

**Wonders of the  
American West  
Slide Show**

# Nevada



## Nevada

- Statehood: 1864
- Capital: Carson City
- Name: Spanish for “snow covered”
- Nickname: Silver State, Sagebrush State, Battle Born State
- Moto: All for Our Country
- Today’s economy: Tourism (legalized gambling), Mining (gold)
- Fun (?) Fact: Only state with legalized prostitution

# State Metal: Silver



# State Flower: Sagebrush



# State Gemstone: Opal



# Mojave Desert



## Mojave Desert

- Driest Desert in North America
- Rain: 2 inches (51 mm)
- Very hot in summer 120+F (49+C)
- Death Valley: -280 feet (-85m), 134F (56C)
- High desert 2000-5000 feet (600-1500m)
- Animals: snakes, lizards, chipmunks, rabbits, mule deer, etc
- Plants: 1700+ species



# Joshua Tree



## Joshua Tree

- Yucca family
- Only grow in Mojave Desert
- Height: up to 50 feet (15m)
- Roots: 36 feet (11m)
- Native American uses: sandals & baskets, seeds & flowers
- Name: Mormon settlers - Joshua raising his hands in prayer

# Arizona



## Arizona

- Statehood: 1912
- Capitol: Phoenix
- Name: Spanish word for “little spring”
- Nickname: Grand Canyon State
- Motto: God enriches
- Today’s Economy: copper  $\frac{2}{3}$  US production, tourism, healthcare, transportation

# Gemstone: Turquoise



# Reptile: Ridge-nosed Rattlesnake



# Neckwear: Bolo Tie

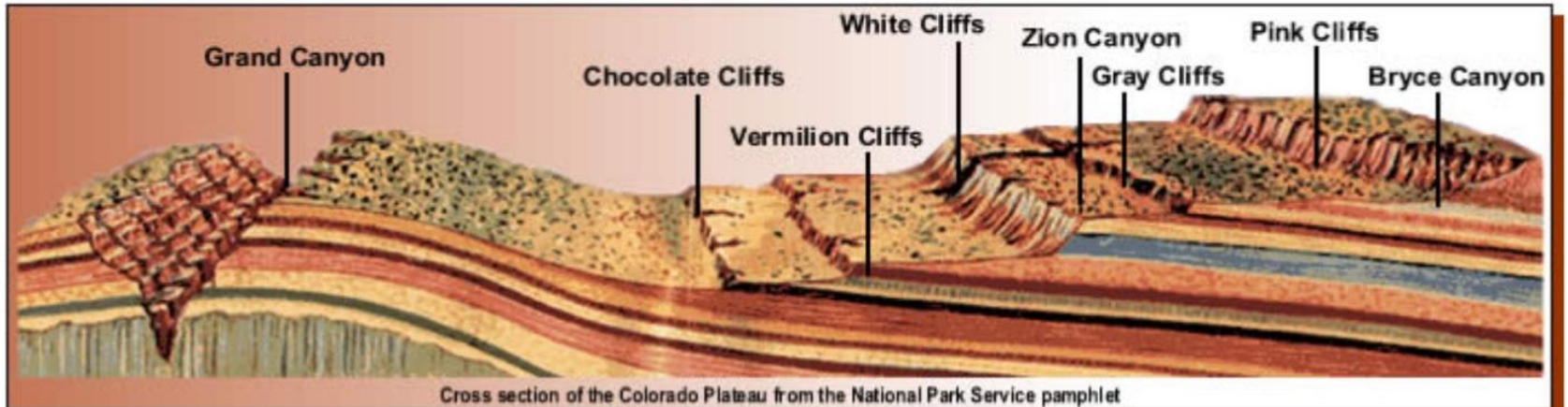


# Colorado Plateau





# Colorado Plateau Grand Staircase



## Colorado Plateau:

- CO Plateau large tracts of land mostly flat sedimentary rock sections rising up towards Rocky Mountains
- Elevation: 4900-11,000 feet (1500-3350 m)
- 5 Sections are edged with massive cliffs as they go lower
- Color names: Chocolate, Vermillion, White, Gray, Pink

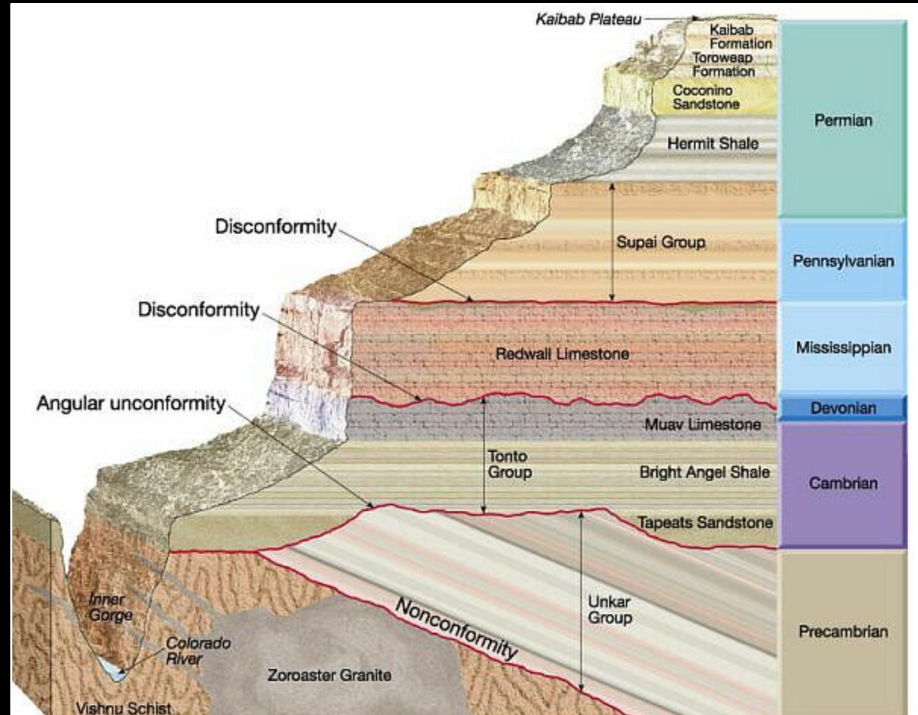
# Grand Canyon



## Grand Canyon

- Length: 277 miles (446 km)
- Average width: 10 miles (16 km)
- Widest point: 18 miles (29 km)
- Depth: over a mile, 6000 feet (1850 m)
- Carved by Colorado River + wind/ice erosion
- Age: 6 million years

# Grand Canyon Geology



## Grand Canyon Geology

- Rock layers deposited by oceans expanding and contracting
- 70 million years ago: Colorado Plateau starts to lift
- 6 million years ago: Rocky Mountains form
- Colorado River becomes steeper
- Fast river carves through soft sandstone and limestone
- Side canyons formed by small streams
- Canyon widens due to ice and wind erosion

# Grand Canyon National Park



## Grand Canyon National Park

- 1908 National Monument
- 1919 National Park
- 1.9 million sq miles (4.9 mil sq km)
- South Rim - most Park services
- North Rim - difficult access



# Grand Canyon Plants



## Grand Canyon Plants

- Piñon Pine
- Ponderosa Pine
- Juniper
- Mixed conifer
- Desert shrubs
- Cacti

# Ponderosa Pine



## Ponderosa Pine

- Most widely distributed pine tree in North America
- Tall with thick, flaky bark (fire protection)
- Young: blackish brown (blackjack)
- Old: reddish (yellow bellies)
- Smell: stick your nose in the bark and sniff
- That was not a joke
- Theory: chemical in sap warmed by the sun

# Grand Canyon Piñon Pine



## Piñon Pine

- Edible pine nuts
- Staple of Native American diet
- Extraction: knock cones off tree with stick, stack in pile, light on fire to burn away sticky resin and loosen nuts
- Can't be harvested on public lands, except by Native Americans

# Grand Canyon Juniper



## Juniper

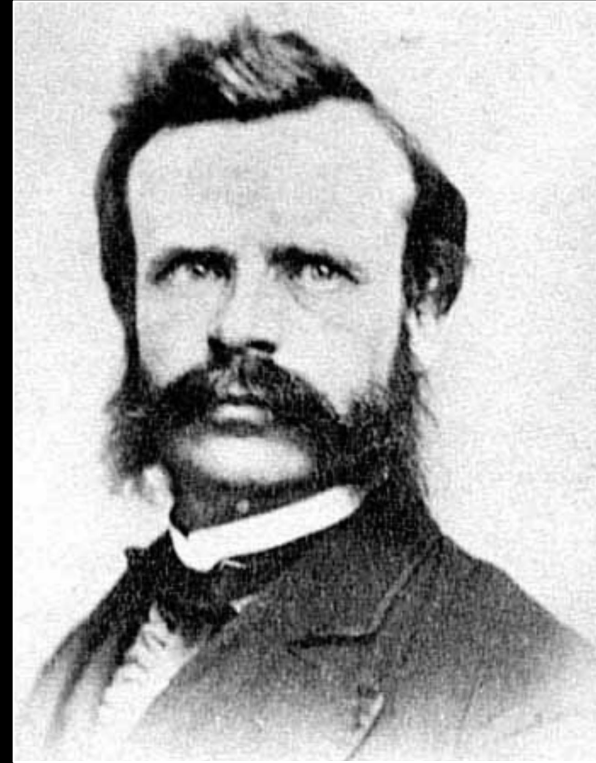
- Berries: cooking spice, gives flavor to gin
- Native American remedies: epilepsy, asthma, female contraceptive
- Calcium rich ash: 1 teaspoon = 1 glass of milk
- Bark: sandals and baskets



# Grand Canyon Juniper



# Grand Canyon Human History



## Grand Canyon Human History

- 12000-9000 - Paleo-Indian
- 800-1300 - Ancestral Puebloan
- 1540 - Spanish explorers looking for gold
- 1869 - John Wesley Powell expedition to map Colorado River
- 1901 - Railroad from Williams, AZ brings tourists

# Colorado River



## Colorado River

- Single largest source of water in Southwest US
- 1450 miles (2330 km)
- Arid watershed for 7 states
- Start: Rocky Mountains in Colorado
- End: Gulf of California in Mexico
- Features: dams, reservoirs, aqueducts, hydroelectric power
- Highlights: Grand Canyon, Hoover Dam, 11 US Parks

# Glen Canyon Dam



## Glen Canyon Dam

- 1956-66
- Concrete arch-gravity Dam
- Purpose: control seasonal flooding, irrigation, hydroelectric
- Height: 710 feet (220 m)
- Length: 1560 feet (475 m)
- Formed Lake Powell - 17 years to fill
- Controversy: flooded hundreds of miles of scenic gorges

# Lake Powell





# Lake Powell



## Lake Powell

- Length: 186 miles (299 km)
- Average depth: 133 feet (40 m)
- Shoreline: 1900 miles (3050 km) - longer than West Coast
- Glen Canyon Recreation Area
- Speed boats and houseboats
- Fish: bass, carp, pike, catfish

# Page, AZ



## Page, AZ

- Population: 7,000
- Origins: 1957, dam housing community
- Industry: Lake Powell Tourism
- Controversy: Coal power plant

# Native Americans



## Native Americans

- 30,000 BC - land bridge between Asia & Alaska
- Hunters followed animal herds
- Settled further south through North & South America
- Regional development of housing, tools, beliefs
- Common indigenous practices: sacredness of land, revere ancestors, connection between natural & supernatural

## Native Americans, continued

- 1492 - Christopher Columbus
- 1500-1600s - Disease kills 90% - chicken pox, measles
- European settlement - pushed westward
- 1830 - Indian Removal Act
- 1845 - Manifest Destiny - US territorial expansion justification
- 1851 - Indian Appropriations Act - Reservation System
- 1860s-1890s - Post Civil War

## Native Americans Today

- 573 federally recognized tribes
- 5.2 million people
- 326 reservations
- 22% live on reservations
- Total lands: 87,000 sq miles (227,000 sq km) - size of Idaho
- 12 larger than the state of Rhode Island
- Poorest demographic
- Tribal sovereignty - casinos



# Kachina Dolls



## Kachina Dolls

- Spirit being in the religious beliefs of the Pueblo people
- Personification (spirit) of things in the real world
- Three different aspects:
  - The supernatural being
  - The kachina dancers (masked members of the community who represent kachinas at religious ceremonies)
  - Kachina dolls (carved in the likeness of kachinas)

## Kachina Dolls, continued

- Can represent anything in the natural world (revered ancestor, an element, location, quality, natural phenomenon, or concept)
- Not worshipped per se
- Viewed as a powerful being to give veneration & respect
- In return, the being uses its particular power for human good, bringing rainfall, healing, fertility, or protection

# Kokopelli



## Kokopelli

- Many theories & stories
- Fertility deity depicted as a humpbacked flute player (presides over both childbirth & agriculture)
- A trickster god who vengefully lures away children (Pied Piper)
- Hunchback who tricks the village beauty into sleeping with him
- Possible Aztec origins: traders who brought their goods in sacks slung across their backs & played a flute to announce themselves as friendly

# Navajo People



## Navajo People

- Call themselves: The *Dine*
- 300,000 tribal members - 2nd largest after Cherokee
- 1400 BC
- Herd sheep & goats
- Spinning & weaving wool blankets

# Navajo Reservation





# Navajo Reservation



## Navajo Reservation

- Largest reservation
- 27,000 sq miles (71,000 sq km)
- Similar in size to West Virginia
- Arizona, Utah, New Mexico
- Population: 200,000

# Navajo Rugs



# Navajo Rugs



# Navajo Rugs



# Navajo Pottery



# Navajo Pottery



# Code Talkers





## Code Talkers

- WWII - 1940s
- Mission: transmit secret tactical messages using a code based on their Navajo language
- 400-500 Code Talkers
- Code was never cracked

# Monument Valley



## Monument Valley

- Located on the Navajo Tribal Lands - Tribal Park
- Known for extensive sandstone buttes (1000 feet high)
- Valley floor elevation: 5000-6000 feet (1,500-1800 m)
- Elevation used to be at top of the buttes
- 65 million years ago: layers of sand covered by layer of shale
- Cracks and wind/water erosion created valley
- Top shale layer of buttes is a cap of harder stone, protecting the buttes below from erosion

# John Ford Movies



## John Ford Movies

- American Film Director
- Used Monument Valley for “western” films
- Defined what most people think of when they envision “The West”
  - Stagecoach (1939)
  - My Darling Clementine (1946)
  - She Wore a Yellow Ribbon (1949)
  - The Searchers (1956)
  - How the West Was Won (1962)

## Other Monument Valley Movies

- Easy Rider
- National Lampoon's Vacation
- Thelma and Louise
- Back to the Future III
- Mission Impossible II
- The Lone Ranger (2013)
- Forrest Gump

# Open-air Truck Tour



# Goulding's Lodge





# Navajo Taco

## How it's made:

White flour  
Baking powder  
Salt  
Warm water  
Deep fried

## Served with:

Stew  
Navajo Taco  
As a side dish



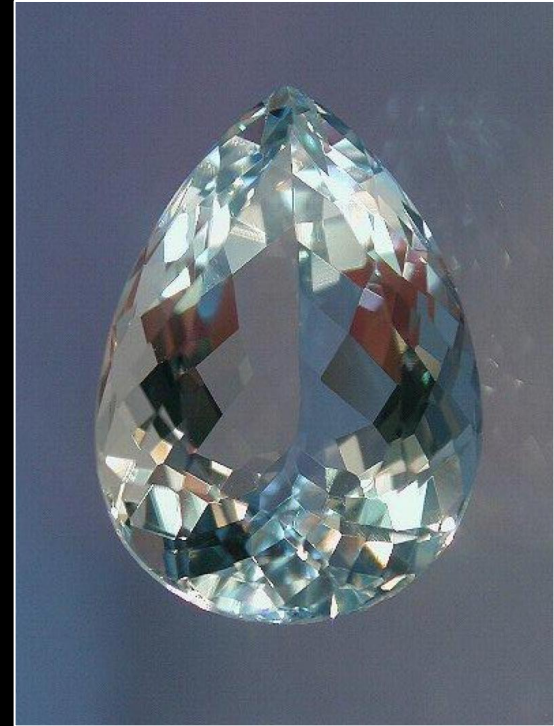
# Colorado



## Colorado

- Statehood: 1876
- Capitol: Denver
- Name: Spanish for Rio Colorado which carried ruddy (reddish) silt down river
- Nickname: The Centennial State
- Motto: Nothing without providence
- Geography: east = flat, west = Rocky Mountains
- Today's economy: cattle, mining, tourism (skiing), government (US Air Force Academy and NORAD (North American Aerospace Defense Command))

# Gemstone: Aquamarine



# Flower: Rocky Mountain Columbine



# Sport: Pack Burro Racing



# Mesa Verde National Park



## Mesa Verde National Park

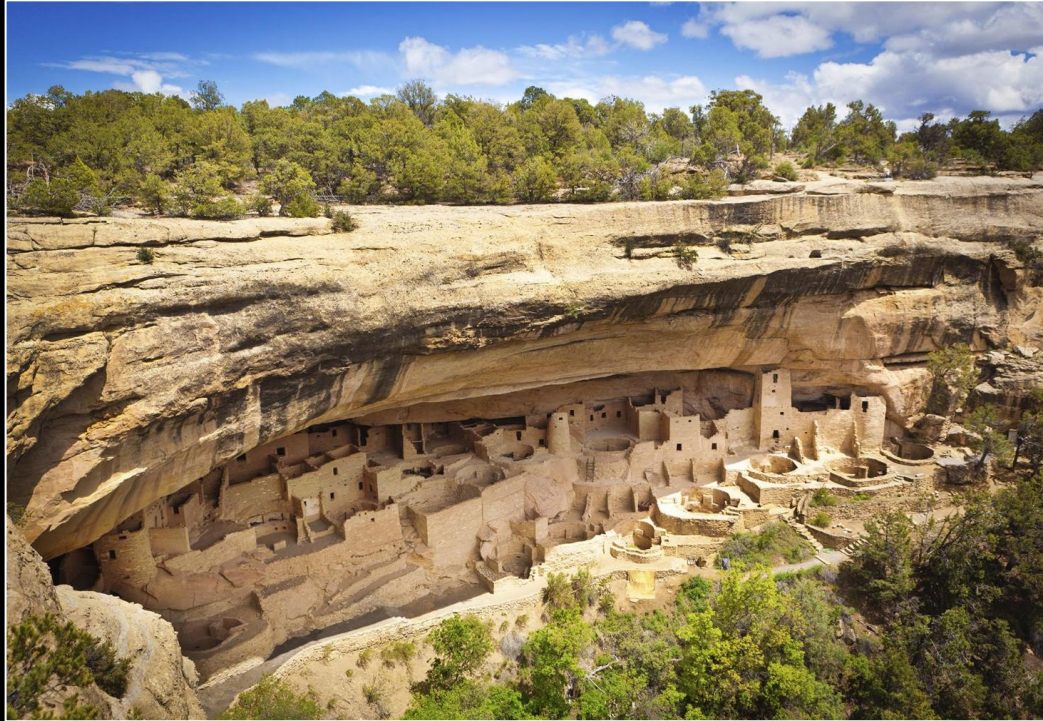
- Spanish for “Green Table”
- Best preserved Ancestral Puebloan archaeological sites in US
- 4,300 sites - 600 cliff dwellings
- 650 - 1300 AD



# Mesa Verde = Green Table



# Cliff Dwellings



# Ancestral Pueblo People



## Ancestral Pueblo People

- 550-750 AD - Basketmaker period
- 750-1150 AD - Pueblo period
- 1150-1300 AD - Classic Pueblo period (Cliff Dwellings)
- Hunting: rabbits, deer, turkey
- Agriculture: corn, squash, beans
- Crafts: basket making, pottery, jewelry
- Traded with other tribes in the area
- Disappeared from Mesa Verde after 1300 (drought? danger?)

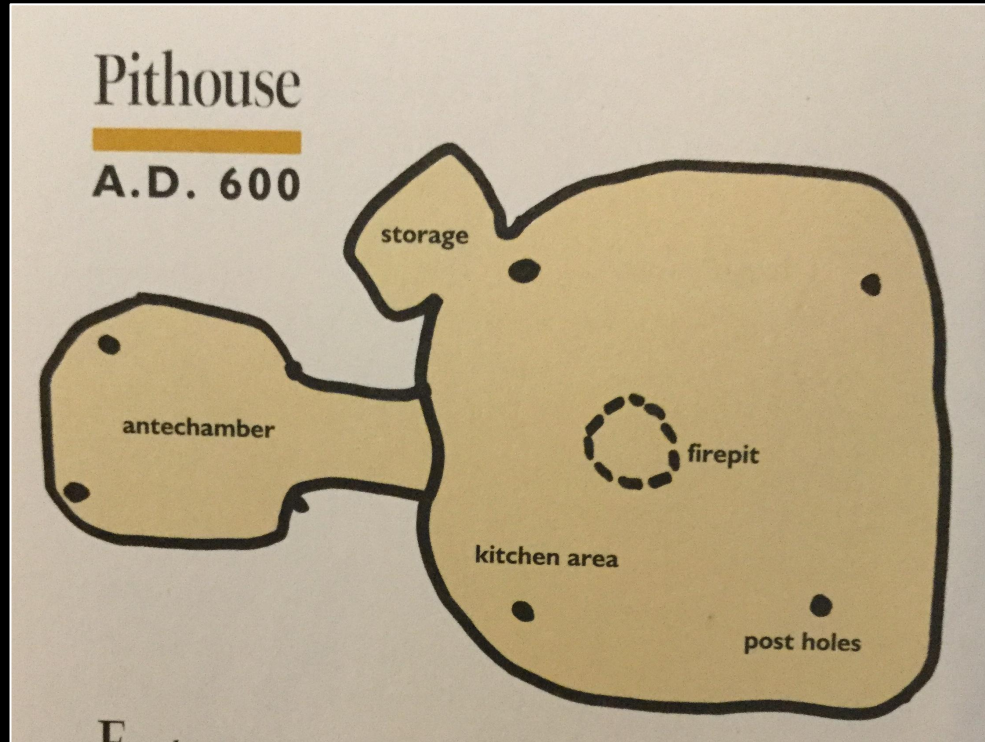
# Pit Houses



## Pit Houses

- 550-750 AD - “Basketmakers”
- Dug into ground
- Four corner poles that supported roof
- Mud roof and walls
- Hole in roof for fire
- Small antechamber for storage

# Pit Houses



# Cliff Dwellings





## Cliff Dwellings

- Cut stone bricks and mortar, multistory buildings
- Set in sandstone rock alcoves
- Access very difficult
- 600 on Mesa Verde
- Usually a few rooms only, some over 100 rooms
- Interior walls were plastered and painted with designs
- All contained kivas

# Kivas



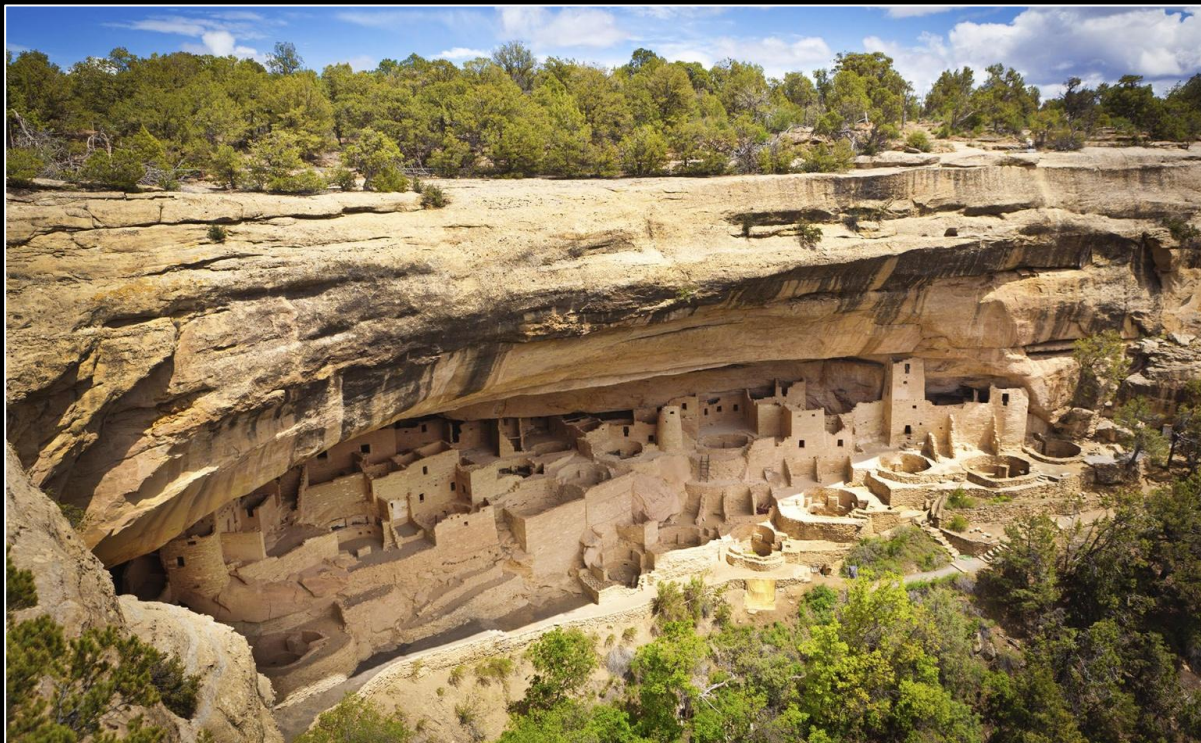
## Kivas

- Round room built into the ground of the cliff
- Used for religious ritual, political meetings, social gatherings
- 6 upright stone pillars supporting roof
- Stone bench seating between the pillars
- Fire pit in center
- Ventilation shaft
- Entry was a ladder through the roof

## Square Tower House

- Medium-sized cliff dwelling
- Dates: 1200-1300 AD
- 49-60 rooms
- 8 kivas
- 28 foot tower - tallest in Mesa Verde

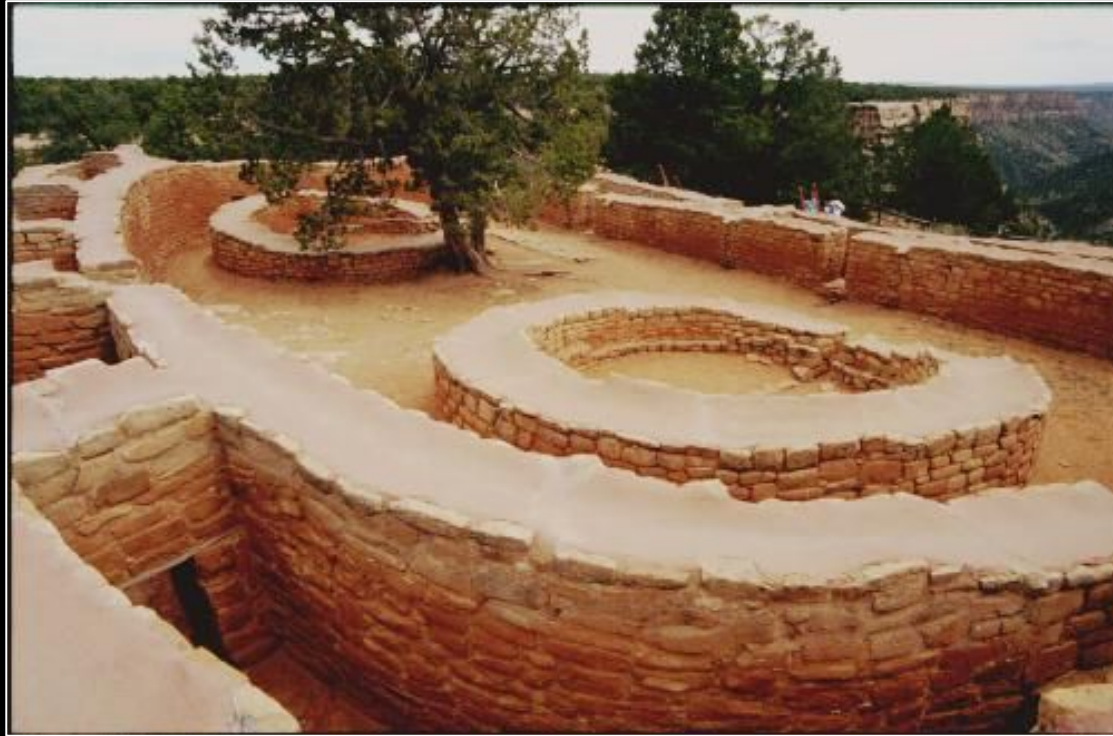
# Cliff Palace Overlook



## Cliff Palace

- 1260-1280 AD
- Largest cliff dwelling in Mesa Verde
- 215 feet wide, 90 feet deep, 60 feet high
- 150 rooms, 23 kivas
- 125 residents
- Probably the central hub among the 60 nearby cliff dwellings

# Sun Temple

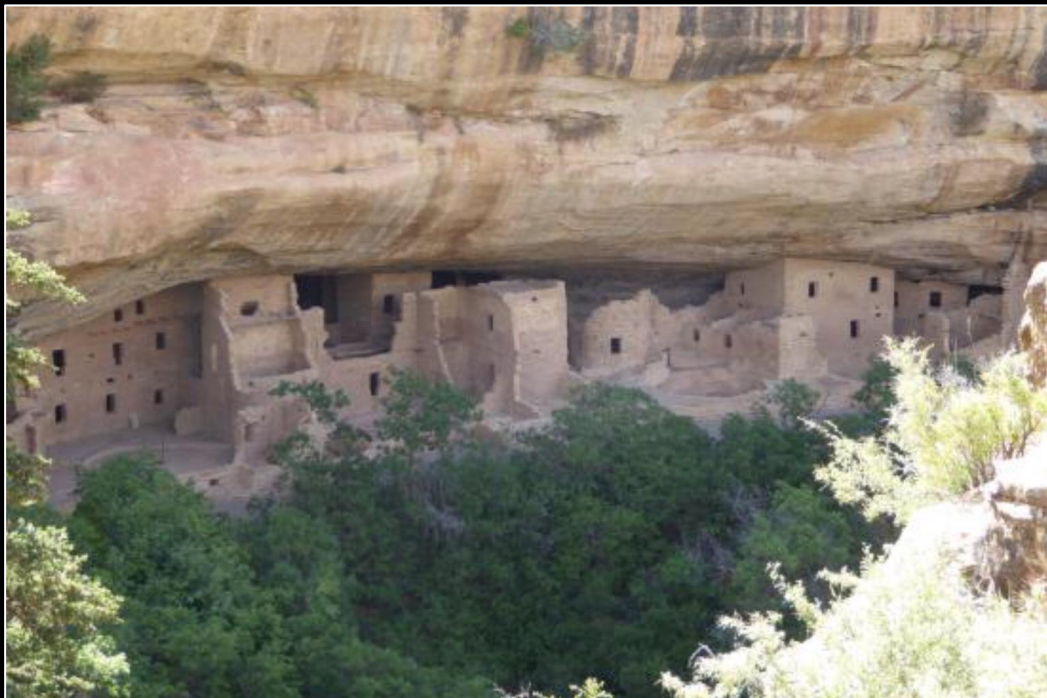


## Sun Temple

- 1250 AD
- 30 rooms
- Built as a center of worship / astronomical observatory
- Conspiracy theories (advanced geometry)
- Believed to have been abandoned before finished  
(no roof beams or household goods)



# Spruce Tree House Overlook



## Spruce Tree House

- 1200-1280 AD
- 3rd largest cliff dwelling on Mesa Verde
- 130 rooms, 8 kivas
- 60-90 residents
- Built near a spring

# Moab, Utah



## Moab, Utah

- Small village on the Colorado River
- Population 5000
- Started as an agriculture center (fresh water)
- 1950s - “Uranium Capital of the World” - end of Cold War decline
- Today’s Economy: Tourism
- Gateway to Arches & Canyonlands National Parks
- Base for extreme mountain biking and off-road vehicle sports
- Moab Jeep Safari - annual 4 wheel drive festival (Easter)

# Arches National Park



## Arches National Park

- National Park: 1960
- Size: 120 sq miles (76,000 acres)
- Claim to fame: 2000 natural arches
- Highest density of arches in the world
- Heights: 3 feet to 306 feet
- Since 1977, 43 arches have collapsed

# Arches Geology



## Arches Geology

- Expanding & retreating oceans deposited sandstone & mudstone
- Entrada Sandstone (top - salmon color)
- Navajo Sandstone (bottom - buff color)
- Geologic forces underground caused land to crack in long fissures
- Long rock “fins” developed
- Ice erosion expands cracks, wind erosion carries away material
- Under the right conditions (rock hardness/balance) arches form



# Arches Plants & Animals



## **Arches Animals**

- Active at dawn or dusk: mule deer, coyotes, porcupines, jackrabbits & many songbirds
- Active during day: squirrels, chipmunks, lizards, snakes, hawks & eagles

## **Arches Plants**

- Drought resistant plants: cacti, yucca, mosses
- Spring or rainy times: grasses and wildflowers

# Biological Soil Crust



## Biological Soil Crust

- Tiny living organisms
- Helps ground retain moisture
- Creates nutrients
- Provides grasses and shrubs a foothold in the sand
- Can take years to grow back when stepped on :(

# Ephemeral Pools



## Ephemeral Pools

- Small “potholes”
- Gather rain and collect plant & animal debris
- Develop tiny ecosystems which harbor microscopic invertebrates
- They exist for a short time and then evaporate

# Balanced Rock



## Balanced Rock

- Height: 128 feet (39 m)
- Weight: 3600 tons
- Estrada Sandstone rock on top
- Dewey Bridge Mudstone pedestal



# Delicate Arch



# Utah License Plate



## Delicate Arch

- Height: 60 feet (18 meters)
- Most well known Arch in the park
- Unofficial symbol of the state of Utah
- 2002 Winter Olympic torch passed through it
- Nicknames: “The Chaps” & “The School Marm’s Bloomers”
- 2-hour difficult hike to get there
- We are going to viewpoint (200 feet walk)

# Delicate Arch Viewpoint



# Double Arch



## Double Arch

- Two arches next to each other
- Fabulous photo opportunity
- Tallest: 104 feet (32 m) height, 148 feet (45 m) across
- ½ mile walk over sandy soil - can turn around at any time

# Canyonlands National Park



## Canyonlands National Park

- 1964
- 527 sq miles (330,000 acres)
- Claim to fame: colorful eroded landscape of canyons, mesas & buttes
- Carved by the convergence of Green River & Colorado River
- 3 districts: Island in the Sky, Needles, the Maze



# Canyonlands Map



# Needles



## Needles

- Southeast side of park
- Named for colorful spires of Cedar Mesa Sandstone
- Very rugged backcountry
- One short road
- Used for long day hikes & week-long camping trips
- Extreme 4-wheel drive off-roading

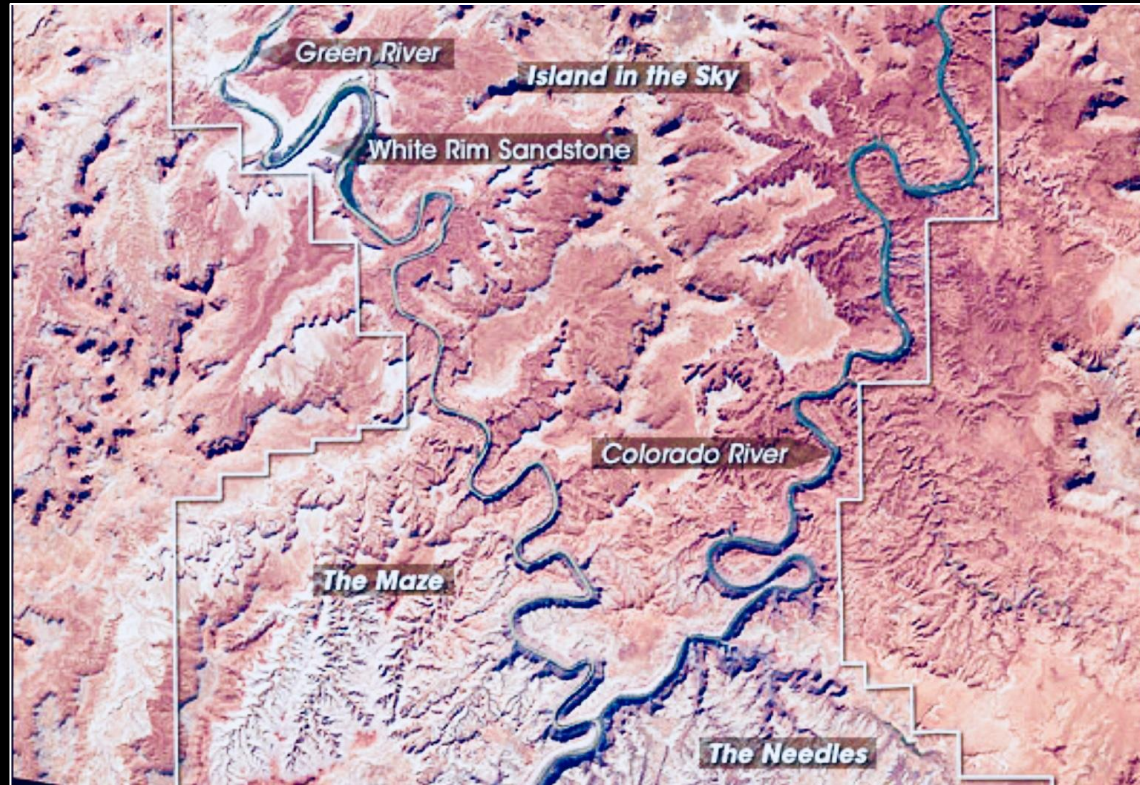
# The Maze



## The Maze

- Southwest side of park
- Big, wild & untamed
- Least accessible part of Canyonlands
- One of the most difficult places to get to in US
- Zero amenities: no food, water or gasoline

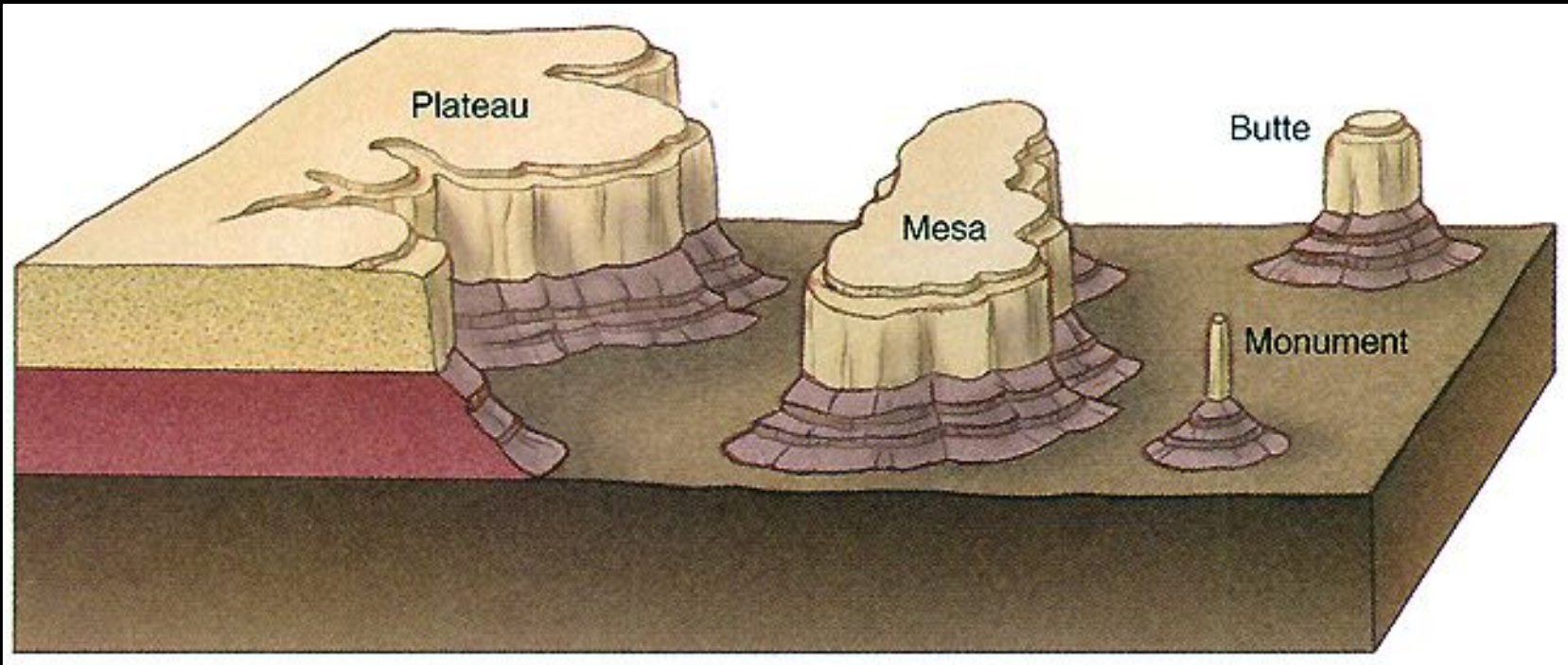
# Island in the Sky



## Island in the Sky

- North side of park
- Most accessible part
- Arrowhead shaped mesa, formed by the meeting of the Green & Colorado Rivers
- Stunning views overlooking much of Canyonlands

# Plateau, Mesa, Butte





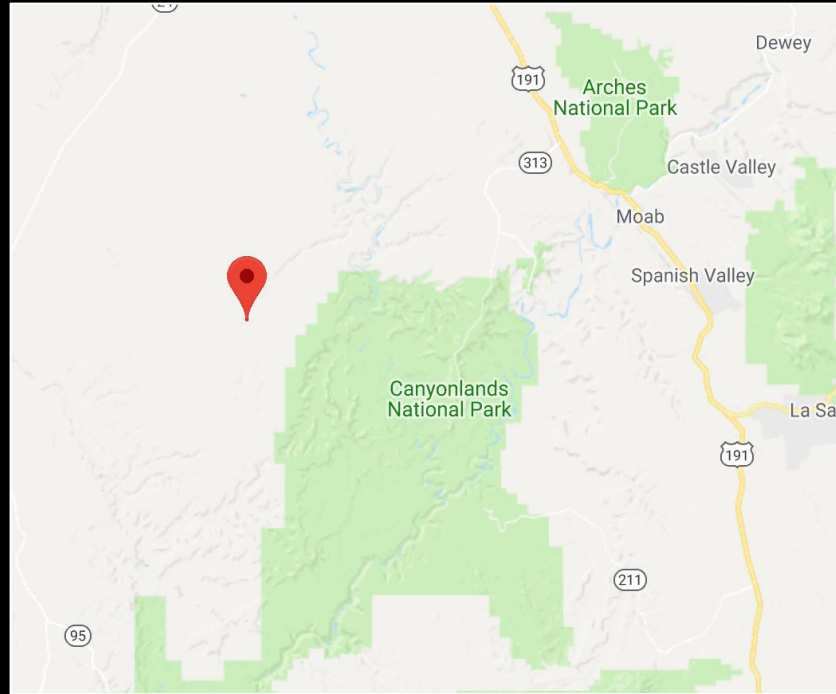
# 127 Hours Movie



## 127 Hours Movie

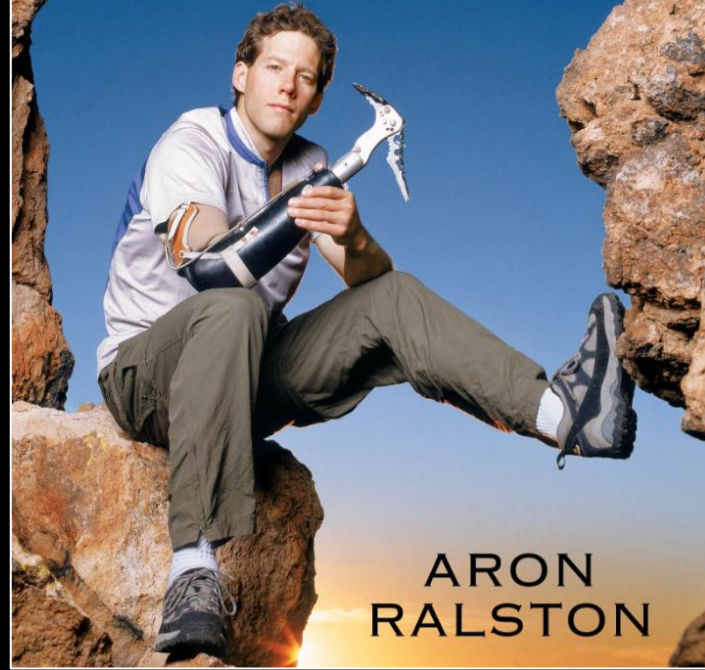
- True story of Aron Ralston
- Hiking in Blue John Canyon (west of Canyonlands)
- Fell through a crack & a boulder pinned his right hand
- Stuck for 127 hours
- Cut off arm below elbow
- Taken by helicopter to Moab Hospital

# Blue John Canyon



# BETWEEN A ROCK AND A HARD PLACE

THE NEW YORK TIMES BESTSELLER



ARON  
RALSTON

# Green River Overlook



## Green River Overlook

- Major tributary of the Colorado River
- Starts in central Wyoming
- Meets Colorado River in Canyonlands National Park

# Grand View Overlook



## Grand View Overlook

- Elevation: 6000 feet
- Canyon below: 3800 feet
- End of the paved roads in the park
- Green River to right
- Colorado River to left
- Meet in the middle



????



# Butch Cassidy & the Sundance Kid



## Butch Cassidy

- 1866-1908
- Train robber, bank robber, cattle rustler, horse thief
- Leader of “The Wild Bunch”
- Loosely organized outlaw gang operating out of the Hole-in-the-Wall in Wyoming
- Most successful train robbery gang in US history
- Butch & The Sundance Kid escaped to South America
- Killed in shootout with Bolivian police

# Robbers Roost, Utah



## Robber's Roost

- Robber's hideout
- Considered ideal because of the rough terrain
- Easy to defended
- Difficult to navigate into without detection
- Perfect for when the gang needed a month or longer to rest & lie low following a robbery

# Capitol Reef National Park





## Capitol Reef NP

- National Park status: 1971
- 60 miles long (N/S), 6 miles wide (E/W)
- 100-mile long earth crust upthrust called “Waterpocket Fold”
- 65 million years ago, continental plates collided and warped the earth’s crust
- New and old rocks folded over each other in an S-shape
- Erosion exposed folds over time



# Waterpocket Fold



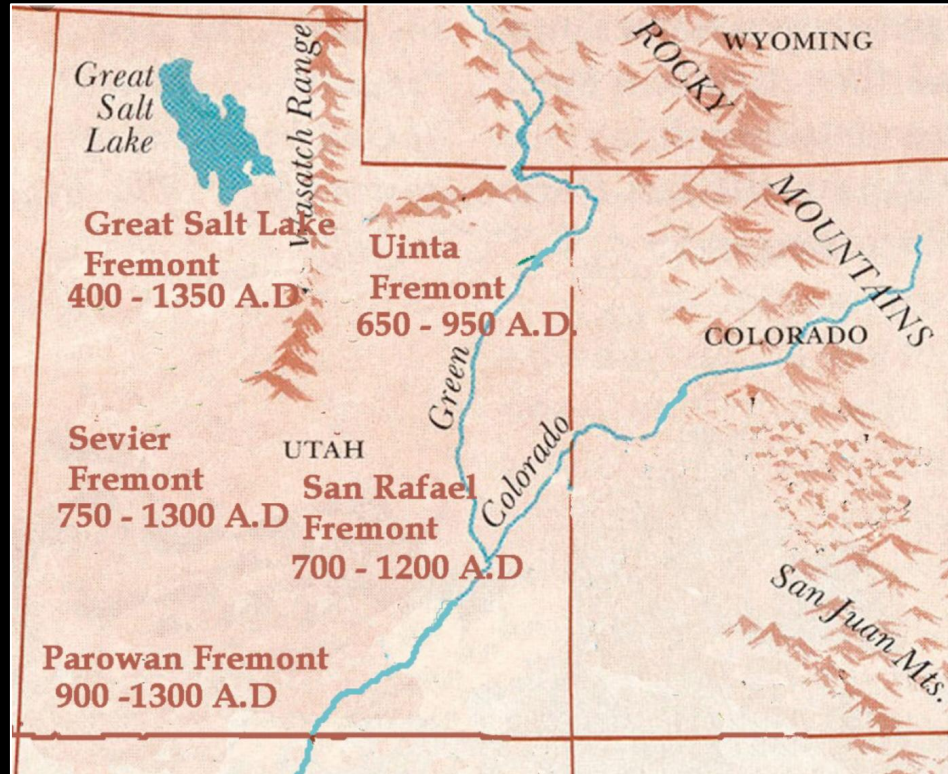
## Capitol Reef NP

- “Capitol Reef” is a particularly rugged section of Waterpocket Fold
- Capitol: named for white Navajo Sandstone dome formations (Looks like US Capitol building domes)
- Reef: named for barrier obstructing travel (First paved road in 1962)

# “Capitol” Domes



# Fremont Native Americans



## Frémont Native Americans

- Utah Native Americans from pre-recorded history
- 600 AD - 1300 AD
- Disappeared from region
- Contemporaries of the Ancestral Puebloan people
- Named for Frémont River in central Utah
- Left petroglyphs throughout the state

# Fremont Petroglyphs



## Petroglyphs

- Pictographs: painted on walls (usually caves)
- Petroglyphs: carved or pecked into rock
- Designs: people, animals, geometric shapes
- Meaning: unknown

Religious event? Migrations? Hunting trips? Travel routes?  
Celestial information? Resource locations? Aliens?

# Scenic Byway 12





## Scenic Byway 12

- 122 mile scenic road
- Capitol Reef NP to Bryce Canyon NP
- Views of Capitol Reef, Waterpocket Fold, Henry Mountains, Grand Staircase-Escalante
- Lots of windy roads and scenic pullouts
- Regularly on “Top Scenic Drive of America” lists

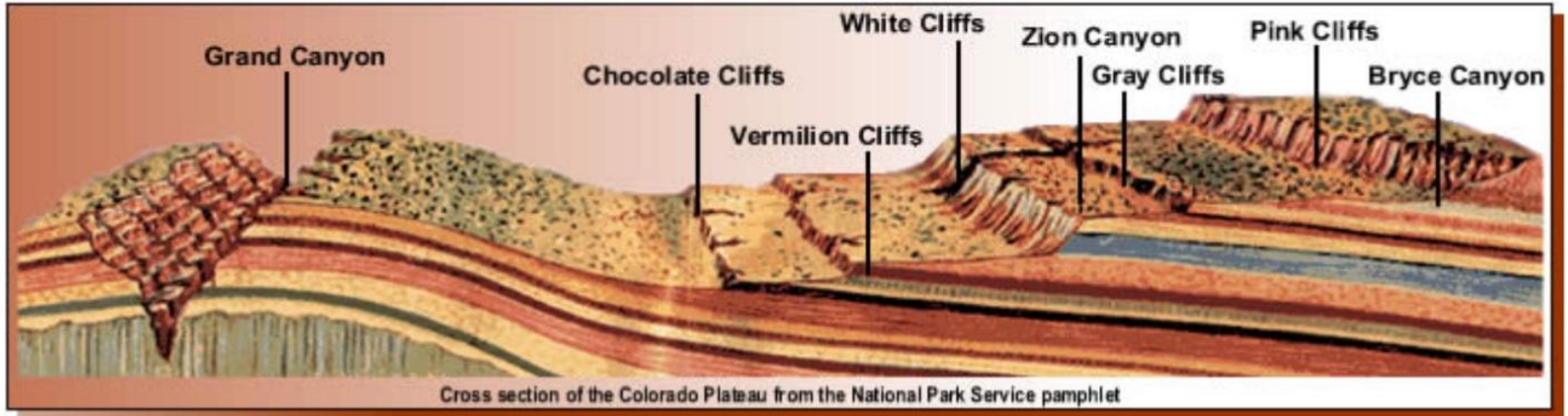
# Grand Staircase Escalante NM



## Grand Staircase Escalante

- National Monument status: 1996
- 1 million acres of southern Utah
- Contains parts of Grand Staircase formation & Escalante River
- Managed by the Bureau of Land Management rather than NPS
- Controversy: Dec 4, 2017, President Trump ordered National Monument land reduction by 47%
- Being sued by several conservation groups claiming a president has no legal right to shrink a National Monument

# Grand Escalante Staircase



# Bryce Canyon National Park



## Bryce Canyon National Park

- 1928
- High elevation: 8000-9000 feet (2400-2700 m)
- Not technically a canyon
- Collection of giant natural amphitheaters along side of Paunsaugunt Plateau
- 56 sq miles (145 sq km)
- Not a large park, but impactful due to brilliant orange pinnacles

## Bryce Canyon People History

- Native Americans 10,000 years
- 1300+ Paiute
- 1850s Mormon Settlements
- 1874 - Ebenezer Bryce built a homestead

## Bryce Canyon Geology

- Not carved by flowing water
- Mostly ice erosion and rainfall
- High elevation = cold temps = ice & frost
- Water seeps into cracks, freezes, ice expands, pieces fall off
- Summer rains wash debris down cliff



# Bryce Canyon Geology



# Hoodoo



## Hoodoo

- Red rock is soft sandstone
- White rock is harder limestone (acts as cap protecting sandstone below)
- Can be as tall as 200 feet (60 m)
  
- Paiutes: “Red rocks standing like men”
- Legend: people were tricked by trickster god & turned into stone
- Possibly as punishment for living “too heavily” on the land

# Rainbow Point



## Rainbow Point

- End point of 18-mile scenic drive
- Highest elevation in park - 9105 feet (2775 m)
- Can see 20 miles of Bryce Canyon
- Vermillion Cliffs, White Cliffs, Henry Mountains

# Bryce Point



## Bryce Point

- View of Bryce Amphitheater (park's largest)
- 12 miles long
- 3 miles wide
- 800 feet deep

# Inspiration Point





## Inspiration Point

- Kristin's favorite viewpoint
- Biggest bang-for-your-buck photo stop

# Ruby's



## Ruby's

- History: 1916, Reuben C. (Ruby) Syrett
- 2 Restaurants
  - Cowboy Buffet & Steak Room
  - Canyon Diner (fast food - next door)
- General Store
- Gift Shop

# Zion National Park



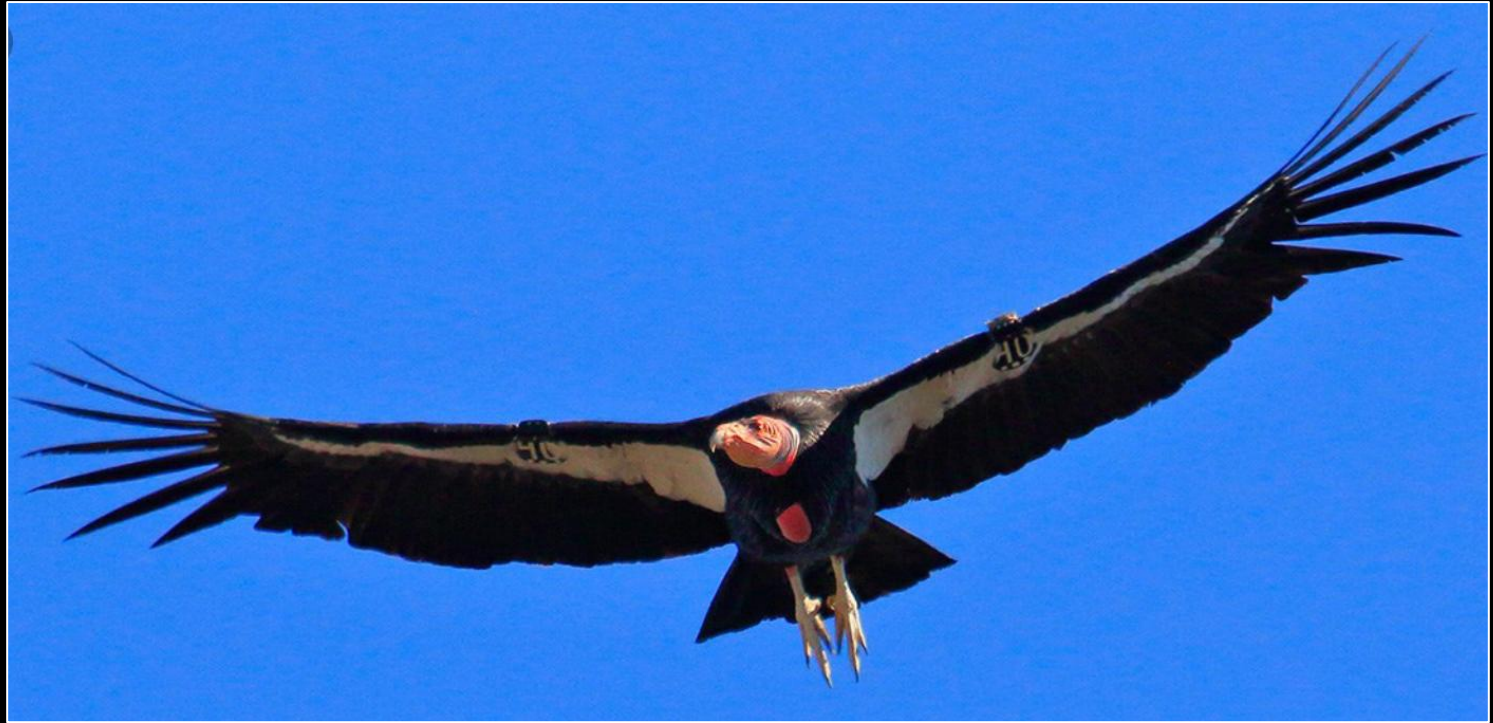
## Zion National Park

- 1919
- 229 sq miles (590 sq km)
- Zion Canyon: 15-miles of towering red sandstone & white limestone cliffs carved by Virgin River
- River: 4000 feet - Rock formations: 7000+ feet
- Hanging Gardens: water seeps through rock, plants grow high
- Early settlers named the valley and many of the formations (Court of the Patriarchs, West Temple, Great White Throne)
- Main park road closed to private vehicle traffic - Park Shuttles and trams, only

# Virgin River



# Condors



# Condors





## Condors

- Largest land bird in North America
- Wing span: 9 feet (3 m)
- Black with bald head
- Scavenger
- Extinct in wild 1987, 22 in captivity
- 1990s reintroduced in wild
- Today: 446 total, 276 wild, 170 captivity

# Las Vegas, Nevada



## Las Vegas:

- Name: Spanish for “the meadows”
- Natural oasis in the Mojave Desert
- 1905 - Railroad depot (Los Angeles to Salt Lake City)
- 1930 - Hoover Dam construction begins (20 miles away)
- 1946 - Bugsy Siegel: The Flamingo
- 1950s-1960s - Rat Pack era

## Las Vegas:

- Food (buffets & celebrity chefs)
- Shows (Cirque du Soleil)
- Concerts (super star residencies)
- Conventions
- Weddings
- “What happens in Vegas, stays in Vegas”

# Fremont Street Experience



# Bellagio Water Fountains



# New York, New York



# Venetian





# Las Vegas Sign



# High Roller



# Mob Museum



# Neon Museum



**Wonders of the  
American West  
Slide Show**