# National Parks Data Set

## Data Source and Collection Method

NPS Lands

The main visitation data was pulled from <https://irma.nps.gov/STATS/Reports/National>, the government website of the National Parks Service. The website has multiple reports that can be run based on many criteria. I pulled data from the report “Query Builder for Public Use Statistics (1979 – Last Calendar Year)”. Specifically, the fields I pulled are outlined below.

* Select Years: 1979-2021
* Select Region: Northeast, Midwest, Intermountain, Alaska, National Capital, Southeast, Pacific West
* Select Addition Fields: Park Type, Region, State, Unit Code
* Select Month: Jan - Dec
* Select Park Type: All
* Select Field Names: Recreation Visits, Recreation Hours, , Tent Campers, RV Campers, Backcountry Campers

Shape of dataset is (174,665 rows, 12 columns)

This dataset includes 391 different parks categorized into 18 different classifications. All parks and types are listed in Appendix A.

NSP Locations

The geographical coordinates for the data were pulled from GeoJSON file on the NPS website: <https://public-nps.opendata.arcgis.com/datasets/nps::nps-land-resources-division-boundary-and-tract-data-service/explore?layer=0&location=1.929672%2C-12.497900%2C2.54>

## Contents

NPS Lands

This dataset includes visitation data for all NPS Lands from 1979 to 2021

|  |  |  |
| --- | --- | --- |
| ParkName | object | Name of national park or monument |
| UnitCode | object | A 4 letter code specific to each park |
| ParkType | object | Either national park or national monument |
| Region | object | Country region park is located |
| State | object | State park is located |
| Year | int | Year of visitation statistics, 1979 to 2021 |
| Month | int | Month of visitation statistics, 1 to 12 |
| RecreationVisits | int | Number of recreational visitors |
| RecreationHours | int | Number of hours recreational visitors spent in the park |
| TentCampers | int | Number of tent campers |
| RVCampers | int | Number of recrational vehicle (RV) campers |
| BackcountryCampers | int | Number of backcountry campers |

Park Locations

This dataset includes the latitude and longitude for all parks. The columns are outlined in the table below.

|  |  |  |
| --- | --- | --- |
| ParkName | object | Name of NPS Land Unit |
| Latitude | float | Latitude of unit |
| Longitude | float | Longitude of unit |

## Data Cleaning

NPS Lands

In Excel

1. National Park for American Samoa had data from 2002-2021 but was missing 2004 and 2005. After an internet search to make sure the park was open those years I inserted 24 rows, 12 months for each year, and populated with an average of 2002, 2003, 2006, and 2007.
2. Katmai National Park had data from 1980 to 2021 but was missing 1996. After an internet search to make sure the park was open that year, I inserted 12 rows and populated with average of 1994, 1995, 1997, and 1998.
3. Buck Island Reef National Monument had data from 1979 to 2021 but was missing 1999, 2000, and 2001. After an internet search to make sure the park was open those years, I inserted 36 rows and populated with average of 1997, 1998, 2002, and 2003.
4. Aniakchak National Monument had data from 1989 to 2021 but was missing 1996 and 1997. After an internet search to make sure the park was open those years, I inserted 24 rows and populated with average of 1994, 1995, 1998, and 1999.
5. Channel Islands National Park had data from 1979 to 2021 but was missing month 12 of 2005. After an internet search to make sure the park was open that month, I inserted 1 row and populated with an average of 2003, 2004, 2006, 2007 month 12.

In total this added 97 rows which is acceptable given the total rows is over 174,000 and the values are averages of other years. That change was made so counts of number of parks would be accurate over the years.

In Python

1. Checked data types
2. Checked for mixed data types
3. Checked for null values
   1. Found rows without State
   2. Googled parks, found what state they were in
   3. Replaced Nulls with correct state
4. Ran descriptive statistics and found min values < 0 for 4 columns
   1. Took average of surrounding 4 years to replaced negative numbers with average
5. Created CampFlag column for later analysis of what parks allow camping
6. Create AnnualRecVisits column with total number of visitors per park per year.
7. Create MonthlyPctOfAnnualRecVisits column with percent of visitors that visited in each month.
8. Merge NP Locations to get coordinates of all NPS Lands
9. Many National Parks that gained the National Parks designation after 1979 are categorized as National Parks from1979 to 2021. For example, White Sands National Park only gained the National Parks status in 2019 but in the data set it is listed as a national park from 1979. To correct this, I updated years prior to becoming a national park with the correct park type.
10. Exported files as .csv, ‘Parks Clean’, ‘Location Clean’, and ‘Parks and Location’.

## Data Ethics

These data sets have no ethical issues. The visitation statistics are numerical counts, no names or personal information used. The locations of the parks are public knowledge.

## Questions to Explore

Which parks, states, or regions have the most annual visitors?

Which parks, states, or regions have the highest recreation hours per visitor?

* Do these parks also have higher backcountry campers?

How much does seasonality affect visitation?

* Does the park region affect seasonal visitation?

How does mode of camping (tent, RV, backcountry) differ among parks, regions, season?

How has visitation changed over time?

What parks have seen the fastest growth?

## Appendix A

|  |  |
| --- | --- |
| ParkType | Number of Parks |
| International Historic Site | 1 |
| National Battlefield | 10 |
| National Battlefield Park | 4 |
| National Historic Site | 73 |
| National Historical Park | 55 |
| National Lakeshore | 3 |
| National Memorial | 32 |
| National Military Park | 9 |
| National Monument | 73 |
| National Park | 63 |
| National Parkway | 4 |
| National Preserve | 10 |
| National Recreation Area | 18 |
| National Reserve | 1 |
| National River | 4 |
| National Seashore | 10 |
| National Wild & Scenic River | 8 |
| Park (Other) | 13 |

List of all parks included in this analysis:

Abraham Lincoln Birthplace NHP, Acadia NP, Adams NHP, African Burial Ground NM, Agate Fossil Beds NM, Alagnak Wild River, Alibates Flint Quarries NM, Allegheny Portage Railroad NHS, Amistad NRA, Andersonville NHS, Andrew Johnson NHS, Aniakchak NM & PRES, Antietam NB, Apostle Islands NL, Appomattox Court House NHP, Arches NP, Arkansas Post NMEM, Arlington House The R.E. Lee MEM, Assateague Island NS, Aztec Ruins NM, Badlands NP, Bandelier NM, Belmont-Paul Women's Equality NM, Bent's Old Fort NHS, Bering Land Bridge NPRES, Big Bend NP, Big Cypress NPRES, Big Hole NB, Big South Fork NRRA, Big Thicket NPRES, Bighorn Canyon NRA, Biscayne NP, Black Canyon of the Gunnison NP, Blue Ridge PKWY, Bluestone NSR, Booker T. Washington NM, Boston African American NHS, Boston Harbor Islands NRA, Boston NHP, Brown v. Board of Education NHS, Bryce Canyon NP, Buck Island Reef NM, Buffalo NR, Cabrillo NM, Camp Nelson NM, Canaveral NS, Cane River Creole NHP, Canyon de Chelly NM, Canyonlands NP, Cape Cod NS, Cape Hatteras NS, Cape Krusenstern NM, Cape Lookout NS, Capitol Reef NP, Capulin Volcano NM, Carl Sandburg Home NHS, Carlsbad Caverns NP, Carter G. Woodson Home NHS, Casa Grande Ruins NM, Castillo de San Marcos NM, Castle Clinton NM, Catoctin Mountain Park, Cedar Breaks NM, Cesar E. Chavez NM, Chaco Culture NHP, Chamizal NMEM, Channel Islands NP, Charles Pinckney NHS, Charles Young Buffalo Soldiers NM, Chattahoochee River NRA, Chesapeake & Ohio Canal NHP, Chickamauga & Chattanooga NMP, Chickasaw NRA, Chiricahua NM, Christiansted NHS, City of Rocks NRES, Clara Barton NHS, Colonial NHP, Colorado NM, Congaree NP, Coronado NMEM, Cowpens NB, Crater Lake NP, Craters of the Moon NM & PRES, Cumberland Gap NHP, Cumberland Island NS, Curecanti NRA, Cuyahoga Valley NP, Dayton Aviation Heritage NHP, De Soto NMEM, Death Valley NP, Delaware Water Gap NRA, Denali NP & PRES, Devils Postpile NM, Devils Tower NM, Dinosaur NM, Dry Tortugas NP, Dwight D. Eisenhower MEM, Edgar Allan Poe NHS, Effigy Mounds NM, Eisenhower NHS, El Malpais NM, El Morro NM, Eleanor Roosevelt NHS, Eugene O'Neill NHS, Everglades NP, Federal Hall NMEM, Fire Island NS, First Ladies NHS, Flight 93 NMEM, Florissant Fossil Beds NM, Ford's Theatre NHS, Fort Bowie NHS, Fort Caroline NMEM, Fort Davis NHS, Fort Donelson NB, Fort Frederica NM, Fort Laramie NHS, Fort Larned NHS, Fort Matanzas NM, Fort McHenry NM & HS, Fort Necessity NB, Fort Point NHS, Fort Pulaski NM, Fort Raleigh NHS, Fort Scott NHS, Fort Smith NHS, Fort Stanwix NM, Fort Sumter and Fort Moultrie NHP, Fort Union NM, Fort Union Trading Post NHS, Fort Vancouver NHS, Fort Washington Park, Fossil Butte NM, Franklin Delano Roosevelt MEM, Frederick Douglass NHS, Frederick Law Olmsted NHS, Fredericksburg & Spotsylvania NMP, Friendship Hill NHS, Gates of the Arctic NP & PRES, Gateway Arch NP, Gateway NRA, Gauley River NRA, General Grant NMEM, George Rogers Clark NHP, George Washington Birthplace NM, George Washington Carver NM, George Washington MEM PKWY, Gettysburg NMP, Gila Cliff Dwellings NM, Glacier Bay NP & PRES, Glacier NP, Glen Canyon NRA, Golden Gate NRA, Golden Spike NHP, Governors Island NM, Grand Canyon NP, Grand Portage NM, Grand Teton NP, Grant-Kohrs Ranch NHS, Great Basin NP, Great Sand Dunes NP & PRES, Great Smoky Mountains NP, Greenbelt Park, Guadalupe Mountains NP, Guilford Courthouse NMP, Gulf Islands NS, Hagerman Fossil Beds NM, Haleakala NP, Hamilton Grange NMEM, Hampton NHS, Harpers Ferry NHP, Harry S Truman NHS, Hawaii Volcanoes NP, Herbert Hoover NHS, Home of Franklin D. Roosevelt NHS, Homestead NHP, Hopewell Culture NHP, Hopewell Furnace NHS, Horseshoe Bend NMP, Hot Springs NP, Hovenweep NM, Hubbell Trading Post NHS, Independence NHP, Indiana Dunes NP, Isle Royale NP, James A. Garfield NHS, Jean Lafitte NHP & PRES, Jewel Cave NM, Jimmy Carter NHP, John D. Rockefeller, Jr. MEM PKWY, John Day Fossil Beds NM, John F. Kennedy Center For Pa, John F. Kennedy NHS, John Muir NHS, Johnstown Flood NMEM, Joshua Tree NP, Kalaupapa NHP, Kaloko Honokohau NHP, Katahdin Woods and Waters NM, Katmai NP & PRES, Kenai Fjords NP, Kennesaw Mountain NBP, Keweenaw NHP, Kings Canyon NP, Kings Mountain NMP, Klondike Gold Rush NHP Alaska, Klondike Gold Rush NHP Seattle, Knife River Indian Villages NHS, Kobuk Valley NP, Korean War Veterans Memorial, Lake Chelan NRA, Lake Clark NP & PRES, Lake Mead NRA, Lake Meredith NRA, Lake Roosevelt NRA, Lassen Volcanic NP, Lava Beds NM, LBJ Memorial Grove on the Potomac, Lewis & Clark NHP, Lincoln Boyhood NMEM, Lincoln Home NHS, Lincoln Memorial, Little Bighorn Battlefield NM, Little River Canyon NPRES, Little Rock Central High School NHS, Longfellow House Washington's HQ NHS, Lowell NHP, Lyndon B. Johnson NHP, Maggie L. Walker NHS, Mammoth Cave NP, Manassas NBP, Manhattan Project NHP, Manzanar NHS, Marsh-Billings-Rockefeller NHP, Martin Luther King, Jr. Memorial, Martin Luther King, Jr. NHP, Martin Van Buren NHS, Mary McLeod Bethune Council House NHS, Medgar and Myrlie Evers Home NM, Mesa Verde NP, Minidoka NHS, Minute Man NHP, Minuteman Missile NHS, Mississippi NRRA, Missouri NRR, Mojave NPRES, Monocacy NB, Montezuma Castle NM, Moores Creek NB, Morristown NHP, Mount Rainier NP, Mount Rushmore NMEM, Muir Woods NM, Natchez NHP, Natchez Trace PKWY, National Capital Parks Central, National Capital Parks Combined, National Capital Parks East, National Park of American Samoa, Natural Bridges NM, Navajo NM, New Bedford Whaling NHP, New Orleans Jazz NHP, New River Gorge NP & PRES, Nez Perce NHP, Nicodemus NHS, Ninety Six NHS, Niobrara NSR, Noatak NPRES, North Cascades NP, Obed W&SR, Ocmulgee Mounds NHP, Oklahoma City NMEM, Olympic NP, Oregon Caves NM & PRES, Organ Pipe Cactus NM, Ozark NSR, Padre Island NS, Palo Alto Battlefield NHP, Paterson Great Falls NHP, Pea Ridge NMP, Pearl Harbor NMEM, Pecos NHP, Pennsylvania Avenue NHS, Perry's Victory & Intl. Peace MEM, Petersburg NB, Petrified Forest NP, Petroglyph NM, Pictured Rocks NL, Pinnacles NP, Pipe Spring NM, Pipestone NM, Piscataway Park, Point Reyes NS, Port Chicago Naval Magazine NMEM, President W.J. Clinton Birthplace Home NHS, President's Park, Prince William Forest Park, Pu'uhonua o Honaunau NHP, Pu'ukohola Heiau NHS, Rainbow Bridge NM, Redwood NP, Richmond NBP, Rio Grande W&SR, River Raisin NBP, Rock Creek Park, Rocky Mountain NP, Roger Williams NMEM, Rosie The Riveter WWII Home Front NHP, Ross Lake NRA, Russell Cave NM, Sagamore Hill NHS, Saguaro NP, Saint Croix Island IHS, Saint Croix NSR, Saint Paul's Church NHS, Saint-Gaudens NHP, Salem Maritime NHS, Salinas Pueblo Missions NM, Salt River Bay NHP & Ecological Pres, San Antonio Missions NHP, San Francisco Maritime NHP, San Juan Island NHP, San Juan NHS, Sand Creek Massacre NHS, Santa Monica Mountains NRA, Saratoga NHP, Saugus Iron Works NHS, Scotts Bluff NM, Sequoia NP, Shenandoah NP, Shiloh NMP, Sitka NHP, Sleeping Bear Dunes NL, Springfield Armory NHS, Statue of Liberty NM, Steamtown NHS, Stones River NB, Stonewall NM, Sunset Crater Volcano NM, Tallgrass Prairie NPRES, Thaddeus Kosciuszko NMEM, Theodore Roosevelt Birthplace NHS, Theodore Roosevelt Inaugural NHS, Theodore Roosevelt Island, Theodore Roosevelt NP, Thomas Edison NHP, Thomas Jefferson MEM, Thomas Stone NHS, Timpanogos Cave NM, Timucuan EHP, Tonto NM, Tule Springs Fossil Beds NM, Tumacacori NHP, Tuskegee Airmen NHS, Tuskegee Institute NHS, Tuzigoot NM, Ulysses S. Grant NHS, Upper Delaware S&RR, Valles Caldera NPRES, Valley Forge NHP, Vanderbilt Mansion NHS, Vicksburg NMP, Vietnam Veterans MEM, Virgin Islands NP, Voyageurs NP, Waco Mammoth NM, Walnut Canyon NM, War in the Pacific NHP, Washington Monument, Washita Battlefield NHS, Weir Farm NHP, Whiskeytown NRA, White House, White Sands NP, Whitman Mission NHS, William Howard Taft NHS, Wilson's Creek NB, Wind Cave NP, Wolf Trap NP for the Performing Arts, Women's Rights NHP, World War I Memorial, World War II Memorial, Wrangell-St. Elias NP & PRES, Wright Brothers NMEM, Wupatki NM, Yellowstone NP, Yosemite NP, Yukon-Charley Rivers NPRES, Zion NP.

Note: Of the 130 National Monuments in the United States, only 80 are managed by the National Park Service. Of those 80 National Monuments only 73 have visitation data