesii*)



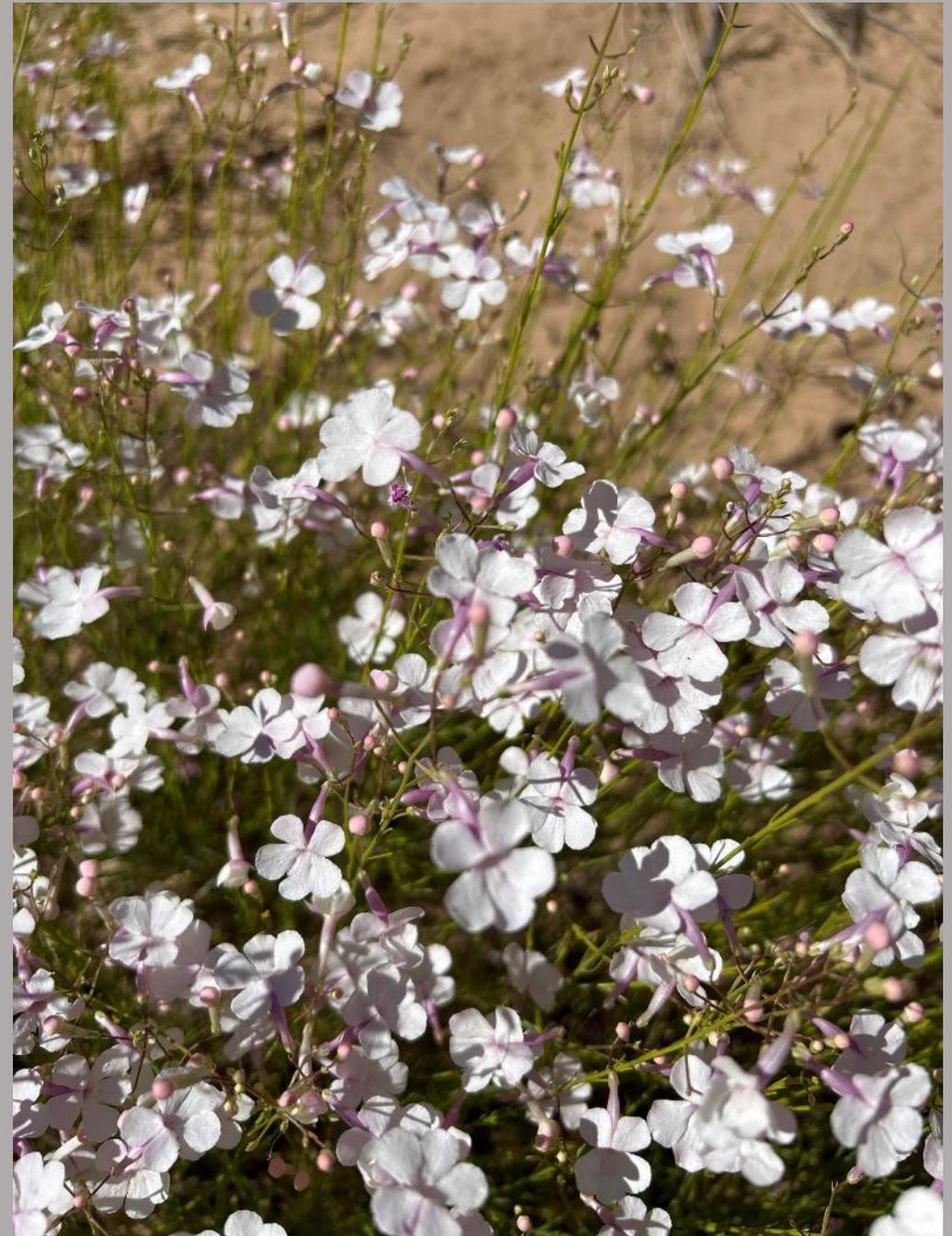
Mormon tea (*Ephedra* sp.)



Photos by Web Staley



Bush penstemon
(*Penstemon ambiguous*)



Paria River Riparian: Cottonwood and Willow



Coyote willow (*Salix exigua*)



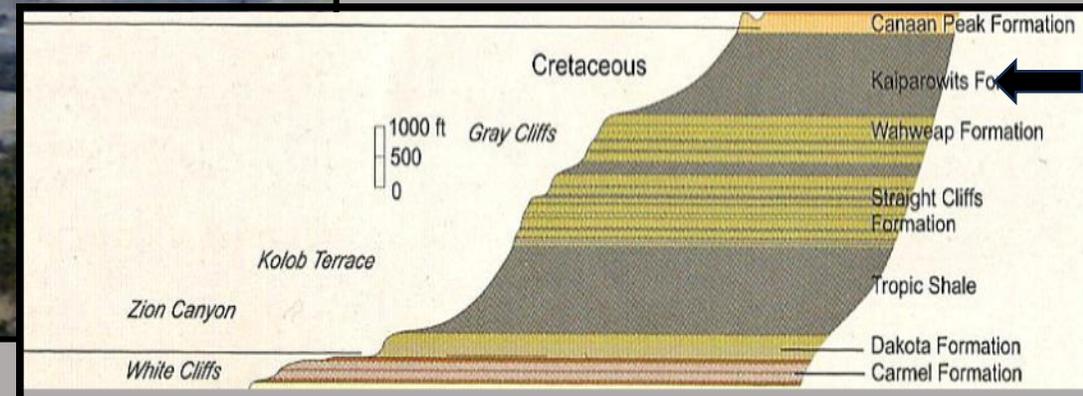
Wildlife tracks: bear and bighorn sheep



Bighorn Sheep

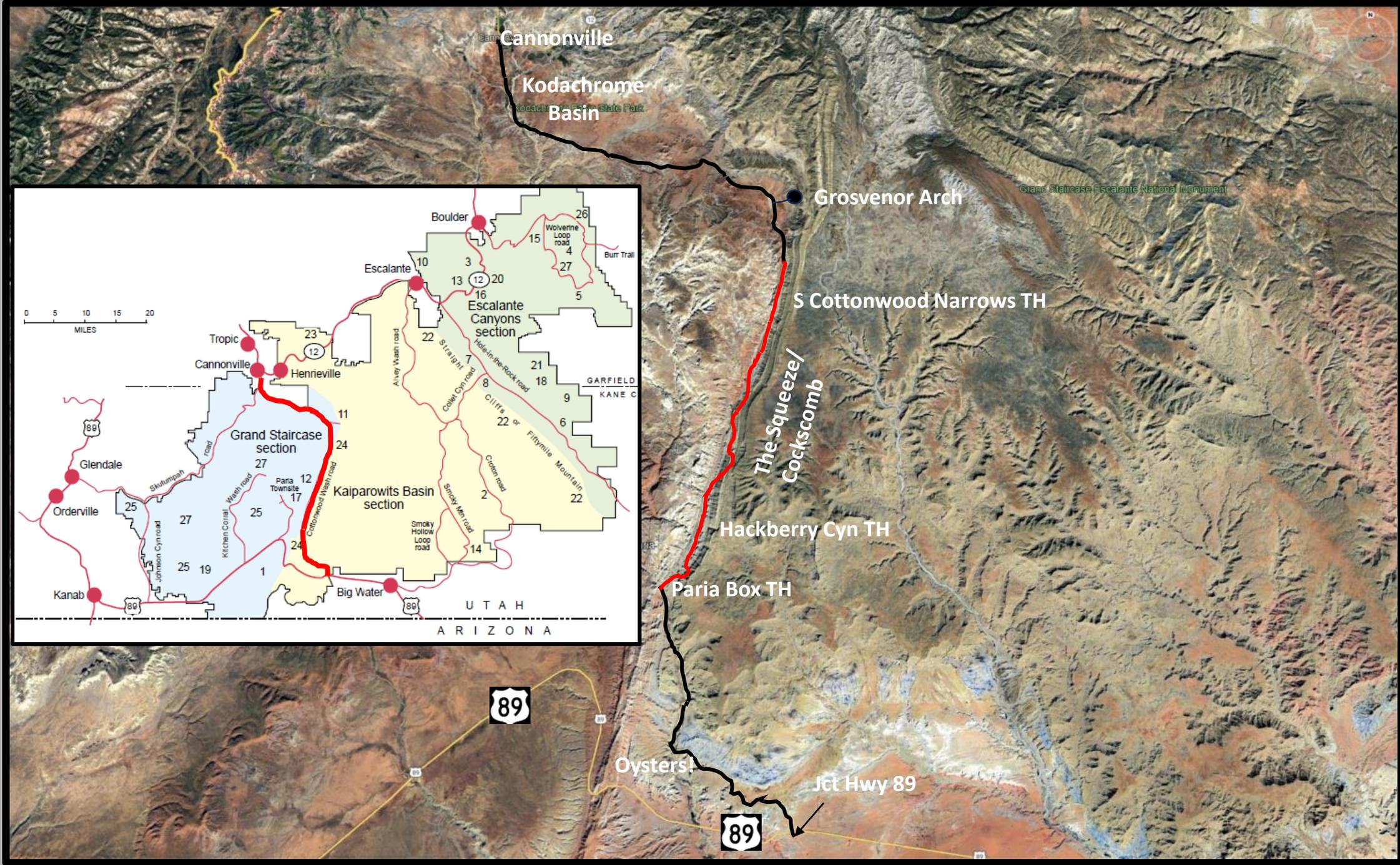


If you drive northeast up towards Escalante....





The Late Cretaceous in what is now southern Utah was a wet, green world more like the bayous of modern day Louisiana. Credit: Raúl Martín



Cannonville

Kodachrome Basin

Grosvenor Arch

S Cottonwood Narrows TH

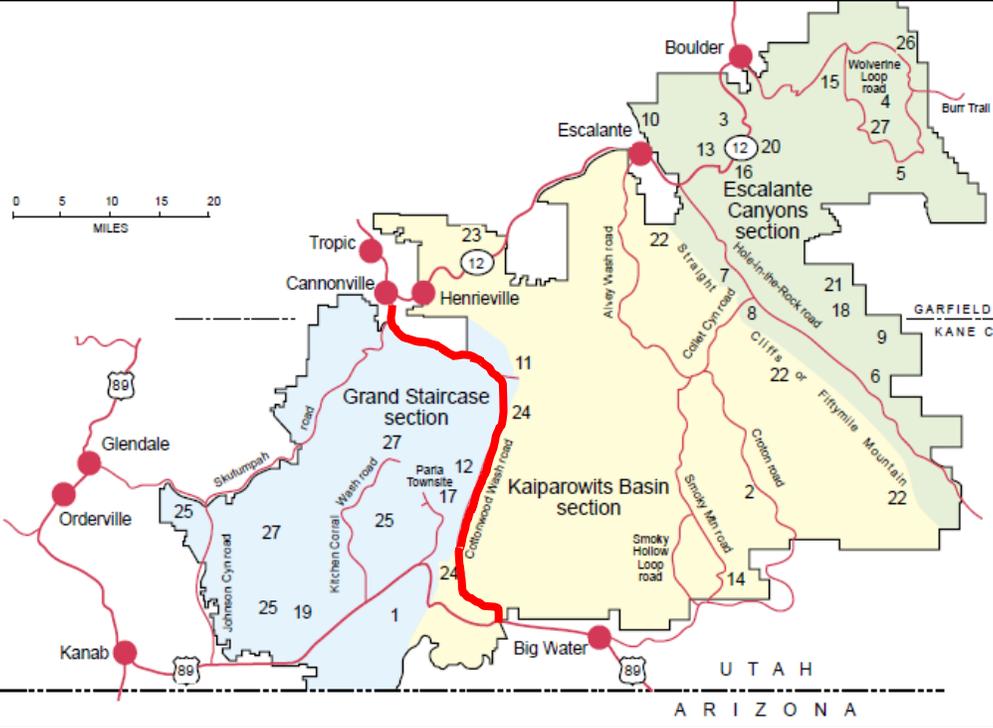
The Squeezel
Cockscomb

Hackberry Cyn TH

Paria Box TH

Oysters!

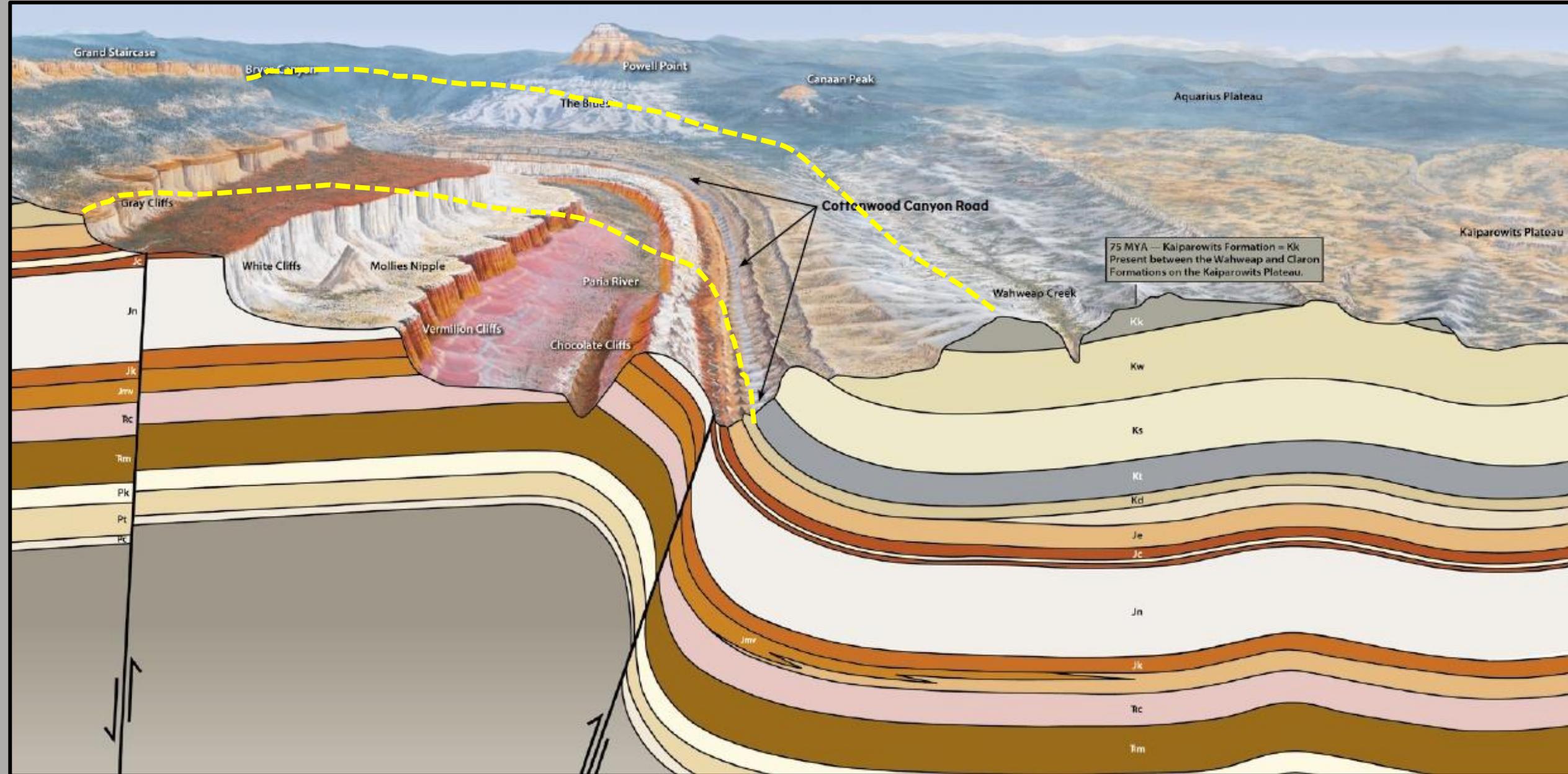
Jct Hwy 89



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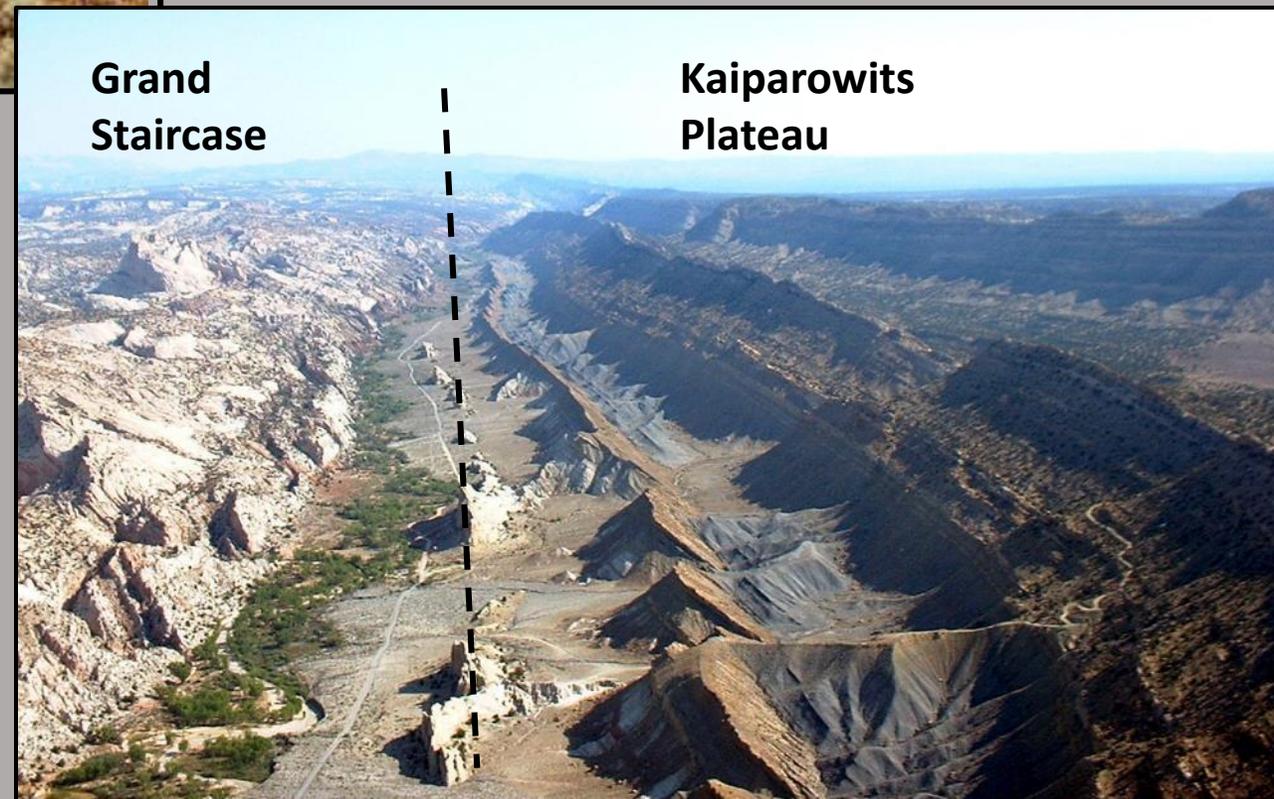
East Kaibab Monocline—the Boundary





The Squeeze

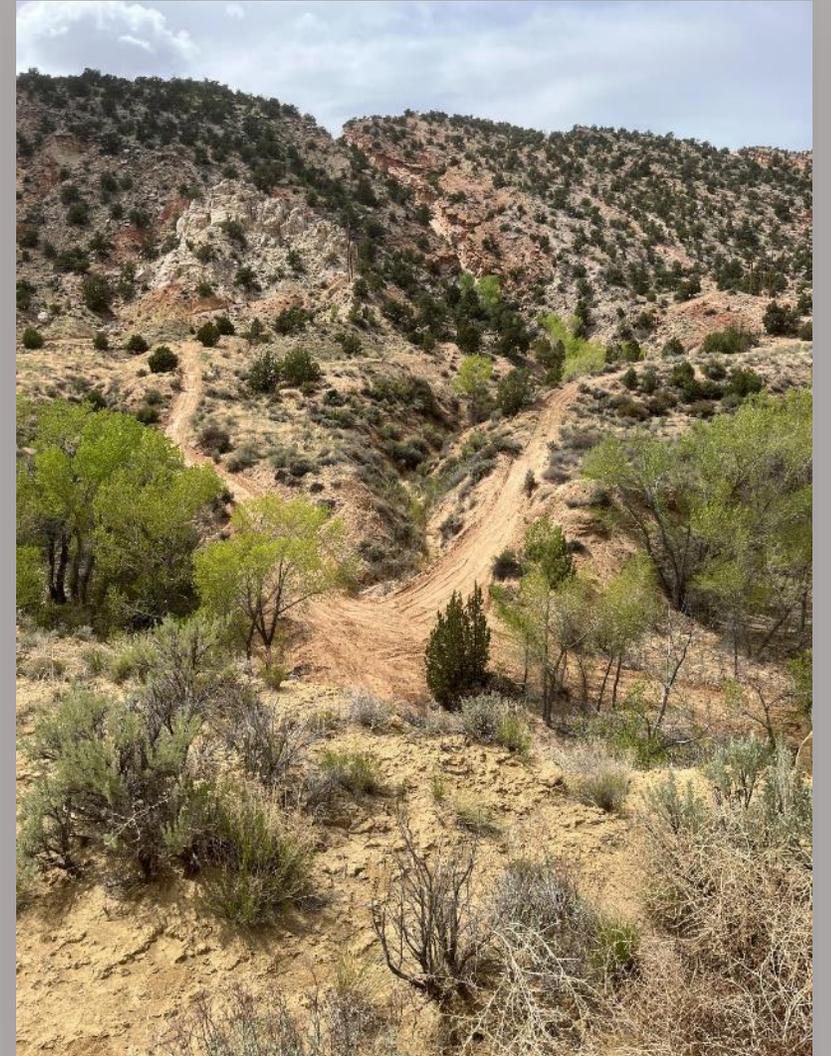
The Cockscomb

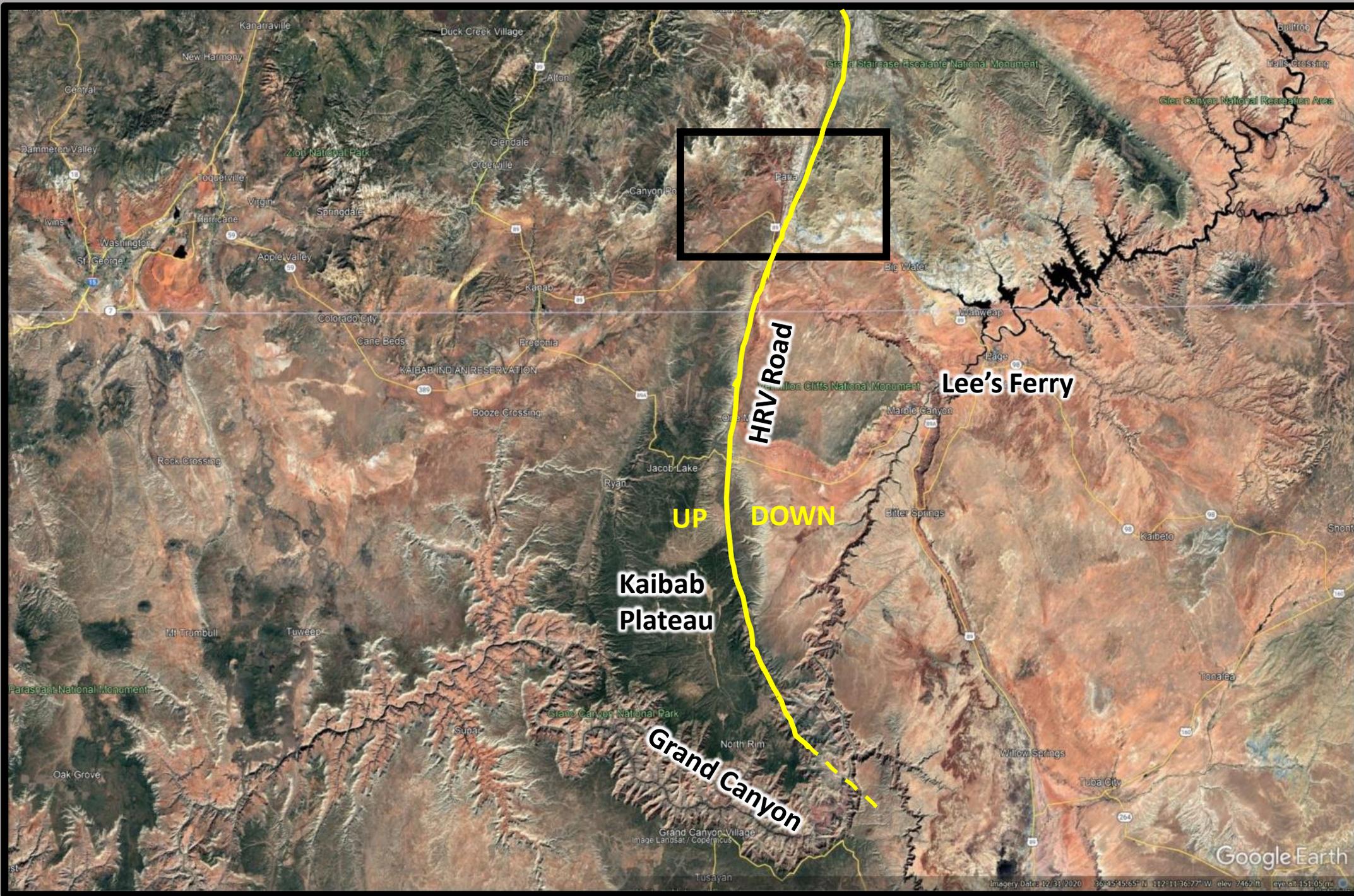


**Grand
Staircase**

**Kaiparowits
Plateau**

Pallid milkweed (*Asclepias cryptoceras*)





HRV Road

UP

DOWN

Kaibab Plateau

Grand Canyon

Lee's Ferry

Google Earth

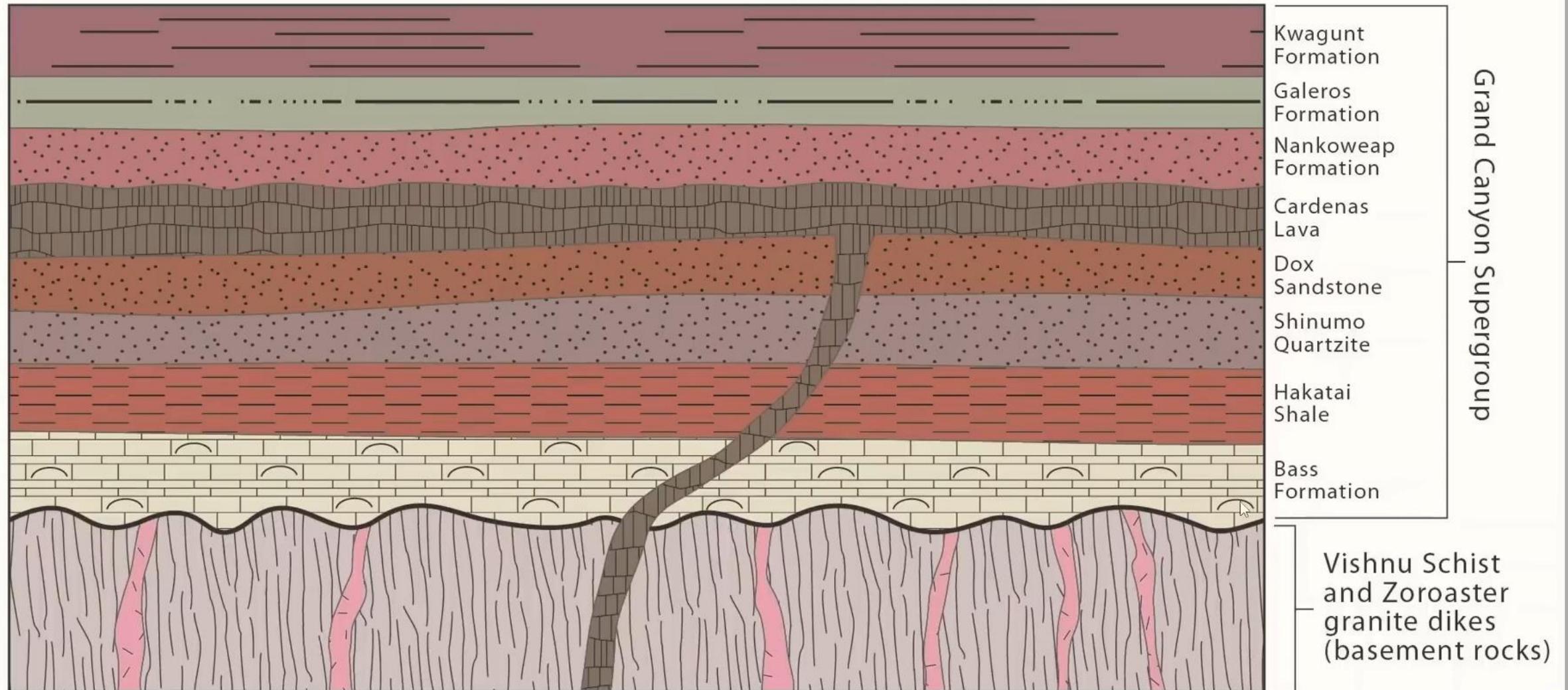
Imagery Date: 12/31/2020 36°45'45.65" N 112°31'36.77" W elev: 7462 ft eye alt: 151.05 mi

Carbon Canyon—in the bottom of the Grand Canyon!



A. deposition of the Grand Canyon Supergroup
~1.3 billion to 740 million years ago

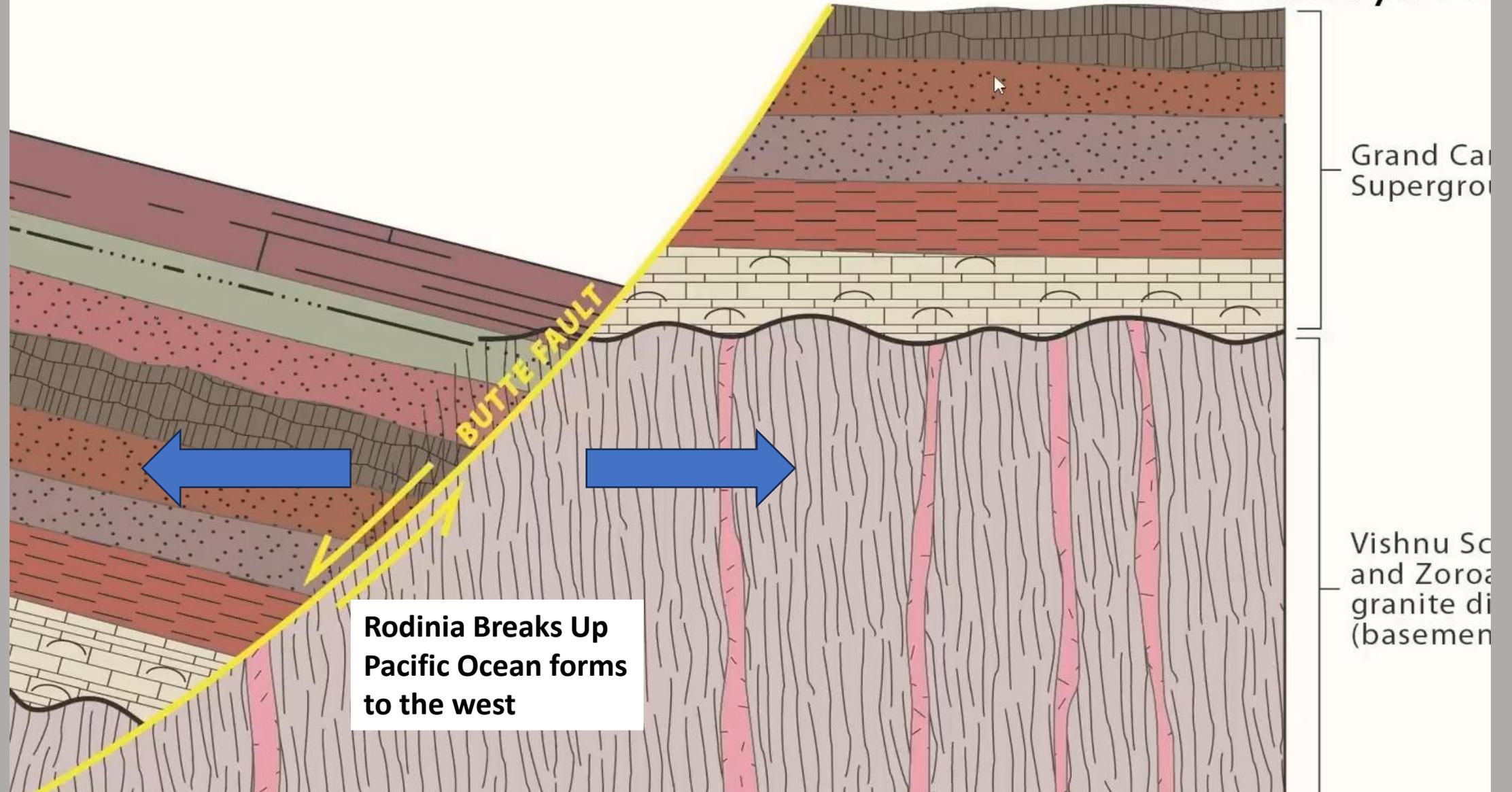
Graphics by Chelsea M. Feeney
www.cmcfeeney.com



Shaun Willsey: Fantastically Folded Rocks and the Beautiful Butte Fault, A Major Structure in the Grand Canyon

to 640 million years ago

Graphics by Chelsea M. Fee
www.cmcfeeney.com



**Rodinia Breaks Up
Pacific Ocean forms
to the west**

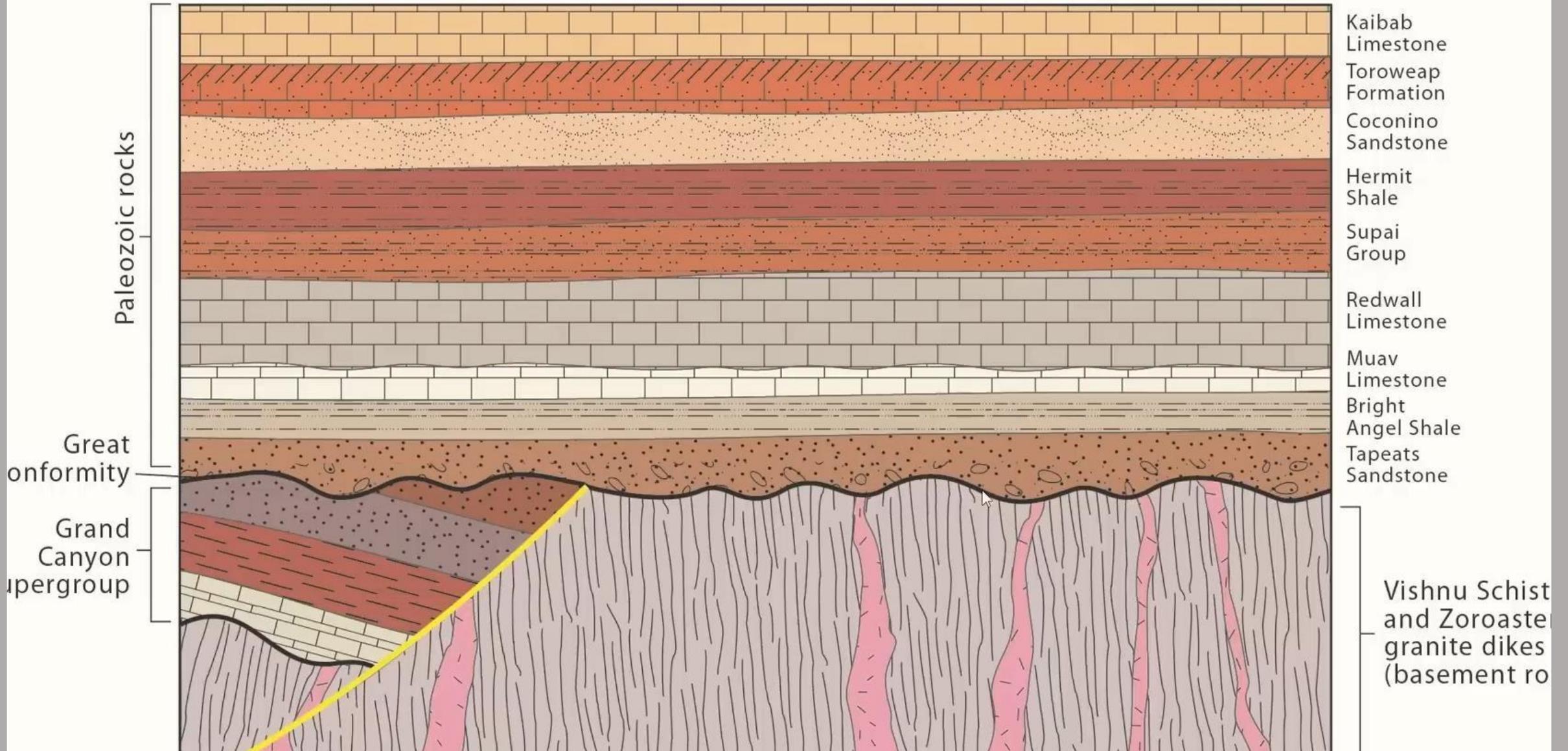
Grand Canyon
Supergroup

Vishnu Schist
and Zoroaster
granite diorite
(basement)

Shaun Willsey: Fantastically Folded Rocks and the Beautiful Butte Fault, A Major Structure in the Grand Canyon

Deposition of the Paleozoic (and younger) sedimentary rocks
~540 to 80 million years ago

Graphics by Chelsea M. Feeney
www.cmcfeney.com

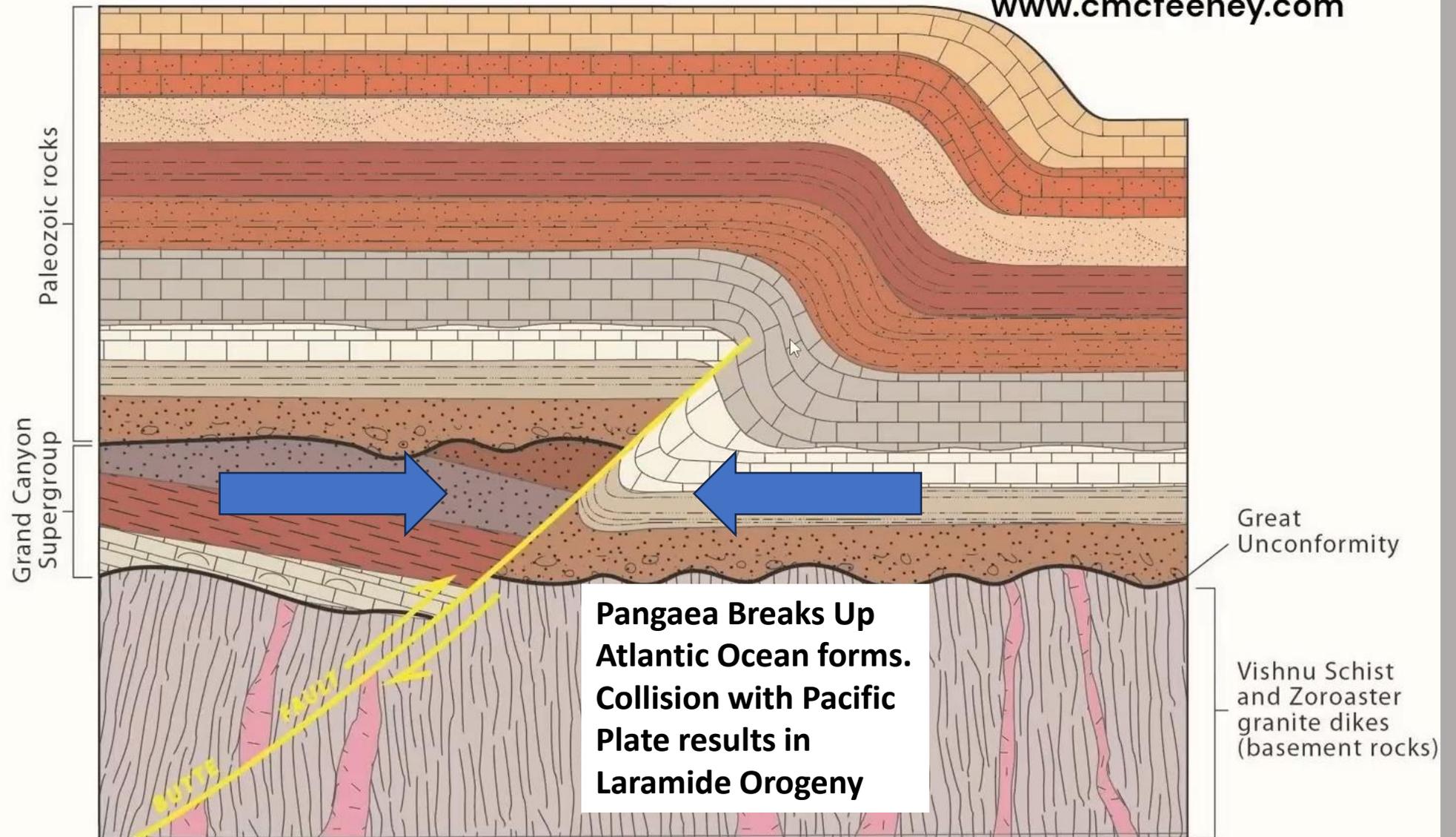


Shaun Willsey: Fantastically Folded Rocks and the Beautiful Butte Fault, A Major Structure in the Grand Canyon



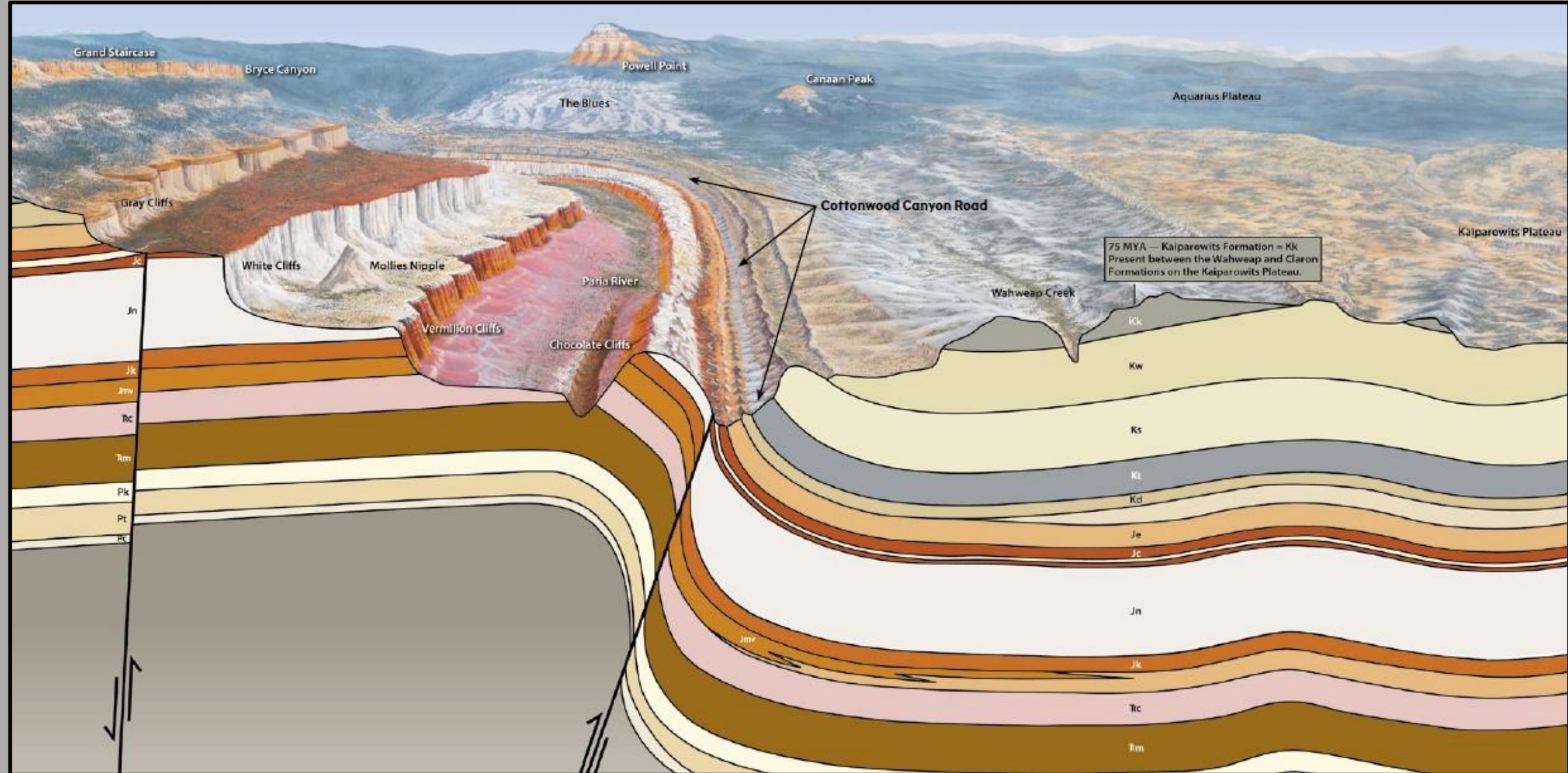
D. reactivation of Butte Fault due to compression (Laramide Orogeny)
~70 million years ago

Graphics by Chelsea M. Feeney
www.cmcfeeney.com



Shaun Willsey: Fantastically Folded Rocks and the Beautiful Butte Fault, A Major Structure in the Grand Canyon

East Kaibab Monocline—the Boundary



Hackberry Canyon: cottonwood, willow, boxelder, hackberry



Longstem evening primrose (*Oenothera longissima*)

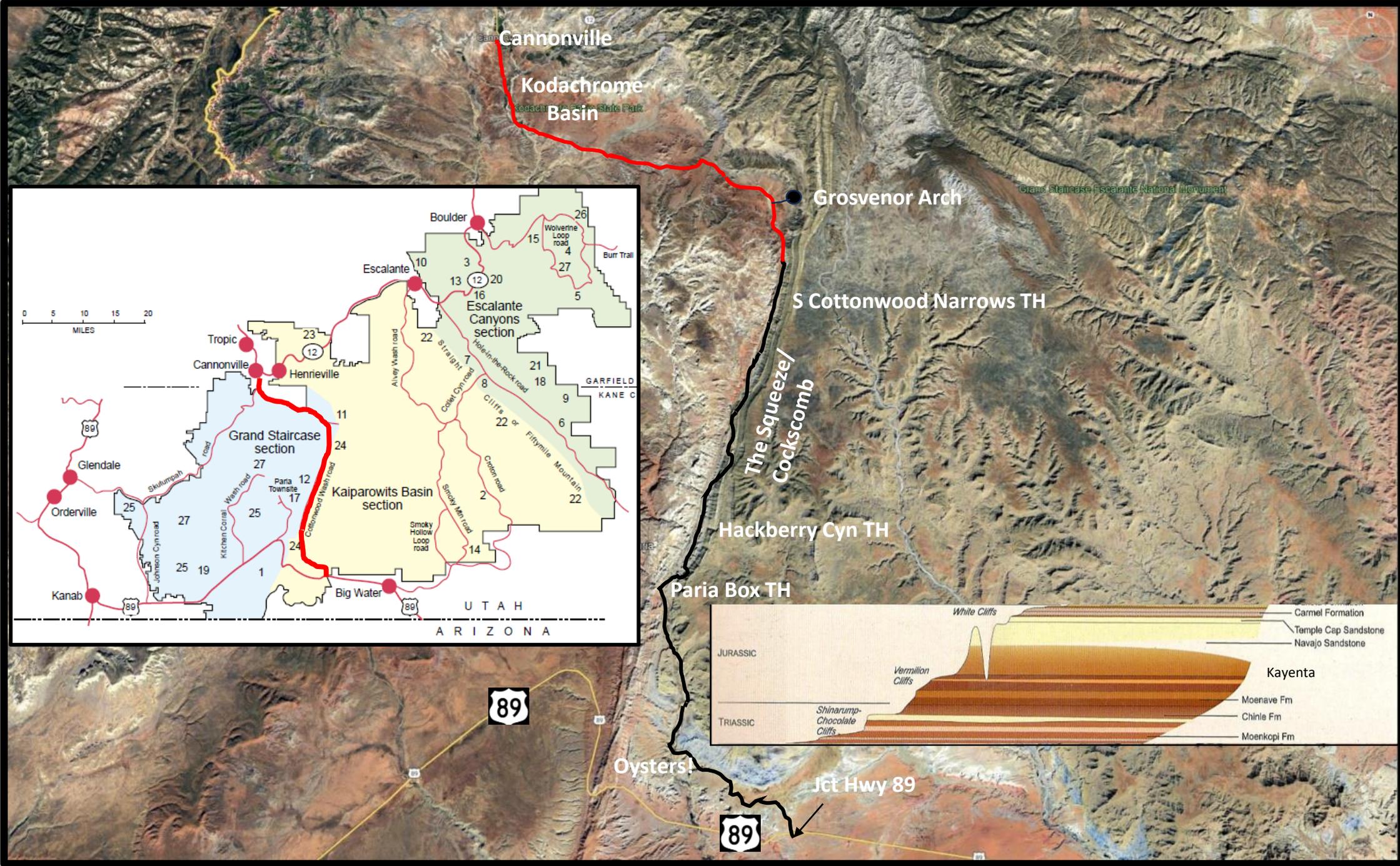


Rock Spiraea (*Petrophytum caespitosum*)
& Paintbrush (*Castilleja sp.*)



Smallflower fishhook cactus
(*Sclerocactus parviflorus*)





Cannonville

Kodachrome Basin

Grosvenor Arch

S Cottonwood Narrows TH

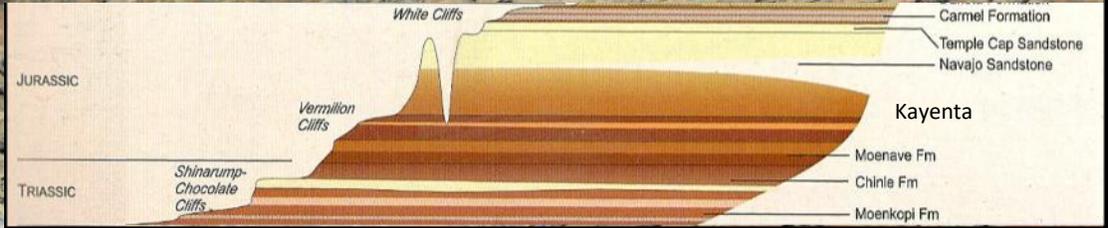
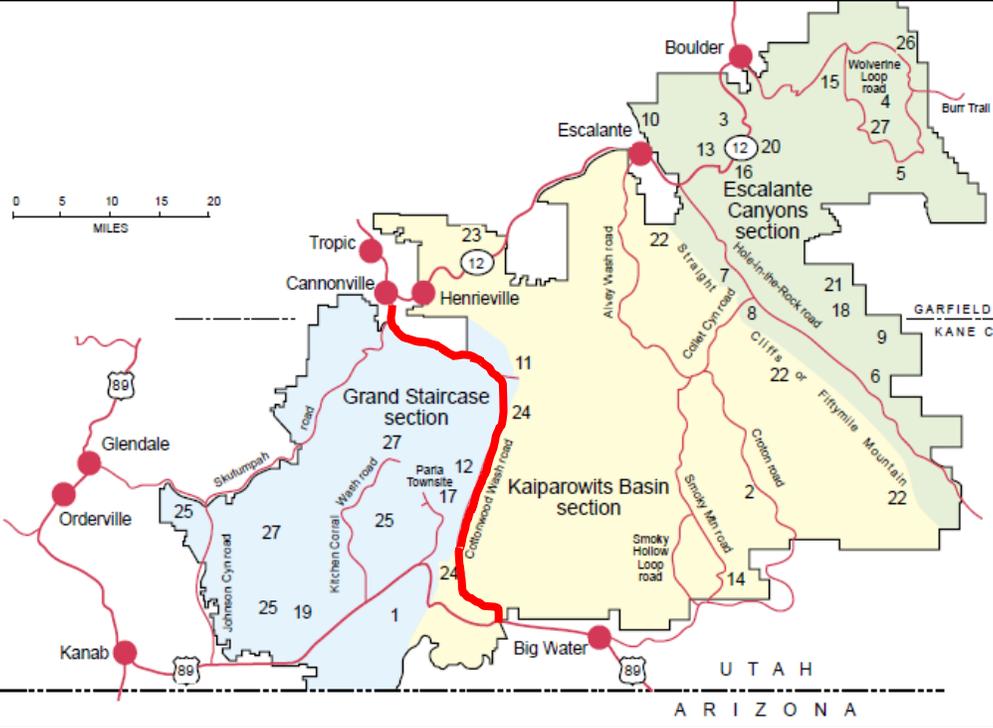
The Squeeze/
Cockscomb

Hackberry Cyn TH

Paria Box TH

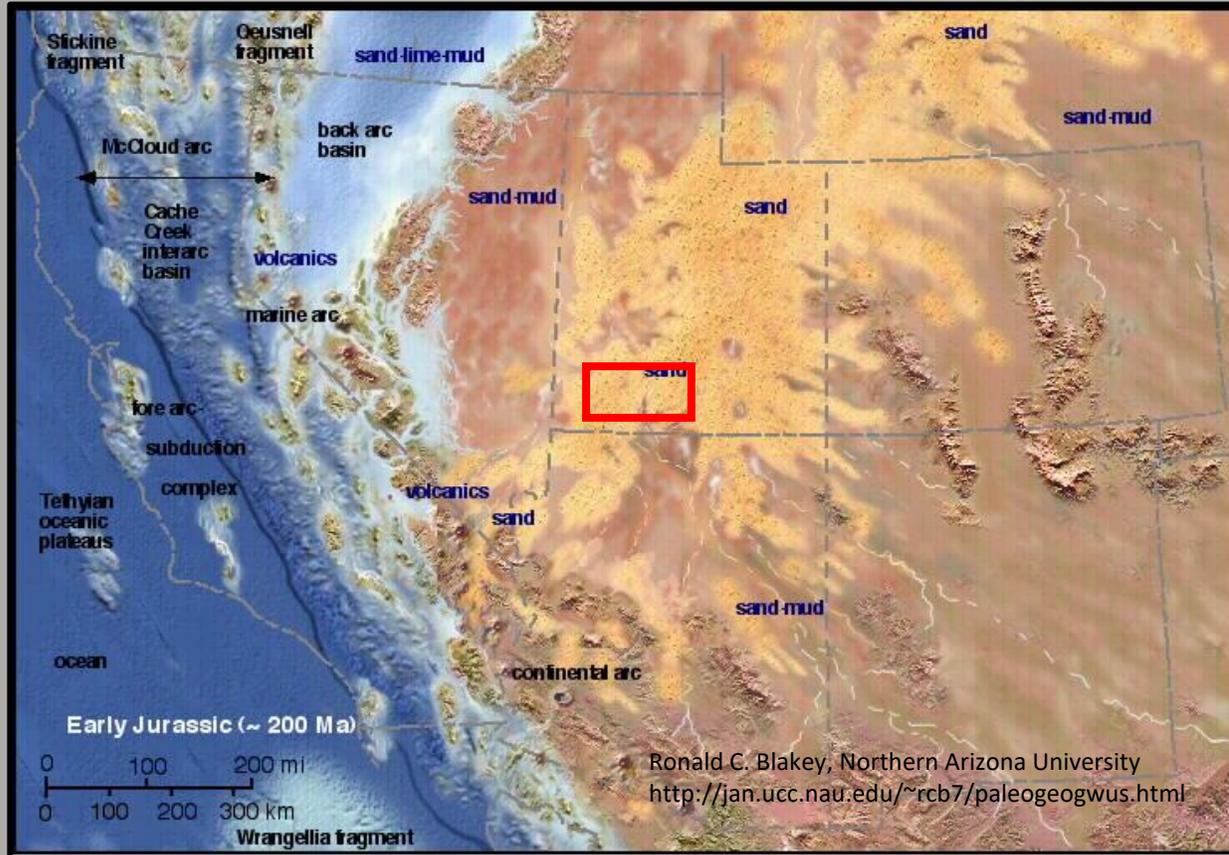
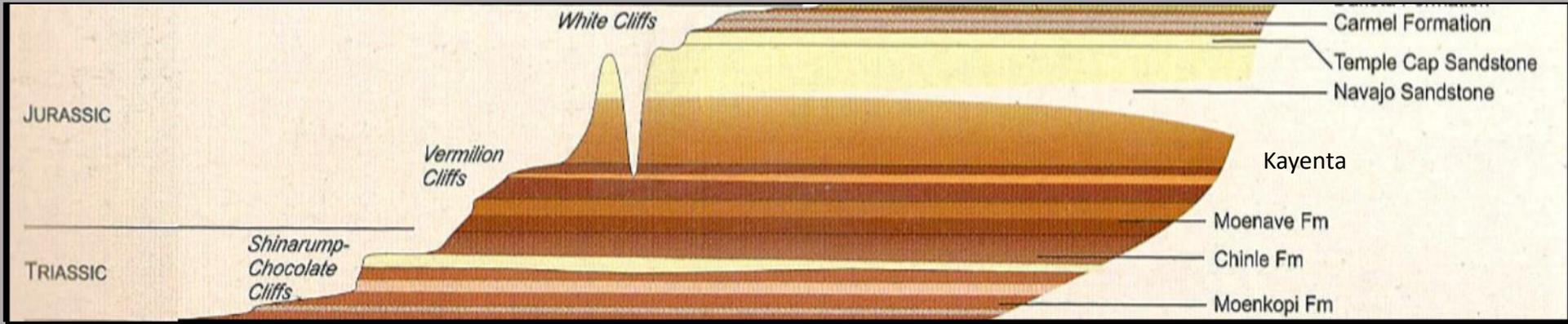
Oysters!

Jct Hwy 89



Grand Staircase Section





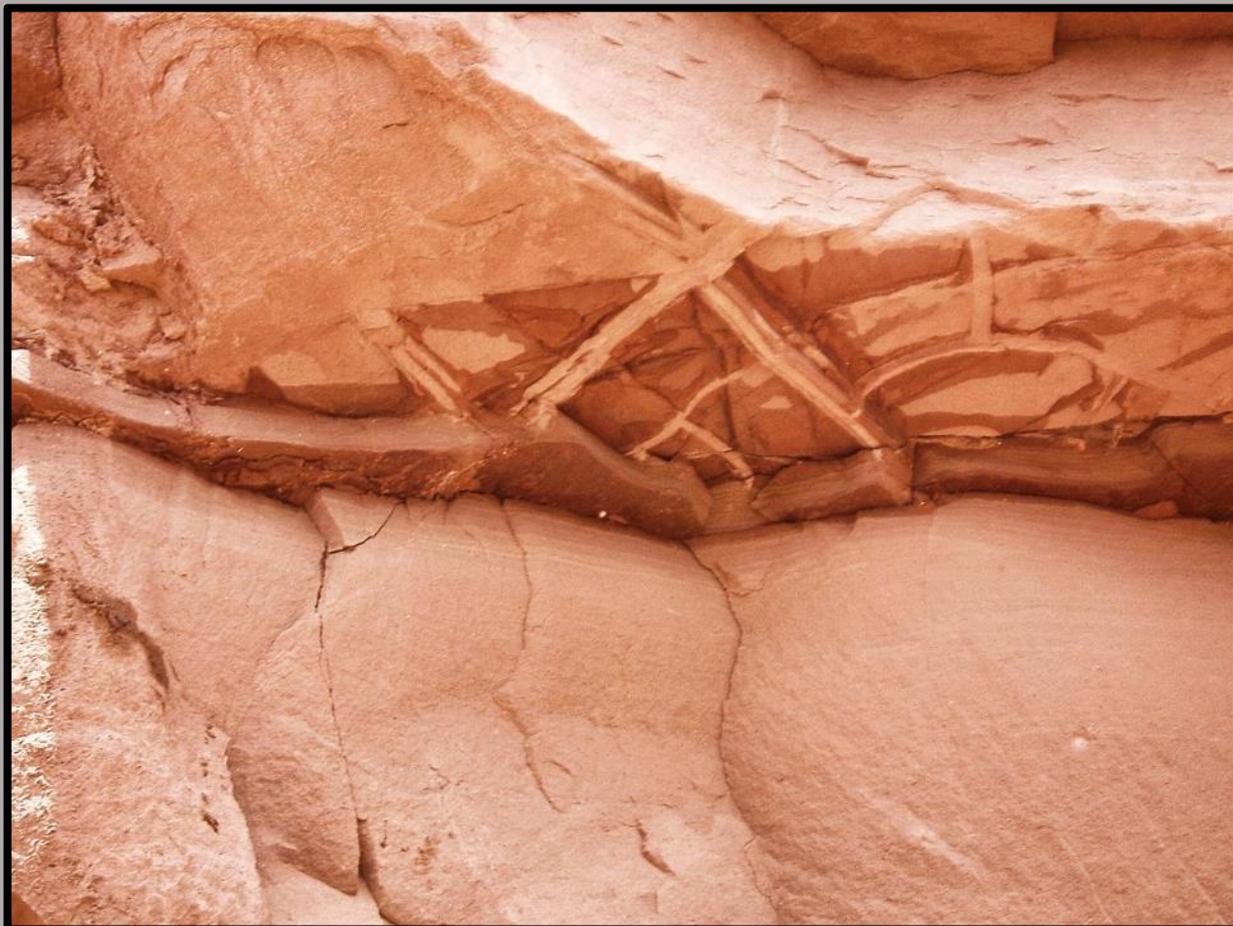
Carel Brest van Kempen
Dinosaurs of Utah



Dinosaur Tracks



Ancient mudcracks



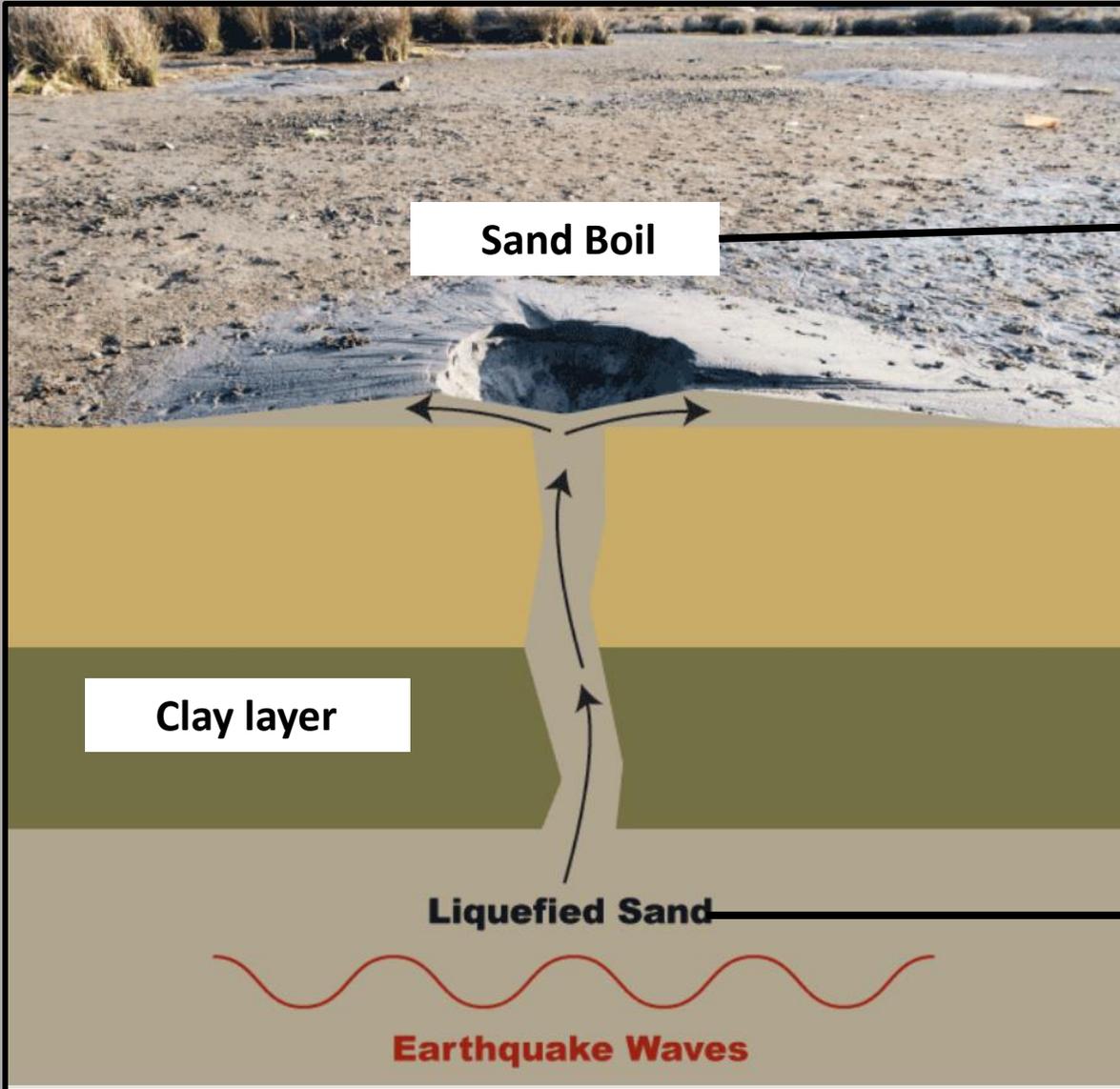
Modern mudcracks



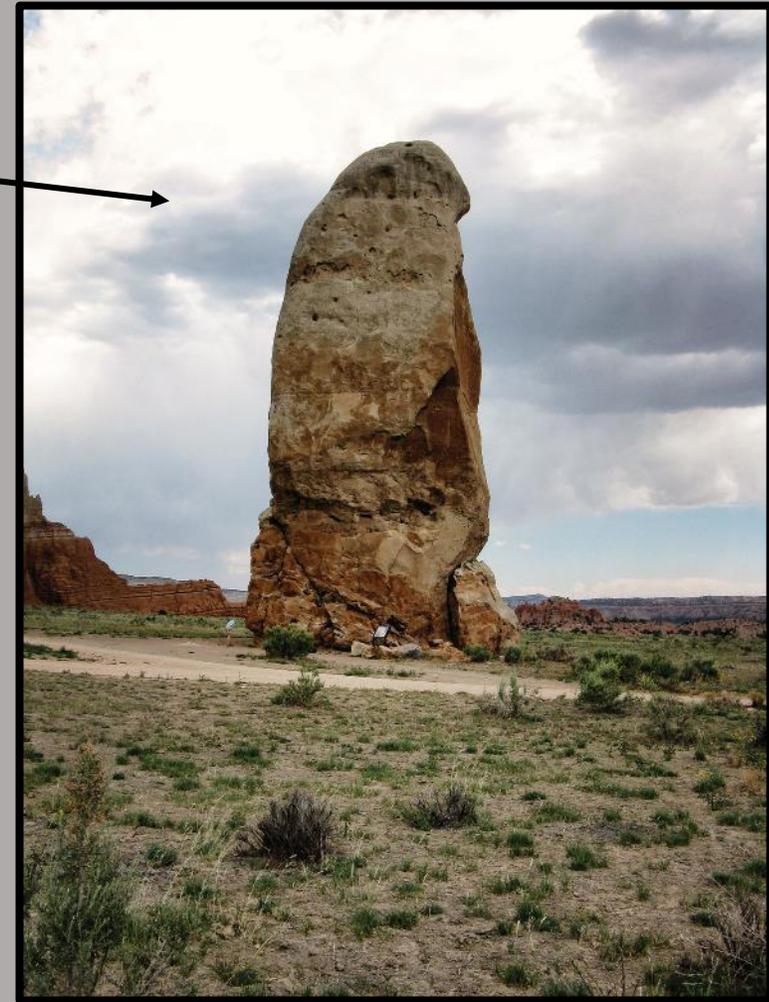
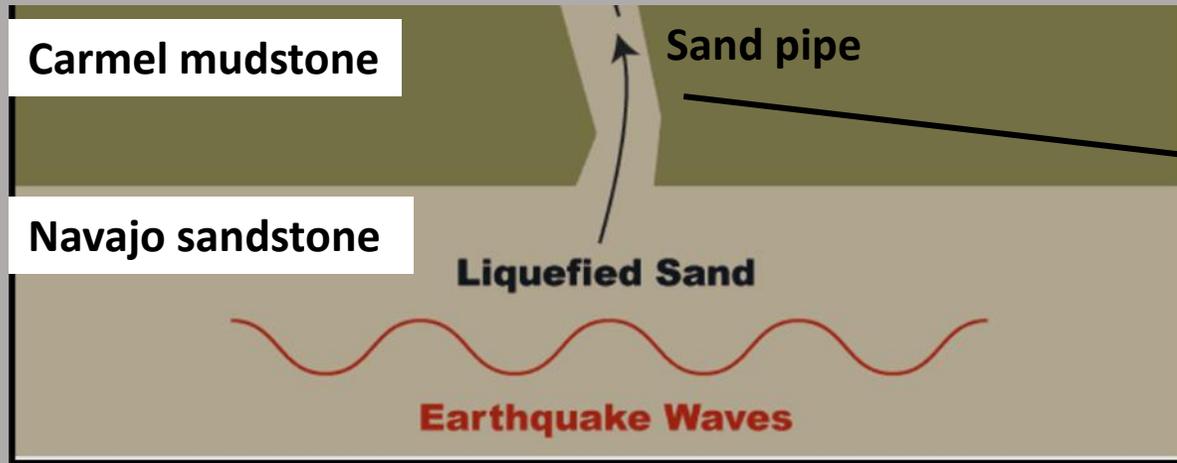
Sand Pipes/Clastic Dikes



Kodachrome Basin State Park

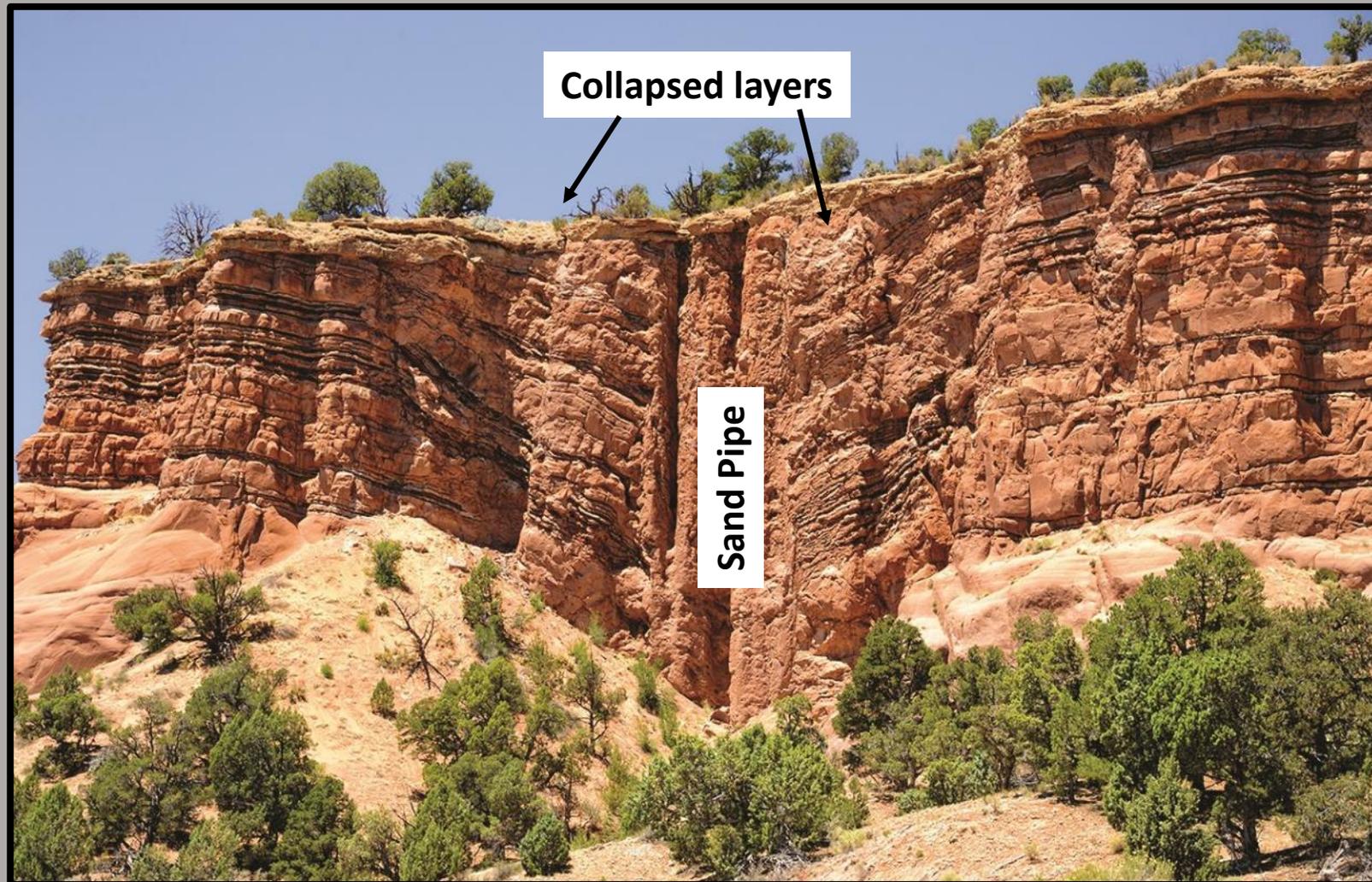


Sand Pipes/Clastic Dikes



Kodachrome Basin State Park

Sand Pipes in the Carmel Fm. at Shepherd Point





North End of Cottonwood Rd (Grosvenor Arch area in general)
Pinyon-Juniper woodland and grassland



The End of the Trip!



Thank You!

