

Joshua Tree National Park Wilderness Kit

This activity guide is a free publication that can be reproduced for educational use.

Print the wilderness kit file, which includes the following:

- a. **Introduction**
- b. **Background**
- c. **Activities**
- d. **Scavenger Hunt** (This is the worksheet for the *Investigating the Desert: Science Exploration* activity.)
- e. **Species Cards** (Print the sheets back to back and then cut them on the lines. These cards are used for the *Desert Web of Life* activity.)
- f. **STOP Cards** Print the sheets back to back and then cut them into cards. These 4 cards are used for the *Let's Take a Trip* activity.)
- g. **Wilderness Map**

You will need the following supplies that are not readily available.

- a. A copy of the *Lorax* by Dr. Seuss
- b. A map of California
- c. *Soft Paths Video* (if you visit the park you can call ahead to request that it be shown to your group or order it on-line from www.lnt.org)
- d. *Leave No Trace Booklet* (order from www.lnt.org)
- e. Park Map (information can be obtained on-line at www.nps.gov/jotr or you can pick one up at the park or call 760-367-5500)

If you have questions about the kit, please contact the education office via email at jotr_education@nps.gov or by phone at 760-367-3011 Or 3012.



Desert Wilderness

Joshua Tree National Park's Wilderness Kit



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The Wilderness Kit

This kit is designed to assist individuals bringing students in upper elementary grades through high school to Joshua Tree National Park for a visit. Materials are intended for use with the lesson plans in this book.

Purpose of this Kit

Many visitors to Joshua Tree National Park are not sure how to visit the desert without harming it. The kit is designed to help youth group leaders in preparing for a visit to Joshua Tree and to give these leaders activities that they can use during their visit.

How to Use this Kit

It is suggested that all parts of the kit be used to assist with a visit. However, we realize that time may not allow for use of the activities. Leaders are encouraged to explore the section that they feel will be of the most help to the youth.

Activities labeled pre-visit are meant to be used before a visit to the park. These activities can be done in the park, if necessary.

All other activities are meant to be completed in the park during a visit. Leaders are encouraged to use a nature journal to help youth explore the desert environment by recording their thoughts and drawing what they observe.

Visiting the Park

Remember: while visiting a national park, take only pictures or drawings and leave only footprints. National parks are protected and preserved areas. All natural, cultural, and historic items must be left where they are found. If every visitor coming to a national park took a piece of the park home like a rock or plant, etc., eventually there would be nothing left for future visitors to see. A park could be abolished if this happened and this has happened thirteen times in U.S. history. National parks are here for present and future generations to enjoy in a manner that will ensure they will be here for “all time.”

Please pick up all trash and place in trash or recycling bins. When driving, please stay on established roads. Going off-road destroys vegetation that animals need in order to survive. It can take up to 50 years for the desert to repair damage done by vehicles. All pets must be on a leash and are allowed only in campgrounds, picnic areas, and within 100 feet of roadways. The Oasis of Mara Nature Trail in 29 Palms is the only trail where pets are allowed in the park.

How the Kit is Organized

The kit is divided into six sections. The first two sections are background information for use by leaders and students when doing research for activities. The remaining four sections are the activities. They deal with 1) the idea and value of wilderness, 2) the park's wilderness, 3) ethics when visiting wilderness, and 4) Joshua Tree National Park information on plants, animals, and cultural/historic resources to study.

Each section has three activities. The activities list the theme, objectives, materials needed, materials included in the kit, how to do each activity, and high school extensions.

The side section on each page is for your use in making notes or adding ideas.

If you have questions, feel free to contact the park's Education Outreach Office. The staff will assist you in answering your questions.

Enjoy your visit to Joshua Tree National Park.

For More Information

General Park Information: (706) 367-5500

Education Outreach Office and questions on the kit: (760) 365-2371

Please explore the park's webpage at:

www.nps.gov/jotr

Wilderness: A Background

Roderick Nash, wilderness historian, tells us that wilderness is a difficult word to define. While the word is a noun, it can be used as an adjective. There is no specific material object that is “wilderness” and is no universal definition of wilderness. He believes that wilderness is so heavily weighted with personal, symbolic, and emotional meaning that it is difficult to define.

In the early Teutonic and Norse languages, from which the English language developed, the root word “will” meant “self-willed, willful, or uncontrollable.” From “willed” came the adjective “wild,” used to convey the idea of “being lost, unruly, disordered or confused.” Initially applied to human conduct, the term was extended at some point to include wildlife or wild animals that were “beyond the control of man.” Other Europeans defined wilderness as “deserted places” and “lacking in cultivation.” The idea of a place inhabited by wild beasts implied the absence of humans, and wilderness was conceived of as a region where a person was likely to get into a “disordered, confused, or wild condition.”

Even in today’s dictionaries, wilderness is defined as uncultivated and undeveloped land. The absence of humans and the presence of wild animals is a common, modern-day perception. The word also designated other non-human environments, such as the ocean and, more recently, outer space. The usual dictionary definition of wilderness implies “hostility on man’s part,” but the term has also developed positive connotations. On one hand, wilderness is “inhospitable, alien, mysterious, and threatening.” On the other, it is “beautiful, friendly, and capable of elevating and delighting us.”

Today, some define wilderness as a sanctuary in which those in need of consolation can find respite from the pressures of civilization. Bob Marshall, champion for wilderness, believed that wilderness should be an area so large that “it could not be traversed without mechanical means in a single day.” Aldo Leopold, wilderness visionary, set his standard at an area’s ability to “absorb a two weeks’ pack trip.” A century-old movement to protect wild country reached its peak with the creation of a National Wilderness Preservation System, passed into law by Congress as the **Wilderness Act of 1964**. According to its authors, the **Wilderness Act** defined wilderness “in contrast with those areas where man and his own works dominate the landscape, as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.” The act went on to

require that wilderness retain “its primeval character and influence” and that it be protected and managed in such a way that it “appears to have been affected primarily by the forces of nature.”

Some Native American cultures do not have a word for wilderness nor do they officially protect land as wilderness. They believe all land should be respected and used only for survival, whether it be physical or spiritual. If asked, everyone would have a different and unique definition of what wilderness means.

Credit: *Wilderness and the American Mind*, Roderick Nash, Yale University Press, 1982.

What is Wilderness?

Wilderness is a place where the imprint of humans usually goes unnoticed. It is where natural processes are the primary influences and human activity is limited to primitive recreation and minimal tools. This allows us to experience wild places without disturbing or destroying natural processes. Change will occur primarily through natural disturbances and minimal human influences.

Is it a law?

YES. In 1964 the Congress of the United States passed the **Wilderness Act**, restricting grazing, mining, timber cutting and mechanized vehicles in these areas. They are protected and valued for their ecological, historical, scientific and experiential resources. The law protects these values for future generations.

Who Manages Wilderness?

The National Wilderness Preservation System is managed by the National Park Service, Forest Service, Fish and Wildlife Service, and the Bureau of Land Management. Wilderness, designated by Congress, is one more layer of protection placed on top of the original federal land designation. Although federal agencies are legally responsible for managing Wilderness areas, all citizens play a role. Visitors should be aware of the impact their activities have on our country’s wild lands.

Why do we have to manage Wilderness?

Wilderness management is the regulation of human use and impact in order to preserve the quality, character, and integrity of protected lands. As individuals, our choices and consumption of resources may in some way degrade wilderness qualities such as ecological health, solitude, and aesthetics. Public lands are managed for future generations in the hope of having places that remain undisturbed for centuries, not just decades. In order to keep Wilderness wild, people need to ensure that social and individual practices, both inside and beyond Wilderness areas, do not cause changes that will destroy the resources.

What are the threats to Wilderness?

There are many issues in Wilderness. What is a minimal tool? What is primitive? What is Wilderness character and integrity? What is solitude? How do we manage threats, like air pollution, that are outside Wilderness? In many cases, societal pressures have the most significant effect upon wildland resources. Resource managers are discovering the connection between society and Wilderness areas. For instance, pollution sources in cities can disturb plant and aquatic life in seemingly distant and separate Wilderness areas.

Due to economic growth that accompanies a growing population, federal agencies are facing many of these potential threats to Wilderness areas. These include: 1) the loss of character, quality and integrity of Wilderness; 2) the loss of or threats to biological/ecological processes and biodiversity from human disturbances; 3) the soil compaction, vegetation loss or disturbance, and the influx of non-native species, on trails and campsites; 4) crowding and the loss of solitude; 5) the deterioration of water quality from improper disposal of human waste and waste water; 6) air pollution from outside sources; 7) the interruption of naturally functioning ecosystems by fire suppression activities; and 8) the threat to native plant species from the spread of noxious weeds from sources outside wilderness boundaries.

So what can I do?

Everyone has a role to play in protecting and managing Wilderness. By exercising the right to vote and understanding the effects of one's actions while visiting Wilderness, one can help reduce threats to wild areas.

Why Wilderness ?

The preservation of wild lands is uniquely

American. Our first contact with the "New World" exposed us to the culture of the American Indians and their intimate knowledge of the natural world. Toward the end of the 19th century, with the closing of the frontier, forward-looking individuals such as John Wesley Powell, John Muir, and Gifford Pinchot contributed their ideas to the conservation of public lands. They and others recognized that resources were limited. Settlement of the West, whose economy was based on natural resources, required conservation practices in order to preserve those resources. Arguments were made for the preservation of land for non-extractive purposes and laws were passed that leave us with a treasure of undisturbed wild lands.

Throughout recent history, Western European cultures have tended to maintain a distinct separation between the land and our human existence. Many people are beginning to see that we cannot separate ourselves from the land. Humans are a part of the natural world, not apart from it. Human habits affect the health of the bigger global environment.

The preservation of wild lands is a valuable pursuit. Recognizing these diverse values fosters understanding of the natural world. Preserving wilderness may someday be seen as the most important contribution societies have made to the health of the global environment. Listed below are some of the values that illustrate the importance of wilderness.

Reservoirs of Biological Diversity

"The outstanding scientific discovery of the Twentieth Century is not the television, or radio, but rather the complexity of the land organism. Only those who know the most about it can appreciate how little is known about it."
- Aldo Leopold, *A Sand County Almanac* (1949)

Wilderness plays a significant role in the overall health of ecosystems. Rare and endangered plant and animal species require relatively undisturbed habitats. Gene pools can be thus sustained, adaptations can be made, and populations can be maintained. Many rare and endangered species are indicators of ecological health and may play key roles in the balance of the ecosystem. Natural disturbances, such as floods or fires, maintain natural processes and systems. Few places are left where rivers are allowed to flood and trees are allowed to burn. Wilderness provides a place where these natural cycles may occur.

Scientific Value

Wilderness serves as a unique and irreplace-

able “living laboratory” for medical and scientific research. Wilderness also protects geologic resources. Naturally occurring geologic phenomena are protected for present and future generations so that scientists have the opportunity to study them.

Watersheds

Many wilderness areas are located at the headwaters of our river systems. These watersheds provide sources of clean water. Minimal human activity or development in these areas can help to preserve water quality for future generations. Without clean water societies cannot maintain the health of their citizens. The connection between our wilderness areas and our cities is most evident in water issues.

Life Support Systems

Wilderness serves as critical habitat for animal and plant life. Wilderness maintains gene pools that ensure the diversity of plants and animal life. Today, as more is understood about the greenhouse effect and the depletion of the ozone layer, more and more people realize that humanity is part of an interconnected “web of life,” and that the survival of our own species may ultimately depend on the survival of natural areas.

Historic and Cultural Values

Many of the nation’s cultural resources are located in wilderness areas. Artifacts and structures are protected by the Archeological Resources Protection Act or by other laws. When experienced within the context of the wilderness, these features tell a fascinating story about the human relationship with wildlands.

In addition, culture has been shaped by human interaction with wilderness. Our American values of freedom, ingenuity and independence have been affected by the wild environments from which our society was created. Wilderness has been a part of America since its beginnings.

Spiritual Values

The spirit of the land can be understood through the world’s many diverse religious traditions, or through an individual’s direct experience of the land. These wild lands offer opportunities for reflection, observation, exploration of ideas and experiences that can only be found in our wild areas. They have become sacred places for personal growth and understanding of the relationships between humans and the land.

Aesthetic Values

Imagine the sudden change from a hot sunny day to a powerful storm exploding in lightning and roaring thunder; the delightful sound of a trickling stream; the feel of bark from a thousand-year-old Bristlecone pine; the morning light beaming on cliffs and ridges; or a glassy lake reflecting a peak. These moments are unique, whether seen in picture book images or witnessed firsthand. Humans are fascinated by nature perhaps because they are not always in control of it. This is the aesthetic value of wilderness.

Recreation

Many people enjoy the challenges posed by traveling in wilderness areas. Values such as self-reliance and responsibility for oneself may be fostered when engaging in recreational activities in wilderness. Orienteering, finding shelter, hiking and backpacking are some of the activities appropriate to wilderness areas. Lessons of the wild can teach people something about the consequences of their actions and about their relationship to nature.

Refuge

Wilderness serves as a haven from the pressures of our fast-paced industrial society. It is a place where one can seek relief from the noise and speed of machines, the confines of urban living, and the crowded conditions of city life.

Educational Values

Wilderness areas can be used as living classrooms. Knowledge and understanding can emerge from people’s experiences when they interact with the natural environment and reflect on their place in it.

“In Wilderness is the preservation of the world.”

- Henry David Thoreau

“In human culture is the preservation of wilderness.”

- Wendell Berry

This background information is adapted with permission from the Arthur Carhart National Wilderness Training Center’s Wilderness Curriculum and website.

Wilderness in America: A Timeline

The following is only a partial listing of the dates important to wilderness history. These dates are the considered to be the pivotal ones.

1781 Lands west of Appalachians ceded by states to become “public domain”

1802 Louisiana Purchase - President Jefferson commissions Lewis and Clark to explore the Missouri drainage to the Pacific.

1820-30's Peak of fur trade; beaver population declines dramatically.

1832 Frontier artist George Catlin suggests that the government create a preserve to protect “the wild freshness of nature.”

1854 Philosopher Henry David Thoreau, author of *Walden*, writes that wilderness sanctuaries are the “need of civilized man.”

1862 Under President Lincoln, the Homestead Act was passed, making 160 acres of public domain available to every family willing to work the land.

1865 Yosemite becomes the first reserve removed from the public domain, placed under jurisdiction of the State of California for protection as a park.

1872 Yellowstone becomes the first National Park.

1872 Artist Thomas Moran exhibits paintings of Yellowstone, helping to promote establishment of the first national park.

1878 John Wesley Powell, in the “1878 Report on the Lands of the Arid Region of the United States”, calls for more realistic systematic planning for the West and its resources, including the need for public water storage and resource conservation.

1890 Yosemite National Park Bill is passed by Congress and signed into law by President Benjamin Harrison.

1891 The first Forest Reserve System was created.

1892 Sierra Club formed by John Muir and 26 San Francisco residents “to explore, enjoy, and render accessible the mountain regions of the Pacific Coast...and enlist the support and

cooperation of the people and the government in preserving the forests and other natural features of the Sierra Nevada”.

1896 Frederick Jackson Turner asserts, in *The Significance of the American Frontier in American History*, that the frontier no longer exists. Also discusses the role of wilderness in fostering individualism, independence, and thus self-government.

1897 Congress passes the Forest Management Act, opening the forests to timber cutting, mining and grazing. This clarified the difference between preservation and conservation, a polarized view of public resources that still plagues land-use debates.

1903 President Theodore Roosevelt sets aside vast acres of federal land and creates the first national wildlife refuge at Florida's Pelican Island.

1905 Forest Reserves transferred from Department of Interior to the Department of Agriculture, thereby creating the Forest Service. A multiple-use policy was initiated under Gifford Pinchot, the first Forest Service Chief.

1913 A landmark conservation battle is lost when legislation is passed to allow development of a dam at Yosemite's Hetch Hetchy Valley.

1916 National Park Service Organic Act was passed, creating the National Park Service that manages the National Parks.

1919 Arthur Carhart, a Forest Service Landscape Architect, recommends that the Trappers Lake area in Colorado not be developed for summer homes, but allowed to remain wild. His plan is approved

1920 Landscape architect Arthur Carhart proposes the first designation of an undeveloped and roadless area at Trappers Lake in Colorado.

1924 Aldo Leopold, forester and ecologist, persuades the Forest Service to protect the 574,000 acre Gila National Forest of New

Mexico for wilderness recreation.

1926 W.B. Greeley, Chief Forester of the U.S. Forest Service, directs preparation of an inventory of all “de facto” wilderness in the national forests.

1929 The Forest Service issues the L-20 regulation to protect some of its “primitive” areas from commercial development until management plans are developed.

1930 Congress enacts the Shipstead-Newton-Nolan Act to protect over 1 million acres in the Superior Primitive Area in Minnesota—the first federal law in American history to protect a wilderness area.

1934 The Taylor Grazing Act is passed opening public lands to grazing by domestic animals.

1935 The Wilderness Society is formed, led by Bob Marshall, Aldo Leopold and others. Forester Robert Marshall becomes principal founder of the Wilderness Society.

1939 The Forest Service supplants the L-20 regulations with the “U Regulations”. Former “primitive” areas are reclassified as “wilderness,” “wild” or “roadless,” depending on size.

1946 Bureau of Land Management is created by the joining of the Grazing Service and General Land Office.

1950 Conservationists work to prevent construction of a dam at Echo Park in Dinosaur National Monument.

1955 Howard Zahniser, Executive Director of the Wilderness Society, writes first draft of a Wilderness Bill. This Bill would designate lands to be protected from any form of resource extraction.

1955 Sierra Club Executive Director David Brower leads successful opposition to development of Echo Park Dam at Dinosaur N.M.

1956 Senator Hubert Humphrey introduces the first Wilderness bill in the U.S. Senate. Congress preserves Echo Park by passing a bill that prevents any dam from being built in National Parks or Monuments.

1962 Scientist Rachel Carson publishes *Silent Spring*, stirring public consciousness about pesticides and the environment.

1963 U.S. Senate passes the Wilderness Bill.

1964 House of Representatives passes the Wilderness Bill. President Johnson signs the Wilderness Act at a White House garden ceremony on September 3. Authored by Howard Zahniser of the Wilderness Society, the Wilderness Act creates the National Wilderness Preservation System.

1970 Senator Gaylord Nelson founds Earth Day, focusing national attention on the environment.

1970 Petrified Forest N.P. and Craters of the Moon N.M. become the first NPS sites to include designated wilderness areas.

1976 Federal Land Policy and Management Act (FLPMA) passed repealing the Homestead Act and granting the Bureau of Land Management the authority it needed to fully manage its public lands.

1976 Congress designates 420,000 acres of Joshua Tree National Monument as wilderness.

1980 President Jimmy Carter passes the Alaska Lands Act establishing 10 new NPS sites, 9 wildlife refuges, and additional BLM conservation units.

1980 The Wilderness Society establishes the Ansel Adams Conservation Award naming photographer Adams the first recipient.

1994 California Desert Protection Act is passed which established 69 new wilderness areas, mostly on BLM lands. More wilderness acreage is designated to Joshua Tree National Park.

1996 Creation of the Grand Staircase-Escalante N.M. includes 1.7 million acres of the most remote wild lands in the lower 48 states.

1999 President William Clinton proposes a Lands Legacy Initiative including permanent protection to over 5 million acres of NPS wilderness

Background information is reprinted with permission from the Arthur Carhart National Wilderness Training Center's Wilderness Curriculum and website

Joshua Tree National Park

Joshua Tree National Park is located in the Mojave and Colorado Deserts of southern California. The park lies along the east-west transverse ranges of the Little San Bernardino Mountains. The south boundary follows the base of these mountains along the northern perimeter of the Coachella Valley; the Morongo Basin defines the north boundary. The park lies in San Bernardino and Riverside Counties.

Wilderness

Of the park's 792,726 acres, 585,040 acres are legislatively designated as wilderness or potential wilderness and are set aside for the preservation of the most primitive and unconfined forms of recreation. Access is limited to hikers and pack animals and development is generally prohibited.

Features

The transition zone between the Mojave and the Colorado Deserts makes it possible to cross from one desert to the other in less than 65 miles. The park contains all or portions of the Little San Bernardino, Cottonwood, Hexie, Pinto, Coxcomb, and Eagle Mountain ranges. The eastern portion of the park averages 2,000 feet in elevation, while the western half lies primarily above 4,000 feet. Extremes in elevation range from 536 feet at the southern end of the Coxcomb Mountains to 5,814 feet at Quail Mountain. Major valleys include the Pinto Basin, Juniper Flats, Covington Flats, and Pleasant, Queen and Lost Horse Valleys (figure 1).

Joshua Tree has unusual desert plants and animals and spectacular geological formations. The name Joshua Tree signifies that the park has a natural history focus, but the area also has a rich and varied cultural history. Humans, from pre-historic times to the present, have lived in this desert environment.

Park Purpose

On October 31, 1994, Congress established Joshua Tree National Park and abolished the national monument of the same name that had been proclaimed in 1936. In creating Joshua Tree National Park and other Federal reservations in the California desert, Congress intended to:

- preserve the unrivaled scenic, geological, and wildlife values associated with these spectacular natural landscapes,
- perpetuate the significant and diverse ecosystems of the California desert in their natural state,

- protect and preserve historical and cultural values of the California desert associated with ancient Indian cultures and western exploration and settlement,

- preserve sites that exemplify the mining, ranching, and railroading history of the old West,

- provide opportunities for compatible outdoor recreation, protect and interpret ecological and geological features and historic, paleontological, and archeological sites,

- maintain wilderness values,

- promote public understanding and appreciation of the California desert, and

- retain and enhance opportunities for scientific research in undisturbed ecosystems.

The act of August 25, 1916, the Organic Act of the National Park Service (16 USC 1), prescribed that the “fundamental purpose of...parks...is to conserve the scenery and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” In 1970, Congress declared that the Organic Act provisions, including the statement of fundamental purpose, would apply to all areas of the national park system “to the extent that such provisions are not in conflict...” with the statute that specifically applies to that particular area (16 USC 1c[b]).

The vast majority of the land in Joshua Tree National Park is designated by law as wilderness, either by the act of October 20, 1976, or the act of October 31, 1994. The Wilderness Act of 1964 further describes the purpose of wilderness designations, which is to preserve lands in their natural condition “for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness.”

The Wilderness Act defines wilderness as “an area where the earth and its community of life

are untrammelled by man, where man himself is a visitor who does not remain, . . . an area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions . . .” The Wilderness Act also generally prohibits motor vehicles, motorized equipment, mechanized transport, motorboats, permanent roads, temporary roads, landing of aircraft, commercial enterprises, and structures and installations. The act contains some limited exceptions to these prohibitions.

The purpose of Joshua Tree National Park is to preserve the natural and cultural resources of the Mojave and Colorado Deserts so that the resources can be interpreted, understood, and enjoyed by present and future generations.

Resource Significance

Natural Resources

Joshua Tree National Park was originally set aside to preserve an ecologically dynamic component of the California Desert — much more than just Joshua trees. The east-west transverse ranges support examples of Mojave and Colorado Desert ecosystems. The elevations range from almost 6,000 feet to near sea level, which creates an unusual compressed transition zone between the Mojave Desert and the Colorado province of the Sonoran Desert. Early proponents of the monument envisioned a representative segment of the two deserts that would be large enough to embrace a self-sustaining natural system. This system contains biotic and abiotic components that influence each other and are, in turn, influenced by climate, fire, earthquakes, and other natural phenomena. In 1994, the California Desert Protection Act enlarged the monument to include key parts of the transverse ranges so that the park would have ecologically determined boundaries.

The park’s primary natural resources include the Mojave and Colorado Desert vegetative communities and the wildlife that is dependent on them. Most notable are the Joshua tree forests, the fan palm oases, and riparian communities. Animals such as bighorn sheep, desert tortoise, deer, coyote, bobcat, mountain lion and a wide range of birds and reptiles are prominent. Water, in the form of springs and seeps and occasional sheet flows, conserves the plants and wildlife.

There are exceptional geological features in the park. Mountains and basins dominate the landscape. Unusual and attractive rock formations rise from the desert. Natural quiet and clear

night skies are essential for the visitor to realize the beauty and tranquility of the park.

Cultural Resources

The geological and biological diversity of the Joshua Tree area supported early human subsistence. In the post-Pleistocene epoch, the climate was milder and wetter than it is today. The Pinto Basin was a shallow lake 5,000 to 7,000 years ago, which narrowed to a river or stream. The people of the Pinto Basin complex lived along its banks. Because the water and lush vegetation lured animals to the area, big game hunting was the predominant means of subsistence. As the climate changed, the Pinto Basin slowly dried up and populations of animals and people diminished. Human occupancy concentrated outside what is now the park to the palm canyons in the lower valleys and to the cooler mountains. People returned seasonally to trade, hunt, and harvest.

The park contains early Pinto culture sites and traces of other prehistoric and historic American Indian cultures as well as remains of Euro-American gold mining, homesteading, and subsistence cattle ranching. The park is archeologically, ethnographically, and historically diverse and exhibits a continuum of cultural adaptations. There are significant collections of prehistoric and historic American Indian artifacts and late 19th-century and early 20th-century non-Indian artifacts. These artifacts document the park’s importance to east-west migrations from prehistoric times. The remnants of past human occupations illustrate the adaptations that different groups made to live in the arid desert environment.

Recreational Resources

The natural and cultural resources provide outstanding recreational opportunities for the more than 1 million visitors who come to the park annually. Topographic relief and associated changes in temperatures encourage year-round visitor use. The park provides some of the most diverse desert wildflower displays in the southwestern United States. There is also a wide variety of wildlife to observe. Joshua Tree is a popular location for the sightings of particular bird species not easily found elsewhere. Opportunities to see, photograph, and study cultural resources also draw visitors. Old mines, ranches, and prehistoric rock art are all popular sites. Massive boulders and rock outcrops provide some of the best rock climbing in the country. Many families like to camp in the park so that they can scramble on the maze of boulders

nearby. Skilled and novice technical rock climbers from around the world are attracted to the challenging climbing routes.

Wilderness Resources

The wilderness resource is a preeminent feature of the park. Approximately 75 percent of the park has been designated by Congress as wilderness. Wilderness provides an opportunity for recreational experiences that are primitive, nonmechanized, and nonmotorized, such as hiking, horseback riding, and climbing. Such experiences are intended to provide opportunities for solitude. In wilderness, visitors do not remain; they leave the area in an unimpaired state, with little or no trace of their presence.

Primary Interpretative Themes

The following interpretive themes are the most important concepts for visitors to understand about the park:

- Joshua Tree National Park is comprised of two biologically different environments, the Mojave and the Colorado Deserts, that merge within the park boundaries to create an unusual ecological transition zone. Lush palm oases and springs draw importance to the essential nature of water for a healthy, functioning desert ecosystem.
- The Joshua tree, with its unusual shape and adaptation, is a perfect vehicle for understanding the interdependence of organisms living in the desert.
- Plants and animals have evolved to survive in the heat and drought. These adaptations produced an interesting array of life-forms. Humans, from prehistoric times to present, also adapted to an environment with little water. People who have made this area their home adapted and provided a colorful and varied human history.
- The picturesque landscape, including mountain ranges, desert basins, and massive rock outcrops, contributes to the park's significance. The dynamic processes that formed the area, including erosion and earthquakes, continue.
- Deserts have suffered a great deal of human abuse. The arid landscapes are slow to heal, and tracks made by a single vehicle in the desert soil can often be seen for many years. Fragile desert ecosystems survive in a delicate balance. They quickly manifest even the subtle environmental changes brought about by humans. Protection of the California Desert can only be accomplished

from an ecosystem-wide perspective that promotes harmonious relationships between people and the environment. The "leave no trace" ethic must be taught to park visitors.

- Wilderness is an area of special protection affected primarily by the forces of nature. The imprint of human activities is substantially unnoticeable. People are visitors who do not remain. The park offers the opportunity for visitors to experience nearly 600,000 acres in one of the largest wilderness areas remaining in southern California.

There are a number of natural and cultural history interpretive themes in the broader context of the national park system, including plains, plateaus, mesas, cuerdas and hogbacks, mountains, vulcanism, sculpture of the land, caves and springs, paleontological epochs, deserts, streams, cultural development, indigenous people, and European colonial exploration and settlement.

Management Goals

The *General Management Plan* developed goals to achieve the park's purpose. This amendment retains those goals, which are to:

- manage land and wilderness to preserve them unimpaired for future generations,
- participate cooperatively in the preservation of ecological units that extend beyond the park boundary,
- improve knowledge of natural and cultural resources,
- manage visitation more effectively and reduce impacts associated with dispersed and poorly defined visitor use facilities,
- educate park visitors regarding the National Park Service mission and the natural and cultural resources of the park,
- facilitate cooperative planning throughout the California Desert ecosystem with other public agencies and communities,
- improve park circulation with a focus on safety, visual quality, and visitor experience, and
- improve the effectiveness of park operations.

Planning Issues and Management Concerns

Management Zoning

The addition of 234,000 acres to the park required that the National Park Service include that land within the framework of management zones that was established for the former monument. Congress designated certain of the added land as wilderness, which automatically placed it in the wilderness subzone of the natural zone. Some of the land is not wilderness but will not be developed. This land is zoned as the natural environment zone, now referred to as the backcountry transition subzone. Some of the added land could be zoned as developed to accommodate roads. Congress provided for the protection and conduct of special right-of-way activities by the Metropolitan Water District of Southern California (MWD) on some of the added land that is designated as a special use zone.

Visitor Enjoyment

Trails

Inadequate control over the actions of increasing numbers of visitors has resulted in impacts to resources. The proliferation of trails, created not by thought or design but by passage of people or animals, has created a network of often redundant social trails that impact vegetation. The social trails concentrate use in only a small part of the park while other areas, suitable for similar experiences, are ignored. These social trails cause compaction of the soils and denude areas of vegetation. The *Backcountry and Wilderness Management Plan* designates a trail network to minimize such impacts.

Roads

This plan examines more than 100 miles of dirt road or tracks that traverse new land added to the park in 1994. A few were constructed, but most were created by the passage of vehicles. These roads, tracks, and jeep trails often lead to campsites marked by litter, fire rings, circles of compacted soil, areas denuded of vegetation, and hill-climbing areas. Some are in designated wilderness and are automatically closed by law. They are not subject to the decision-making processes of this plan. Others traverse nonwilderness added to the park in 1994. Such roads provide 4-wheel drive access to scenic areas, which could be important to maintain. Holders of valid mining claims or owners of inholdings may have to use dirt roads that could be closed by the wilderness designation or by actions recommended in this plan. Such use would

require National Park Service authorization. This plan determines which roads will remain open to public use.

Climbing

The quartz monzogranite was once a molten mass, which was forced upward or intruded into the overlying older Pinto gneiss. Erosion over the ages has stripped away the overlying gneiss and exposed the monzogranite outcrops for which Joshua Tree National Park is famous. Within the monzogranite, those areas with more widely-spaced joint cracks weather more slowly than others and form the high rock piles, called inselbergs. In some piles, well-defined joint systems are obvious; in other piles, smaller boulders have collapsed and obscured the underlying joint pattern. This geologic activity has made Joshua Tree National Park world renowned for the quality of its rock climbing.

A wide variety of climbing options, ranging from scrambling on the boulders in campgrounds to highly technical climbs, are available in the park. This wide spectrum of climbing opportunities (faces, overhangs, crags, etc.) encompasses all levels of difficulty. Approximately 5,400 routes exist on 700 rock formations and are concentrated over about 100,000 acres. These formations vary in size and can support one to 40 different climbing routes. Many climbs are a mix of crack and face climbing. Baseline data for both the number of routes and the number of named rock formations has been derived by compiling information from Alan Bartlett's rock climbing guides to Joshua Tree National Park and Randy Vogel's *Joshua Tree Climbing Guide*.

When many popular climbing areas, such as Yosemite and Grand Teton National Parks, City of Rocks, etc., are inaccessible because of inclement weather, temperate winters draw climbers from all over the world to Joshua Tree National Park. The Mojave Desert provides exceptional opportunities for solitude and communing with nature while climbing.

The climbing aid that generates the most controversy is bolting. Climbers place bolts for protection when no natural method of protection exists. This type of climbing generally takes place on rock faces devoid of cracks (called face climbing). The placement of permanent expansion bolts in the rocks to facilitate climbs has been practiced at Joshua Tree and other national parks since technical climbing was introduced.

Top roping and clean climbing can provide protection for many climbs. The desire to lead face

routes and the recent development of “sport climbing” requires the use of bolts. One bolt displaces approximately .4 cubic inches of rock. The preliminary analysis of the Joshua Tree National Park Fixed Anchor Survey estimates that there are slightly more than 7,100 bolts in the entire park.

In recent years, climbers have made a serious effort to camouflage bolt hangers and substitute rock-colored chains and/or webbing for the brightly colored webbing historically found at rappel stations. This is being done to lessen visual impacts associated with climbing.

Since February 1993, the park has prohibited new bolts and replacement of existing bolts in wilderness until the completion of the *Backcountry and Wilderness Management Plan*. In permitting recreational activities, including rock climbing, the National Park Service must ensure that no damage to cultural resources occurs and that every effort is made to protect the park’s natural resources and wilderness values.

Automobile Camping

Park regulations require that visitors in automobiles camp only in designated, established campgrounds. This plan examines this policy to determine if automobile camping should be permitted along dirt roads.

Group Sizes, Backcountry Camping, and Area Closures

Group size limits have not been imposed on overnight or day users of the natural zone. This plan determines if group size limits should be adopted to enhance the visitor experience of the backcountry transition and wilderness subzones. A related planning issue involves whether to limit backcountry camping to designated and hardened sites or to permit dispersed camping anywhere in the backcountry under some or no specific restrictions.

The plan adopts areas limited to day use only or closed to public access seasonally or permanently. One area (Keys Ranch) has been closed to all visitors except when accompanied by National Park Service personnel. This restriction is for the protection of cultural resources. Other areas are limited to day use only for the protection of wildlife, park facilities, and historic sites.

The act of November 10, 1978 (16 USC 1a-7[b]), requires that every general management plan prepared by the National Park Service include identification of visitor carrying capacities. The

National Park Service has concluded at this stage in the planning process that insufficient data exists to establish a carrying capacity for the natural zone of the park and for all land added to the park in 1994.

Resource Management Artificial Water Sources

Several artificial water sources (“guzzlers”), primarily for bighorn sheep, are on park land. Two such sources were constructed on former BLM land. There are circumstances under which the artificial manipulation of natural systems could be permissible in the park, including in wilderness. The artificial sources in the park, however, may have been installed without attention to National Park Service management objectives. Some water sources no longer function and have been broken for many years. Other systems may or may not serve their intended purpose. The *Backcountry and Wilderness Management Plan* establishes the need to analyze the four major artificial water sources installed for wildlife in designated wilderness and if such sources should be removed or maintained.

Desert Tortoise

On June 28, 1994, the FWS adopted a recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). The *Desert Tortoise Recovery Plan* recommended that Federal land management agencies, primarily the BLM and the National Park Service, designate desert wildlife management areas (DWMAs) on the land that the agencies administer. A designated DWMA is a geographic area of a prescribed minimum size and general location, arrayed in relationship to other such areas to protect a full complex of desert wildlife, including the desert tortoise.

Although designated desert wildlife management areas are a creation of the *Desert Tortoise Recovery Plan*, their aim is to protect a diverse ecosystem composed of many species at a landscape level. The National Park Service generally refrains from single species management, although species listed under the Endangered Species Act are an exception to this policy. Designation of a management area is more than single species conservation. It emphasizes protection of sensitive as well as nonsensitive components of communities and protects tortoise habitat as well as habitat for other native species.

The *Desert Tortoise Recovery Plan* recommended the kind of activities that should or should not be permitted in a management area to minimize

human impact on the survival of the officially threatened desert tortoise. The *Desert Tortoise Recovery Plan* recommended the designation of a Joshua Tree designated wildlife management area that is largely coterminous with the park. The planning issue involves the extent to which the National Park Service and this draft GMP amendment will seek to implement the *Desert Tortoise Recovery Plan*.

Adjacent Land Use

Developments and other land uses adjacent to the boundary threaten the integrity of the park's resources and wilderness values. Surrounding land use has changed significantly since the 1936 proclamation of the monument. Towns and cities and their associated infrastructure and recreational amenities, interstate and state highways, subdivisions, utility corridors, mining, military facilities, and agricultural interests are now on or near the park boundary. Other concerns include the effects of air and water pollutants, invasion of nonnative species from adjacent land, groundwater drawdown, and noisy overflights that affect wilderness solitude. The park's resources are seriously threatened by illegal activities and uncontrolled access along the boundaries, such as off-road vehicle use, theft of desert vegetation and archeological resources, poaching and reptile collecting, wood cutting, and dumping of hazardous and nonhazardous solid waste.

Joshua Tree National Park has been part of an international biosphere reserve since 1984. Fulfillment of the biosphere reserve concept and long-term protection of ecological units that extend outside of the boundary are made more difficult by land use and development around the park. Congress revised the monument boundaries in 1950 to exclude nearly 250,000 acres to accommodate mineral extraction. The configuration of the 1936 monument that had been designed by biologists to protect the natural systems of two deserts was destroyed in many areas. Congress acted in 1994 to return substantial portions of the land removed in 1950.

The development of the west Mojave and the northern and eastern Colorado coordinated management plans will assist to ensure protection of ecological units in the California Desert. The BLM leads the development of these inter-agency plans with National Park Service participation. These regional plans will adopt the management strategies of this *Backcountry and Wilderness Management Plan* for the sections of those plans that pertain to the park and will meld the appropriate strategies with activities on

adjoining land.

Mining and Abandoned mines

There are 12 patented and 33 unpatented mining claims in the park. The National Park Service is determining the validity of several claims. Anticipated development associated with the claims is minimal. There is no need for Joshua Tree National Park to develop a separate *Minerals Management Plan*. Instead, the *Report on Claim Status for Joshua Tree National Park* was prepared. That report, dated March 26, 1997, lists all claims, pinpoints their general location on master title plats, and provides relevant information.

The National Park Service will manage claims in accordance with the regulations at 36 CFR part 9, subpart A and the NPS *Guide to Managing Mining Claims*. All operations in connection with a claim require an NPS-approved plan of operations. Operations include access to a claim other than by foot or pack animal. Prior to approving operations in connection with claims, the National Park Service will first determine if unpatented claims are valid. This requirement does not apply to the 12 patented claims. For any operation that merits National Park Service approval, the National Park Service would first seek to acquire the claim. Any operator meeting National Park Service standards must also be in full compliance with laws of the state of California and the counties of Riverside and San Bernardino. Approved operations would be governed under the 9A standards, which require a bond and reclamation. The bond would always be posted with the Secretary of the Interior or his designee, the Superintendent of Joshua Tree National Park.

Abandoned mines are a minerals management issue. The most significant of the mines is an MWD gravel pit, approximately 20 acres in size, in the east Coxcomb Mountains. Ownership of this land may soon pass to the National Park Service. Many other small scars remain from decades of mining.

Park Background Information is from *Joshua Tree National Park General Management Plan* and *Joshua Tree National Park Backcountry Management Plan*

Nature Journal

Theme:

Students will record their observations in a journal they have either made themselves or decorated themselves. By using the journal regularly they will develop their powers of observation and be able to draw some conclusions about patterns in nature (or lack thereof) based on their own observations.

Objectives:

Students will be able to:

1. Record the date, time, site, and weather conditions when making a journal entry.
2. Establish a routine whereby they are regularly recording observations either at the same site or at the same time of day for at least one week.
3. Use vocabulary relevant to the description of natural resources: size, color, behavior, location, and identification if they are able to do so, i.e., “a gray fox ran across a pile of small boulders.”
4. Record their impressions of things observed, and thus be able to distinguish between “objective observations,” or those based on what is external to them, and “subjective observations,” or what their thoughts and feelings are about any particular observation.

Materials needed:

Composition books or sheets of paper, lined or unlined; pens and pencils. Scissors, glue, and magazines, crayons, paper, watercolors, brushes, containers for water, and water. Optional: Colored pencils, felt pens, markers, or pastels.

Materials in kit:

none

Activity:

This is a two-part activity. The first part involves having the students make their own journal. The second part involves showing them how to use the journal they have created. Keeping a record of what we observe helps to increase our awareness of the natural world. Drawing and writing in a journal over a period of time allows us to see patterns and changes in nature more clearly and accurately.

Using the composition books or sheets of paper, have students create their own nature journal. For decorating composition books: Students may use magazine photos to make a nature collage, or they may make a crayon resist drawing. Instructions for crayon resist: Using crayons, draw a scene depicting plants and animals of the California deserts. Try to leave as little white space as possible. Next, using watercolors, paint over the crayon drawing with bright colors and then let it dry. This creates an unusual effect and gives the drawing a rich, textured look. Crayon resist drawing makes a unique art effect.

Have the students sit in a quiet spot for at least 30 minutes, with plenty of room separating them. This is an individual activity. Ask them to write down what they see, hear, smell or otherwise observe. Encourage them to make sketches or drawings of what they observe.

After half an hour has elapsed, have the group form a circle and ask each student to describe something s/he observed. If they are willing to, have them show any drawings they made. They may field questions about what they have drawn from other members of the group. Being initially accountable for the time spent recording observations in a journal ensures that students will not simply “tune out” or use the time for other purposes. After several days this sharing time can be dropped.

During their visit to Joshua Tree National Park, have students record information in their journals.

Extensions:

Have the students list animal signs indicating the presence of an animal that might be included in a nature journal. These could include: burrows, nests, tracks, feathers, fur or sheds, scat, nibbled leaves or seeds, broken branches or twigs, trails or paths, dens, lays, other flattened vegetation, the feeling that an animal is watching you, birdsong, chirping, howling, other animal vocalizations

High School Age Students' Extension:

Have students research famous nature journals, including *Walden Pond* by Henry David Thoreau, *The Voyage of the Beagle* by Charles Darwin, *The Outermost House* by Henry Beston, and *The Sand County Almanac* by Aldo Leopold.

Have them select a passage or two that they like from one of these works, and talk about how it helped them become a more observant journal-keeper.

Wilderness Collage

Theme:

By looking through current magazines and other printed materials (calendars, note cards, postcards) students will learn to distinguish between the resources preserved in our nation's wilderness areas (wildlife, vegetation, geologic resources, clean air, water, and pristine soundscapes) and those developed areas that have been affected by human culture.

Objectives:

Students will be able to:

1. Name three examples of natural resources.
2. Name three examples of cultural/historic resources.
3. Group resources extrapolating from the above examples.
4. Find photos or drawings in readily available printed materials from which they can cut out and design a collage.
5. Work as individuals or as a group to create a piece of artwork that reflects the values of wilderness and contrasts them with some of the objects and ideas created by human culture.

Materials Needed:

Magazines (especially nature-oriented publications such as National Parks, Sierra, National Geographic, Natural History, Discover, Outside, etc.); scissors; glue or rubber cement; poster board.

Materials in kit:

none

Overview:

By making an individual or group collage, students will heighten their awareness of natural resources associated with wilderness versus the cultural resources created by people. They will also be able to make connections between wilderness values and the preservation of wilderness by people.

Activity:

Ask the students what the differences are between nature and civilization. Be sure they can clearly distinguish between those things found in nature (plants, animals, rocks, rivers, etc.) and those things created by people (buildings, dams, bridges, engines, motorized vehicles, airplanes, boats, furniture, etc.). Tell them that wildlands have human and ecological values:

1. Protection of watersheds;
2. Improvement of air quality (plant filtering);
3. Critical habitat for wildlife;
4. Meet public's recreational needs;
5. Living laboratories for scientific research
6. Spiritual and emotional renewal.

Ask them to look through a collection of magazines and other printed materials and cut out images that are either 1) natural or 2) cultural resources. They may assemble them on poster board any way they like, as long as the collage is organized in a way that shows the difference between the two kinds of resources.

Discussion: In order to lead a structured discussion of natural versus cultural resources, use the following questions:

1. Give an example or two of a natural resource.
2. Give an example or two of a cultural resource.
3. Which type of resource has been on planet earth longer? Natural or cultural?
4. Is humankind's impulse to create new objects out of natural resources universal?
5. Describe some early tools made by people (spears, scrapers, hammer rocks, etc.)
6. Have tools become more sophisticated as time goes by? Are natural resources always easily replaced/renewed?
7. What are the reasons to protect and preserve those areas that have not been developed yet by people?

High School Age Students' Extension:

Students will group natural resources according to the following categories:

1. Biotic (living) natural resources: wildlife; vegetation.
2. Abiotic (nonliving) natural resources: geologic resources; water; air; sound; panoramas/vistas.
3. Cultural resources: pre-Industrial Revolution (late 18th century).
4. Cultural resources: post-Industrial Revolution (19th century till present).

Students can discuss how modern technology can assist people in preserving and protecting the remaining wilderness in this nation.

The Lorax

Theme:

There is a wealth of popular literature which treats the subjects of wilderness, stewardship and proper conduct in nature. As a favorite author among young people, Dr. Seuss addresses these subjects in a humorous but pointed way. This activity introduces this children's author while raising serious questions about the exploitation of nature. By reading *The Lorax*, a work of popular juvenile fiction, students will have a reference point from which to discuss the issues of wilderness, its value, and various approaches to its management.

Objectives:

1. Students will identify the main characters in *The Lorax*.
2. Students will identify the various attitudes represented by the main characters in *The Lorax*.
3. Student participate in a discussion in which not everyone agrees with the various attitudes expressed in a work of fiction.
4. Students describe how the Once-ler's attitude changes from the beginning of the story to its end.
5. Students apply this story to the Joshua Tree National Park wilderness by transferring values expressed in the story to wilderness issues in the park.

Materials needed:

The Lorax, by Dr. Seuss

Materials in kit:

The Lorax, by Dr. Seuss

Activity:

Read the book, *The Lorax*, aloud to the group or, watch the video as a group. The book could also be read by taking turns, or by assigning parts to various students, based on the different characters. If you have an exceptionally extroverted group, you may want to have them role-play the parts by standing and acting out the part of the story they're reading.

Discussion: In order to lead a structured, directed discussion of *The Lorax*, use the following questions:

1. Who are the main characters? (The Lorax, the Once-ler) Who's telling the story? (primarily the Once-ler)
2. Why did the Once-ler want to cut down the Truffula Trees? (Because they were "softer than silk," had the "sweet smell of butterfly milk," and were ideal for knitting a "Thneed.")
3. Describe the Lorax. ("He was shortish. And oldish. And brownish. And mossy. And he spoke with a voice that was sharpish and bossy.")
4. What is a Thneed? (A general piece of clothing or covering.)
5. What did the Lorax think of Thneeds? (That they were useless.)
6. Why were the Bar-ba-loots sent away? (Because there was no more Truffula fruit left for them to eat.)
7. What happened to the Swomee-Swans? (They had to leave because of the smog created by the Thneed factory.)
8. What happened to the Humming-Fish? (They had to leave because their pond was polluted by the Thneed factory.)
9. Why did the Once-ler have to close the Thneed factory? (Because he chopped down all the trees and there were none left.)
10. The Lorax left a small pile of rocks with the word "UNLESS" written on one of the rocks. What does that word mean? (A wide variety of possible answers, including the one stated in the book: "UNLESS someone like you cares a whole awful lot, nothing is going to get better. It's not.")
11. How can the story of the Once-ler and the Lorax be applied to the natural and cultural resources of Joshua Tree National Park? (Again, many possible answers. By establishing a national park in this part of the California desert, we have "spoken for the trees." All Joshua trees, as well as all other resources that fall within the boundaries of the park, are now protected.)

High School Age Students' Extension:

Students will write a rhyming poem that treats a wilderness subject such as appropriate trail behavior; building a landfill on the boundary of Joshua Tree National Park; poaching of wild animals within park boundaries; camping in day-use only areas; or driving off-road in wilderness areas. Have them try to focus on a very specific theme that is phrased in a clever, rhyming couplet or two.

Where is Wilderness

Theme:

Different government agencies manage the designated Wilderness areas in the United States.

Objectives:

1. Students will practice researching with the internet.
2. Using a map, students will determine which government agency manages areas of land in the United States, and will locate areas of designated wilderness.
3. Students will locate Joshua Tree National Park on a map and identify designated wilderness areas in the park.

Materials needed:

a computer with internet access (your local library may have web access), map of designated wilderness in Joshua Tree National Park shown in this packet.

Materials in kit:

designated wilderness map of Joshua Tree National Park.

Activity:

This activity can be done before visiting the park to familiarize the students with wilderness lands in the United States and the four different federal government agencies that manage them as part of the Wilderness Preservation System. There are 644 designated wilderness areas in the United States. Students have the chance to practice their mapping skills and locate wilderness areas within the U.S. California and Joshua Tree National Park.

Working with Maps

Go to <http://www.wilderness.net/nwps/map.cfm>. Click on any state that you would like to visit. Note the different colors that you see on the map. Explain that the National Park Service, National Forest Service, Department of Fish and Wildlife, and Bureau of Land Management are federal agencies that manage wilderness lands (that are owned by the people of the United States). All of these lands are part of the National Wilderness Preservation System.

Return to the U.S. map, and click on the state of California. In the southern section of California is the location of Joshua Tree National Park. Click on the southern section and click on Joshua Tree National Park. Information about the park will appear. About 75% of Joshua Tree National Park is designated as Wilderness.

Look at the enclosed map of Wilderness in Joshua Tree National Park. Locate some places that are in Wilderness and some places that are not in Wilderness. Why do you think the boundary is drawn to include/not include those places? When you visit the park will you be entering Wilderness?

Extensions:

None

High School Age Students' Extension:

Have students visit both a Bureau of Land Management Wilderness and a National Park Service Wilderness. What differences do they see between the two?

Who's In the National Park?

Theme:

People visit national parks for different reasons and therefore have a different impact on the environment and wilderness.

Objectives:

1. Students will identify Joshua Tree National Park on a map and characterize the surrounding region.
2. Students will use observation skills to identify different user groups in the park.
3. Students will decide how different groups are impacting wilderness areas.

Materials needed:

map of California, paper and pencils, background information from this packet on the park.

Materials in kit:

background information about the park, chart

Pre-Activity:

Before arriving at Joshua Tree National Park: 1. Look at a map of California. 2. Locate Joshua Tree National Park and major cities within a day's drive. 3. Ask your group to discuss what would happen if everyone from those cities would come to visit at the same time to the park (There is a population of 40 million people within a day's drive from the park). What would be the effect on the flora and fauna? 4. Currently there are 1.25 million visitors per year visiting Joshua Tree National Park. Discuss the different types of people who are visiting and using the park. What are these people doing in the park?

Activity:

Introduction: National parks are visited by millions of people with interests in different resources. People travel to national parks to enjoy recreational activities such as canoeing, skiing, bicycling, mountaineering, hiking or just a scenic drive. Who are the different user groups that come to Joshua Tree National Park? Which people are using wilderness areas?

People Watching: Choose at least three locations from the list below to visit inside the national park. Pass out paper and pencils and ask students to draw a chart labeling the top with the headings: **Location, Number of People, Activities People Are Doing, and Things I Have in Common with the People I observed.** At the first location ask the students to find a spot to sit and quietly observe people in the area and their activities. Record the information for each heading in the appropriate column. After 15-20 minutes, travel to a new location and repeat the activity. Visit at least three locations. Locations to choose from: 1. Hidden Valley or Barker Dam, 2. Keys View, 3. Boy Scout Trail or Ryan Mountain or portions of the California Riding and Hiking Trail, 4. Black Rock or Ryan Campgrounds, 5. Jumbo Rocks or Cottonwood Campgrounds.

Wrap-up: Discuss with the group the types of people they saw. Did you have anything in common with them? If so, what? Which Joshua Tree National Park user group(s) would you place these people in? (There are many different user groups in the park and here is a quick list to help your group out: hikers, backpackers, equestrians, bicyclists, rock climbers, car and RV drivers, campers, families) Which groups would use wilderness areas? How do the groups impact wilderness areas? How many visitors are being good stewards of the park? How does this affect how the park is managed?

High School Age Students' Extension:

With a group of high school students, use the park's General Management Plan (GMP) to continue a discussion on user groups and park management. Discuss the effects that 1.25 million annual visitors might have on resources in the park such as flora, fauna, rock formations, and air quality. Referring to the GMP, how does the park manage its land? What are the restrictions and rules that exist to help manage different areas? Students can decide how they would manage the land differently and create their own management plan.

Location	Number of People	Activities People Are Doing	Things I Have in Common with the People I Observe	

Wilderness Jeopardy

Theme:

Because of the Wilderness Act of 1964, designated wilderness areas are protected by different laws which limit the activities of humans in those areas.

Objectives:

1. Students will know 3 rules for traveling in Wilderness.
2. Students will understand some of the reasons for the Wilderness Act and the creation of Wilderness.

Materials needed:

Quiz cards and prizes for the whole group. (Idea: The quiz cards could have a front with pictures of air, snow, sun, rain, flora and fauna relating to the park.), Joshua Tree National Park Guide, Leave No Trace pamphlet, Wilderness background pages.

Materials in kit:

Joshua Tree National Park Guide, Leave No Trace pamphlet, Wilderness background pages

Activity:

Wilderness: *"A wilderness...is hereby recognized as an area where the earth and its community of life are untrammelled (not controlled) by man, where man himself is a visitor who does not remain."*
-Wilderness Act of 1964.

Wilderness is a piece of Federal Land, designated by Congress, which preserves and protects the natural condition.

Divide the students into teams. Start reading the questions. Students may use the materials provided to find the answer. Once the team has the correct answer, give the winning team the card. The team with the most cards is the winner. However, have the teams gather together to look at the pictures on the front. Explain to the group that a wilderness holds all these things and people are visitors to those areas who do not remain. Please note that some of the questions have a lot of general answers depending on location or the ideas of the group. The questions are divided according to the resource in which the information is found.

Wilderness Jeopardy Quiz Questions

Joshua Tree Guide

Q: Are you currently in Wilderness? (use map)

A: Answers will vary depending on location.

Q: In Joshua Tree NP, what does Wilderness offer visitors?

A: Possible answers: solitude, quiet, hiking, horseback riding, climbing an area mostly free of roads, buildings, powerlines, and mostly unaffected by human activity.

Q: What is not allowed in a wilderness area?

A: Any mechanized or motorized devices like vehicles, chainsaws, power drills...etc.

Q: What is the biggest concern when rock climbing in Wilderness?

A: Bolting, followed by social trails and impacts on cultural resources, plants, nesting birds, and bighorn sheep.

Q: What are some restrictions when horseback riding in Joshua Tree?

A: Possible answers: Travel is restricted to designated equestrian trails and corridors, open dirt roads, and shoulders of paved roads, riders should travel single file to reduce damage to soil and vegetation, horses and mules are not allowed within $\frac{1}{4}$ mile of any natural or human-made water source, horses and mules are not allowed on nature trails, in the Wonderland of Rocks, in campgrounds, in picnic areas, or at visitor centers. There is no overnight camping with horse. Grazing by domestic animals is not allowed.

Q: Where are bicycles allowed in the park?

A: On roads that are open to vehicles and on designated bicycle trails.

Q: What percentage of Joshua Tree National Park is Wilderness?

A: 75 %

Q: When all the campgrounds are full, how many people approximately are staying at Joshua Tree National Park?

A: 3,000

Q: How many people come per year to visit Joshua Tree National Park?

A: 1.25 million people

Wilderness Jeopardy Quiz Questions (continued)

Wilderness Background Pages

Q: True or False: Wilderness is a law?

A: True (Passed by Congress)

Q: What year was the Wilderness Act passed by Congress?

A: 1964

Who can designate wilderness?

- A. The President
- B. Congress (correct)
- C. Vice president

Q: Which agencies manage Wilderness?

- A. National Park Service
- B. US Forest Service
- C. Department of Fish and Wildlife
- D. Bureau of Land Management
- E. All of the above (correct)

Q: Out of the four government agencies, Bureau of Land Management, National Park Service, US Forest Service, Department of Fish and Wildlife, which one contains the most wilderness?

A: National Park Service (75.2 million acres of land)

Q: What are some threats to Wilderness?

A: loss of quality of Wilderness, loss of habitat, soil compaction, crowding, loss of solitude, worsening water quality, air pollution, disturbance from vehicles

Q: What are some reasons for having Wilderness?

A: biological diversity, place to do scientific research, watersheds, life support systems, historical and cultural artifacts, scenery, solitude, recreation, place to educate

Q: Which of the following has the most acreage of federal wilderness?

- A. California
- B. Alaska (correct)
- C. The lower 48 states

Leave No Trace

Q: When entering wilderness, what should you leave behind?

A: Just your footprints.

Q: Name 3 of the 8 principles of Leave No Trace.

A: 1) Plan ahead and prepare, 2) concentrate use in resistant areas, 3) avoid places where impact is just beginning, 4) protect and conserve water resources, 5) pack it in, pack it out, 6) properly dispose of what you can't pack out, 7) leave what you find, 8) use fire responsibly.

6Q: What do you need to think about when planning ahead and preparing?

A: clothing, food, equipment, weather, safety, regulations, knowledge of the area, local ecology

Q: What are some ways to concentrate use in resistant areas?

A: hike on durable surfaces like trails, rocks and washes, choose a resistant campsite, avoid soil crusts, minimize stock animal impact

Q: How far should camps be from existing water sources?

A: at least 200 feet

Q: How far from water sources should catholes be dug and washing done?

A: at least 200 feet

Q: Can biodegradable soaps be used directly in water sources?

A: NO

Q: What should be done with trash and garbage (including food waste and packaging waste)?

A: All waste except human waste should be packed out.

3 more questions about: 1. disposing of human waste, 2. leave what you find, 3. fires

Let's Take A Trip!

Theme:

Planning and thinking will help us survive in the wilderness.

Objectives:

1. Students will make a trip plan.
2. Students will list the basic needs for humans.
3. Students will identify possible hazards in the desert.
4. Students will make a list of essential items to bring for a day hike or overnight outing in the desert.
5. Students will know the acronym S.T.O.P. and what to do if they get lost.
6. Students will work as a group to make a decision about a situation in the wilderness.

Materials needed:

"Soft Paths" video and discussion questions, basic needs cards, S.T.O.P. cards, 2 group decision-making scenarios

Materials in kit:

discussion questions, basic needs cards, S.T.O.P. cards, 2 group decision-making scenarios

Pre-Activities:

Watch "Soft Paths" video and discuss. Review Leave No Trace pamphlet. Choose an activity focusing on the concept of wilderness.

Activity:

Introduction: Any outing has hazards that we need to be prepared for as best as possible. Whether you are planning a day hike, an overnight hike, or camping in a campground, thinking about the possible hazards you may encounter and ways to deal with them will make the trip safer and more enjoyable. These are some things to think about in the desert: getting lost or injured, becoming very hot or cold, becoming dehydrated, or experiencing stormy weather. What can we do to plan for these things? We can make a trip plan, pack appropriately, research the weather and the environment, and **think**.

Trip Plan: The first thing to do is make a trip plan. Hold a meeting with the participants to figure out where you will go and who exactly will be going, including chaperones. Decide when the trip will take place and **when you will return!** Also decide what sorts of activities you will be doing and where and when those activities will take place. Be as specific as possible. Write all of this information down and finally, **leave the information with at least two people!** It will help you in planning your trip to have all of this information ahead of time, but will not help you at all in case of an emergency if nobody outside of your group knows what you are doing. **Location** is very important in case you need to be found or rescued, so remember to be **specific**. (When you return from your trip don't forget to let people know you are back safely!)

Essentials: Ask students what the basic human needs are. The four things people need to survive are food, water, shelter and space. Space includes enough air to breathe. How long could we survive without each of these things? (Cards with survival times for extreme conditions: food= 3 weeks, water= 3 days, shelter= 3 hours, space= 3 minutes) How does the weather and our environment affect our needs? What do you need to consider especially when going out into the desert? (extreme heat or cold, water)

S.T.O.P.: Hopefully planning ahead will prevent any emergency situations. But sometimes circumstances are out of our control. Common situations that may arise are getting lost, injured or caught in bad weather. What should we do if one of these things happens to us or someone in our group? A good thing to remember is STOP!

S= Stop! Sit down! Stay put! Save your energy. You won't run around in circles or be as likely to panic, and it will be easier to find you.

T=Think! Don't panic. Think about where you came from, where you last knew your location, landmarks you noticed, how much light is left, how much food and water you have, and what your most immediate needs will be.

O=Observe! Look around for things that may help you find your way or help you be found. Can you see or hear a road? Are there any power lines in sight? Are there any landmarks that you can identify on your map? Is there a place to find shelter, wood, water, food? What is the weather doing?

Let's Take A Trip!(continued)

Activity: (continued)

P=Plan! Come up with all of the possible alternatives and discuss them with the group so everyone agrees with the next course of action. Should you set up a shelter? Are you in a place where you can be spotted from the air? Do you need to ration your supplies? How will you signal for help?

The best plan is to not get lost in the first place! Stay on the trails, notice landmarks, look back for landmarks in the opposite direction, use a map and compass, go with a guide....

We're lost!: Group Decision Making: In this final activity students will work together to make decisions and reach a solution to a situation in the wilderness. Students may choose one of the two situations provided or create their own scenario. They will need to remember basic needs and essentials, think about possible desert hazards, use S.T.O.P., and make sure everyone in the group is included in the decision making process.

Wrap-up: Complete plans for the group's trip into the park.

Let's Take A Trip! (Scenario #1- Winter in the desert)

Your expedition was flying over a remote desert wilderness in a small private airplane during the month of January. You were on your way to the bottom of a canyon to begin a hike up the canyon. As you were flying through a big storm, the plane's engines suddenly started to sputter and die, and the plane began to lose altitude. Finally the pilot was able to crash-land the plane on its belly on a dry lake bed in the middle of the desert. The rough landing tore off the plane's landing gear however, so there was no chance of taking off again even if they could fix the engines. In the wreck the electrical system was also destroyed, so there was no heat or lights.

With its emergency back-up battery, the radio is working, and you overheard that the storm you flew through is a major one and is not expected to end until tomorrow night. Immediate clearing is expected then. Temperatures tonight are expected to be just below freezing with winds as strong as 50 miles per hour. The high temperature tomorrow is expected to be around freezing with winds unchanged.

You are not sure of your exact position; your best estimate is that you are 35 miles from the nearest paved secondary road. Your small private plane is standardly equipped with bucket seats in front and four bucket seats in back with a storage area in the rear. All the windows are glass.

In the storage area you have the following items: several magazines, a magnetic compass, a map of the immediate area, one pound of beef jerky, a first aid kit, a sheath knife, a shovel, several old pairs of blue jeans, two old blankets, some hubcaps, and a 12 gauge shotgun with shells. Each of your party is wearing hiking boots, winter coats, good wind gear, and mittens and hats. In your pockets you have some cash and assorted change. In the glove compartment are sunglasses (one pair per person) and assorted maps of the region.

Let's Take A Trip! (continued)

In discussing your survival possibilities, your group has put together a list of 15 items that you have. Your next task is to rank these things from most important to least important for your survival, so that you will be sure to protect the really important items. Start by doing this individually, then talk about it as a group until you all agree about the rankings. For an older group of students have them come up with their own list of 15 most important items, then rank those.

Ranking Items: "1" is most important to survival, "15" is least important.

___ Beef jerky, ___ Blankets, ___ Cigarette lighter, ___ First aid kit, ___ Gasoline, ___ Hoses, ___ Hubcaps, ___ Rearview mirror, ___ Knife, ___ Magnetic compass, ___ Map of the area, ___ Shotgun, ___ Shovel, ___ Spare tire, ___ Sunglasses

Let's Take A Trip! (Scenario #2- Summer in the Desert)

It is the middle of June, school has just gotten out and you and two friends decide to spend a weekend together backpacking and exploring in the remote Coxcomb Mountains of Joshua Tree National Park. You had driven ? miles out on a dirt road next to the wilderness boundary. Your plan was to hike cross-country to the base of the mountains into wilderness, spend the night, explore the area the next day, then hike back on the third day and drive home. Daytime temperatures were already well over 100 degrees.

You all live in the desert and are familiar with extreme desert conditions, and have some backpacking experience. You had all packed the essentials and enough food, however were only carrying 1 gallon of water each because water is heavy. (One gallon is recommended per person per day) You had all told your parents you were going backpacking in Joshua Tree, but didn't tell them exactly where. You told them you would be back sometime Sunday or Monday. You left your car at an unmarked pullout, gathered your gear, and began to hike out into the desert towards the mountains in the early afternoon. You all commented on how hot it felt. No one bothered to note the location of the car in relation to any major landmarks, like rock piles or ridges. You walked in what seemed to be a straight line, taking breaks every once in a while, for 4 hours. The sun was getting low in the sky and you all decided it was time to find a place to set up camp. You cook dinner on the stove you had packed, relax, try to cool down, and eventually go to sleep when the sun sets. The next morning at sunrise it already feel like it is 90 degrees. You eat breakfast and decide to head towards a canyon to explore and hopefully find some shade to cool off mid-day. You cross many ridges and dry washes throughout the day and have a great time exploring several canyons.

In the late afternoon you decide it is time to get back to camp. From where you are standing you look out over the desert and cannot see your car or campsite. You are not sure of your location on the topo map you have. You have been hiking all day, are exhausted, and have no idea how far you are from camp. It will be getting dark in an hour or two, you are all thirsty, and each of you only has about 1 quart of water left. You have basic day hiking essentials with you in your daypacks.

As a group you discuss the options and decide you can either attempt to find your way in the dark, when it is cooler, or wait until the next day to navigate in daylight. However the temperature is expected to be over 100 again and you are very low on water and food. What should you do? What could you do differently next time to be better prepared?

Creating Your Own National Park

Theme:

Designated wilderness areas have different rules than non-wilderness areas, which people need to consider when entering a wilderness area.

Objectives:

1. Students will draw a map of an area including wilderness boundaries and be able to use a map to find a specific location.
2. Students will name 5 regulations for camping in a wilderness area.
3. Students will be able to name 3 reasons to have designated wilderness areas.

Materials needed:

20-foot length of string, 10-foot length of colored yarn or cord, paper, crayons, pencils and pens.

Materials in kit:

none

Activity:

1. At your campsite, have the group leaders place the string in a circle around an area close by. Pick an area that has natural objects and note not to step on the vegetation in the area. Place the colored yarn in a location within the main circle; this area will be Wilderness.
2. Tell your group to pretend that they are an inch tall and the area within the string is a new national park and the colored yarn is Wilderness. Have each group member sit around the boundaries of the new national park and ask them to draw a map for their new national park. Remind the group to draw the objects in the boundary of the string and that things will be bigger than they appear in real life. For example, a small rock in the boundary would truly be a great rock to climb on.
3. Once the group is done drawing their maps, tell a story: each person is crossing the national park heading to the wilderness area. Ask how would they travel to that area of wilderness? (Remember no mechanized devices are allowed in wilderness) Each finds a great spot for camping and vows to return again. How will they find their place again?
4. Each member should mark with an "X" on their map their great camping spot within the park and name the new national park. Then ask the students to trade maps and find each other's great camping areas within the string landscape using the maps.
5. How many students chose to locate their campsite within a wilderness area? Why or why not? What types of factors do we need to consider while visiting a wilderness area, as opposed to a non-wilderness area? What will look different in Wilderness? Why do we have a separate area for Wilderness?

Impact Monster Skit

Theme:

People have an impact on their surroundings when in wilderness.

Objectives:

1. Students will learn methods of hiking and camping that have a minimum impact on the environment.
2. Students will know the basic “Leave No Trace” techniques of backcountry use including backcountry travel, campsite selection and restoration, use of camp stoves, cooking and sanitation, and courtesy for other wildland visitors.

Materials needed:

“Soft Paths” video and discussion questions, script props for the characters who will play the Elements of the Wilderness (may be made from paper or cloth): rabbit ears, deer antlers, bighorn sheep horns, hawk wings, rattlesnake, large flowers, treelimits, mountain peak, trailhead, stars, a sun, blue tarp for lake, brightly colored clothes for Impact Monster, two backpacks, telephone book, cast iron skillet, crumpled soda can, assorted litter

Materials in kit:

script

Pre-Activity:

Watch “Soft Paths” video and discuss. Review Leave No Trace pamphlet.

Activity:

Introduction: Discuss the idea of wilderness with students and what an impact is. Wilderness is a place that is wild, where plants and animals are protected and allowed to exist according to natural processes. No motorized vehicles or bicycles, houses, or mining, grazing, or logging are allowed. An impact is a change or disturbance to the environment. We need to act a certain way and do certain things while in the wilderness in order to have little or no impact. The skit demonstrates the “do’s and don’ts” of a “Leave No Trace” wilderness ethic.

The skit works well if three people can play the main parts: narrator, Wilderness visitor, and Impact Monster. The rest of the characters come from the audience. The remainder of the audience participates by answering the narrators questions throughout the script.

Wrap-up: Discuss the idea of wilderness as a home for plants and animals. We are the visitors in their home. How do you behave when you are visiting a friend in their home? The Impact Monster was not a respectful visitor in the wilderness. If we do our best to leave no trace we will be respectful visitors to the wilderness.

Extension:

As part of the trip or as an additional activity, the students can create a “Leave No Trace” campsite, following the “Leave No Trace” principles. If all of the equipment is not available they can draw signs or pictures to represent the different items. Have them explain each area of the campsite and how they organized it. What techniques did they use?

Impact Monster Skit- Script

Narrator: This skit is about hiking and camping in the wilderness. It's about a monster named Impact. Do you know what "impact" means? It means change or disturbance.

We are going to create a wilderness setting, so I need some volunteers to play some characters called the Elements of the Wilderness. What kinds of things do you find in the wilderness? Cottontails, Hawks, Trees, Mule Deer, Wildflowers, Lakes, Bighorn Sheep, Mountain peaks, Stars, A trailhead, The sun, Rattlesnake

Note: Arrange the stage, setting the characters in their logical places. You will need to take the following characters aside and explain they have important roles: cottontail, stars, hawk, and flowers. As the narrator recites his or her lines, each character should do what comes naturally for the role.

Narrator: We're going to take a walk. It's a spring day out in the wilderness of Joshua Tree National Park. After driving to the trailhead, our wilderness visitor begins his/her journey. After packing a backpack and stretching, the visitor looks carefully at the information posted at the trailhead.

(Ask why a hiker should read the information at the trailhead.)

The visitor begins walking quietly up the trail, looking around. A hawk is soaring high in the sky. The visitor watches as the hawk swoops and just misses a cottontail speeding through the desert. The visitor starts up a hill with long, steep switchbacks.

(Ask why a hiker should stay on the switchbacks.)

The visitor stop for water and notices a bighorn sheep feeding on the side of the hill in the distance. He/she takes out binoculars and watches, content to observe from a distance.

(Ask why it's best to watch wildlife from a distance. Explain that it's important to remember that animals are inhabitants and need to go about their daily business undisturbed, and that it's important to their survival as wild animals. It's also safer for the visitor.)

The visitor sees some trash on the ground and picks it up. He/she then sees a pretty wildflower and stops to admire it, but knows not to pick it because it will die. The visitor finally arrives at the destination, a beautiful lake, and must decide where to camp.

(What should the visitor think about when choosing a campsite?)

The visitor sets up the tent, puts on camp shoes, and goes down to fetch water from the lake. After bringing the water back up to the campsite, the visitor washes up, well away from the lake. He/she sets up a stove to cook food, and relaxes in the nice protected campsite.

Impact Monster Skit - Script (continued)

Then....another visitor arrives: the Impact Monster!

The Impact Monster enters the scene and does the following:

1. Shortcuts trails and stumbles up the hill, ignoring switchbacks
2. Carves initials on a sign ("I want everyone to know I was here, IM, the Impact Monster!")
3. Smokes cigarettes and throws the butts on the ground
4. Sees a flower, picks it and throws it on the ground
5. Sees a rattlesnake and shoots it
6. Chooses a campsite next to the lake
7. Washes next to the lake
8. Builds a big fire to cook dinner, using limbs from a live tree to build it

First Visitor: (Wakes up and sees the Impact Monster) *"Hey what's going on?"* Visitor goes down to the lake to talk to the IM. *"Did you make this mess? (very upset) Oh No! The snake's dead, the flowers have been picked, there's trash on the ground..."*

IM: *"Me? No, I didn't do this..."*

The visitor chases the IM, shakes him/her, and tells him/her about the proper way to camp and behave in the wilderness.

Narrator:

Talking with the IM, the visitor explained why a person should camp away from water sources, why using branches from a living tree to build a fire damages the environment, and how being quiet helps you see more wildlife.

The IM now not only knows how to be a good wilderness camper, but WANTS to be a good camper. They camp together that night...As they sleep through the night nocturnal animals roam and hunt their food, the stars move across the sky, and the sun rises in the morning.

Our wilderness visitors wake up, eat breakfast, pack up, and look around their campsite. They pick up some trash left behind by previous campers. They walk back down the trail, arrive at their cars, and say goodbye. The IM thanks the visitor for teaching him/her about how to be a good camper in the wilderness.

(What new ways of thinking is the IM going to take back from this journey into the wilderness? What will the IM remember and what new knowledge can it apply to life in the city?)

Impact Hike

Theme:

People have an impact on the land when they visit and use an area.

Objectives:

1. Students will name 5 ways a campground or picnic area in the park is impacted by people.
2. Students will name the types of user groups in the area and how those groups are using the area.
3. Students will compare the impacts made in a highly used area versus a less-used area.
4. Students will explain the difference between a wilderness and non-wilderness area.

Materials needed:

“Soft Paths” video and discussion questions, notebooks/journals and pencils, 10-15 items for Un-Nature Trail

Materials in kit:
none

Pre-Activity:

Watch “Soft Paths” video and discuss. Review Leave No Trace pamphlet.

Activity:

Hike: Choose a highly used area in the park to observe. Some suggestions are Hidden Valley, Ryan, Jumbo Rocks, or Indian Cove Campgrounds, Hidden Valley picnic area, or Barker Dam Nature Trail. Walk around the area for 20-30 minutes making observations of ways people are impacting the environment, or have impacted it in the past. Examples of impact are litter, roads, trampled vegetation, less vegetation, less wildlife, chalk or bolts on rocks, dogs, cars, campsites, noise, etc. Record all observations of impacts. Also determine how the people in the area are using the environment and in what types of activities they are participating. Talk about why this is not a wilderness area.

Choose a less populated area to go for a hike. Suggestions are Ryan Mountain, Lost Horse Mine Trail, a hike along the Geology Tour Road, parts of the California Riding and Hiking Trail, or other less populated areas. Once again observe impacts made by people. How does this area compare to the more highly used area? Is this area wilderness? What if you went even farther from roads into the wilderness? What sorts of impacts do you think you would find then? What do you think people would be doing in these areas?

Wrap-up: Discuss the ways people have an impact on the land when they visit the park or a wilderness area. How can we have less of an impact? Why is it important to have little or no impact? What can we do to help wilderness and the park? (pick up litter, take apart illegal fire rings, be quiet, let other people understand the rules, keep dogs on leashes and off the trails....)

Impact Hike (continue)

Extension:

Un-Nature Trail: This activity will help students begin to understand that certain things belong or do not belong in nature. They will also be able to practice their observation skills .

Choose a path anywhere in the park, or in your neighborhood. Gather 10-15 small everyday human-made items to hide along the path. Examples of items are listed below. Go out before you meet with the group and place the items so that they are visible but camouflaged in their surroundings. For example you could hide a green pencil in a green plant. Or a brown eraser in some dirt or leaves. Just make sure it will be possible for the students to see the items from the path without moving or touching anything! Leave enough space between the items so that the students do not become crowded. On the ground at each hiding spot leave a piece of paper with the appropriate number of the item on it, so students know the general area of the item. To make the activity more challenging, do not put the numbers on the ground and do not tell the students how many items you hid.

Have the students number from 1-? on a piece of paper, depending on how many items you hid. You can send them individually, in pairs, or in small groups down the trail to begin looking for the items. Make sure to tell them the items are blending in with their surroundings, and they are not to move or touch **anything!** They will record each item next to the appropriate number as they find them. When all the students have found all the items, walk through the trail with the entire group and point out the items where they are hidden. Do not forget to gather all items when you are done! Why do these things not belong in nature? Which items were easy/hard to find? Why? Did our observation skills improve?

Example list: pencil, eraser, small toys, large paper clip, sock, belt, a cutout of a leaf or animal, utensils, matchbook, toothbrush, anything that will blend in with the surroundings!

Desert Web of Life

Theme:

Students explore how interdependent all organisms are on each other in the desert ecosystem by playing the Desert Web of Life game.

Objectives:

1. Name various animals and plants that live in the desert
2. Explain how all the plants and animals are important to the desert
3. Explain how taking one species out of the web effects other species

Materials needed:

ball of string or yarn, species cards (one for each student)

Materials in kit:

species cards

Activity:

Hand out one species card to each student. Students will need to read their species card. Students stand in a circle. Choose one student to start the ball of string. Have them state what species he/she is and an interesting fact about it. Have a student that thinks he/she relates to the first species speak up to get the ball next. Repeat 4-5 times until all students have a piece of string. Return the end of the string to the starting person. Have all students back up until the string is taut. Tell students that when they feel a tug on the string, they need to tug a little. Do not break the string. Have the starting person tug on the string. Soon, the web will start to jump a bit from all of the tugging.

Ask students “Why might all the species feel a tug in a real ecosystem?” (many things can effect the different species). Have students choose a species that they think is not important. Have that student drop his/her connection to the string. What happens to the web? Have students see if any other species might be effected by the removed species. Have the effected species drop their string. What species might be effected by the newly removed species? Have those species drop their part of the string. What will eventually happen to the ecosystem? What is the effect of changing just one species? Can one species have an effect on other species?

Extension:

Each student locates an animal in the desert to study. The animal will need to be an easily observed animal like jackrabbit, cottontail rabbit, lizard, etc. Students are sent out to the desert to observe the animal. They observe the animal for 15 minutes. Back in the large group, they explain what they observed. They need to explain how this animal might effect other animals in the desert ecosystem.

Investigating the Desert: Science Exploration

Theme:

You can learn many things from the desert by doing science.

Objectives:

1. Observe how animals live in the desert
2. Observe the desert and see what they can learn by looking for clues
3. Understand how science helps us learn about the desert plants and animals

Materials needed:

Scavenger hunt activity page, Wildfire Handout, journal, pencil or pen

Materials in kit:

Scavenger hunt activity page, Wildfire Handout

Activity:

Choose one or more of the following activities to help students learn about the desert.

Scavenger Hunt: Give students a copy of the scavenger hunt activity page. Send students out for 20 minutes to see how many of the things on the sheet they can find. Students are to sketch what they find and explain a little about where they found it. They are looking for signs of animals. Remind students that this is a national park and they can not remove anything. They may NOT collect anything. Everything is protected. Have students share what they found.

Meet a Plant: Explain to students that they are to find an interesting plant in the desert and sit by it. They need to look closely at the plant to see what they can find out about it (homes, food, etc. for animals, located where, structure of the plant). Write this down in their journal. Sketch the plant in their journal. By going to a visitor center or to a ranger program, see if they can identify the name of the plant.

Oh Fire, Oh Fire: Fire is not that common in the desert region. Take students to Cap Rock Nature Trail area. The area just west of Cap Rock (across the road) was the site of a 14,000 acre fire in May 1999. Students will observe two areas to see what happens to plants and animals in a burned area. They will compare this to a non-burned area. Taking their journals with them to make notes and sketches, send students out to the burned area on the west side of the Keys View Road (opposite of Cap Rock). They are to find an area that has been burned. How well are plants coming back in the area? How well are animals using the area? Send students on the Cap Rock Trail. Have them take their journals with them to make notes and sketches. This is the non-burned area. What does the area look like compared to the burned area? What do the plants look like compared with those in the burned area? What type of animal activity do they observe as compared with the burned area? In a large group, have students discuss the differences and similarities between the two areas.

Tracks and More Tracks: Students will be going out to look for tracks of animals. They will see if they can figure out what is happening with the animals. Tracks tell a story. By looking closely at the ground, you might see tracks in the sand. Have students set out in groups of 3-4. Taking their journals for notes and sketching, send students out looking for tracks of animals. They need to find 4 different animal tracks. When they find a track, have them sketch it. See if they can follow it. Where is it going? What was the animal doing? Can they identify the animal from its track? Are there other animal tracks? When students return, have them use books to help them identify the tracks they found.

Extension:

When students return home, have them find out more about an animal or plant by searching for information through their local library, internet, books from home, books from schools, or others. Share interesting information with the rest of the group. Also, students can look in their own backyards, community parks, schools, etc., to see how plants and animals live locally.

Oh Dilemmas, Dilemmas: What's a Park to Do?

Theme:

Every place faces issues that decisions have to be made about. National parks face difficult choices because of their mission of protection.

Objectives:

1. Understand the variety of issues in Joshua Tree National Park
2. Make a decision about what to do with each dilemma

Materials needed:

Dilemma Cards, background information on the national parks and Joshua Tree National Park, journals, mission statement of the National Park Service, Wilderness Act of 1964

Materials in kit:

Dilemma Cards, background information on the national parks and Joshua Tree National Park, mission statement of the National Park Service, Wilderness Act of 1964

Activity:

The following activity will require students to make decisions about difficult situations.

Have students list what makes national parks like Joshua Tree National Park, a special place. What can you do and not do in these places? Go over the mission of the National Park Service and the wilderness act. Explain that students will be looking at park issues that the park staff have or still are dealing with. Students need to think about the dilemmas and how they would respond. Have them keep in mind the value of wilderness and what a wilderness place is. If you want, split students into groups and give each group a dilemma card. The group then has to present the dilemma and their finds to the group. Have students take out journals and respond as you read each dilemma. This will help with value clarification. This works well in small groups or in a larger group. Students should be prepared to give reasons for their decisions. Be sure to discuss dilemmas. Some students will change their minds during or after the discussion. Discuss pros and cons of each solution.

Extension:

Have students explore one of the issues in depth and present to the group. Would the group have made the same decision as the park managers? Why or why not?

Oh Dilemmas, Dilemmas: Dilemma Cards

Dilemma #1 – Automobile Camping in a remote area

In 1994, when the park was made a national park, lands from the Bureau of Land Management were included within the park boundaries. Most of these areas are in park designated wilderness. Under BLM rules, you can camp anywhere in your vehicle where it is not prohibited. Under the park rules, you can camp only in designated campgrounds or with tents in the back country and you must be at least 100 yards from any road, trails, or public area. You can not park your car off a roadway area and camp. Should the park allow visitors to automobile camp in remote areas or allow auto camping only in designated campgrounds?

Dilemma #2 – Air pollution in the area

In the late 1990s, the park was listed as having the worst air quality of all national parks in the U.S. Most of this pollution is not created within the park or the surrounding areas. Highest pollution days tends to be during the summer when temperatures reach over 100 degrees. The pollution comes from the Los Angeles, San Bernardino, and Riverside areas to the west of the park. The prevailing winds push the polluted air through Banning Pass on Interstate-10. The west air gets trapped against the Little San Bernardino Mountains in the western area of the park and stays there. Other air comes from the Coachella Valley area and is pushed north into the park. The hours of highest concentration are in the middle of the night and early morning. The park is in a Class One air shed which means it is highly protected by The Clean Air Act. In fact the polluted areas are located within that air shed. If the Environmental Protection Agency enforces the laws, the standards of pollution would have to be cleaner, forcing strict compliance by industries, automobile owners and producers, and power plants. Some vegetation in the park is showing signs of air pollution damage. This is true of the squaw bush which is sensitive to air pollution. The park has not had the money to do a survey to see how park resources are being effected by the poor air quality. What should the park do?

Dilemma #3 – Dogs in wilderness areas

Many people who own dogs visit national parks. They make up a small percentage of visitors to the park. They enjoy have the company of their dog companions. At Joshua Tree National Park, visitors are allowed to have their dogs with them in certain areas, dogs must be on a leash. Dogs on leash may be walked in campgrounds, within 100 feet of either side of roadways (paved and dirt), on the Oasis of Mara Nature Trail, and in a few buildings such as the Black Rock Canyon Nature and Visitor Center. Visitors may not take their dogs on any trails except the Oasis of Mara Nature Trail at the Oasis of Mara Visitor Center in 29 Palms. Many people violate these rules everyday. Some visitors take their dogs on trails and to remote rock climbing sites. Scientific studies show that domesticated dogs leave behind both their scent and scat. Dog scat is filled with exotic plant seeds and materials (non-native plants) that can grow where it is left. This can change the types of plants growing in an area. The scent and scat of dogs can force wild animals to move away from a location. Wild animals are also scared off by domestic dogs. Rangers speak to people with dogs daily and write tickets for dogs running at large unrestrained. Also, due to day time temperature highs in the summer, it is illegal to leave pets locked up in a vehicle since they can die within 5 minutes of overheating. What should the park do?

Dilemma #4 – Climbing in wilderness areas

Joshua Tree National Park is a world-class rock climbing park. People from all over the world come to Joshua Tree to climb the monzogranite boulders (light tan, pinkish rocks in the Wonderland of Rocks area). Most of this activity is confined to the Wonderland of Rocks area located in and around the following campgrounds: Indian Cove, Hidden Valley, Ryan, and Sheep's Pass. Other popular rock climbing sites center around Jumbo Rocks, Belle and White Campgrounds. A good portion of this area is in wilderness especially the area between Indian Cove and Hidden Valley and Jumbo Rocks. Often climbers will leave behind bolts and anchors in the rock and chalk marks (chalk is used to make hands less slippery). The accepted practice in the climbing community is to use a hand-held, battery operated drill to drill the holes in the rock for bolts and anchors. Some of the equipment left behind is brightly colored. Non-climbing visitors have complained that these objects disrupt the visual landscape making it appear non-natural. They also do not like the noise from the drills. Climbers have been traveling to Joshua Tree for many years. They are always looking for new and challenging climbs. The different communities visiting the park are at odds. What should the park do?

Oh Dilemmas, Dilemmas: Dilemma Cards (continued)

Dilemma #5 – Bicycles on trails

In the past, bicycles have only been allowed on public roadways in the park. This includes both paved and unpaved roads. Many bicyclers have complained that these roadways are not challenging enough for them and that they frequently run into vehicle traffic. They feel this is dangerous to them. They would like trails opened to them so they can get off the roadways. The park is concerned about the effects on vegetation and wildlife if all the trails are open to bicycles. Currently the park has many people riding bicycles in the backcountry. There is noticeable damage to plant and animal life. The damage could take from 5-50 years to repair. Revegetation efforts have not helped in the most highly damaged areas. The revegetation areas are being destroyed as fast as they are being planted. Some visitors fear that if we let bicycles in, the park will have to let motorized bikes and All-Terrain Vehicles (ATVs) which are very destructive to the desert ecosystem. Bicyclists state that they will stay on trails. This is a new user group that has to be reckoned with by national park managers. What should the park do?

Dilemma #6 – Cultural Resources in wilderness

The park was created for both the natural resources (things of nature) and the cultural resources (things of people) within the boundaries of the park. The park has some human occupation sites that date back to over 8000 years ago. Others sites have remains of early mining settlements, homesteader claims, and cattle ranching industry that took place in the late 1800s and early 1900s. Many of these sites tell a story and have evidence as to how people lived in the desert. This is an important theme that the park staff share with the visiting public. Many of these sites are in the designated wilderness areas. Under the Wilderness Act of 1964, there are to be no remains of humans in these wilderness areas. Under the Antiquities Act and National Historic Preservation Acts, these sites are to be studied and recorded, and with little disturbance. Some people have suggested that the park remove evidence of these pre-historic and historic sites to preserve the wilderness. What should the park do?

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Tarantula Hawk

Animal

Scorpion

Animal

Tarantula

Animal

Trap Door Spider

Animal

Pallid Bat

Animal

Bighorn Sheep

Animal

Black-Tailed
Jackrabbit

Animal

Kangaroo Rat

Animal

Scorpion - Arachnid

The venom of this arachnid is a special digestive juice to help it eat its prey. When a black light is shone on it, it glows in the dark.

Tarantula Hawk - Insect

While this insect looks threatening, it is not. It eats tarantulas. Hence it's name! It is a type of wasp.

Trap Door Spider - Arachnid

This spider likes to create a door over its hole that its prey can fall through.

Tarantula - Arachnid

This arachnid rarely comes out of its burrow. Males will search for females in October and November. This is really the only time people see them.

Bighorn Sheep - Mammal

This animal lives on rocky slopes and is very surefooted. It only has to take a drink of water once every three days.

Pallid Bat - Mammal

This bat eats scorpions and is immune to the venom. They can walk on the ground and hover or glide in the air.

Kangaroo Rat - Mammal

This animal never has to take a drink of water. It gets its water from the plants it eats.

Black- Tailed Jackrabbit - Mammal

The ears on this hare work like an air conditioning unit. The blood in the ears is cooled and then circulated throughout the body.

Mountain Lion

Animal

Coyote

Animal

Joshua Tree

Plant

Pinyon Pine

Plant

Barrel Cactus

Plant

Beavertail Cactus

Plant

Teddy Bear Cholla

Plant

Desert Fan
Palm Tree

Plant

Coyote - Mammal

This wild dog is an omnivore. About 40 percent of its diet consists of plants. They eat small game animals like rabbits and other rodents.

Mountain Lion - Mammal

This animal is rarely seen as it is shy. Its food is mainly mule deer and bighorn sheep.

Pinyon Pine - Tree

This tree has cones. The nuts in the cones are pine nuts that you can find in the stores. Many small animals eat the nuts for food.

Joshua Tree - Tree

This plant is a tree, but does not have rings like other trees. They live about 150 years and are relics from a different time period when the desert was cooler.

Beavertail Cactus - Cactus

While this cactus looks harmless, the little red dots actually have little hairy spines called glochids that are hard to see.

Barrel Cactus - Cactus

There is a fibrous sponge inside this cactus that helps it hold water. It can live through long droughts lasting several years.

Desert Fan Palm - Tree

This tree loves to have its roots wet which is why it is found in desert oases. Many birds make their shelters in the dead frond leaves.

Teddy Bear Cholla - Cactus

While this looks soft and cuddly, the spines on this cactus can go through the soles of hiking boots. This plant like to hitchhiker along on mammals. This is how it gets to a new place to grow.

Creosote Bush

Plant

Blackbrush

Plant

Cheesebush

Plant

Fremont
Pincushion

Plant

Checker Fiddleneck

Plant

Chia

Plant

Mistletoe

Plant

Phainopepla

Animal

Blackbrush - Shrub

If this plant catches on fire, the flames can be twelve feet high. When many of these shrubs grow together, it gives the desert a blue-gray or purple appearance.

Creosote Bush - Shrub

This is the most numerous plant in the California deserts. When water hits the leaves, the plant gives off a scent that is the smell of desert rain.

Fremont Pincushion - Flower

This is a common spring flower that grows in gravelly soil like washes. The flower looks like a bunch of white needles sticking into a round cushion.

Cheesebush - Shrub

This plant smells like cheese hence its name. It is an important food source for many plant-eating animals of the desert.

Chia - Flower

This flower gives off a strong smell when crushed that is similar to a minty skunk smell. This is an important food source in the spring.

Checker Fiddleneck - Flower

This plant has tiny white hairs that help to reflect the sun's heat and can give people a rash. Its flower head looks like the neck of a fiddle or violin.

Phainopepla - Bird

This black bird with red eyes loves the berries of the mistletoe. It looks like a black cardinal.

Mistletoe - Parasitic plant

This plant is a parasite and lives off of other plants eventually killing them. It has bright red berries and is the favorite food of the Phainopepla.

Desert Mallow

Plant

Horned Lizard

Animal

Red Racer

Animal

Scrub Oak

Plant

Chuckwalla

Animal

Ocotillo

Plant

Honey Mesquite

Plant

Four-Winged
Saltbush

Plant

Horned Lizard - Reptile

This lizard can squirt blood from its eyes to protect itself. It has a ring of pointed ridges like horns circling its neck.

Desert Mallow - Shrub

This is a very showy plant in the spring with bright orange-red flowers. The plant has hairs on it that can irritate the eyes.

Scrub Oak - Tree

This desert tree grows tiny acorns that many animals eat.

Red Racer - Reptile

This snake has a very black head with a red body. This snake can move at 12.8 miles per hour which makes it the fastest moving snake in the state.

Ocotillo - Shrub

A few days after a rain, this plant will grow leaves and red flowers. Most of the time it looks like dead sticks growing out of the ground.

Chuckwalla - Reptile

This lizard is the largest in our desert and is a vegetarian who loves the rocks.

Four-Winged Saltbush - Scrub

This plant tastes very salty. It is a very important grazing plant for animals like mule deer and bighorn sheep.

Honey Mequite - Tree/Shrub

This plant grows around springs and water areas. Its seeds are a favorite among animals.

Fringe-Toed Lizard

Animal

Desert Tortoise

Animal

Speckled
Rattlesnake

Animal

Raven

Animal

Gambel's Quail

Animal

Roadrunner

Animal

Yucca Moth

Animal

Termite

Animal

Desert Tortoise - Reptile

This animal is a threatened species. It has been around for 200 million years. It can go a whole year without a drink of water.

Fringe-Toed Lizard - Reptile

This animal is an endangered species due to the decreasing number of sand dunes. It can run very fast in sand.

Raven - Bird

This bird is very smart. At one time, there were few in the desert area; this bird is now very numerous near human populations. It likes the trash we leave behind.

Speckled Rattlesnake - Reptile

The venom of this snake is a special digestive juice to help with processing what it eats. Every time it sheds its skin, it adds another rattle to its tail.

Roadrunner - Bird

This bird's favorite food is lizards. It loves to warm up in the morning sun. Its black skin helps to absorb the sun's heat.

Gambel's Quail - Bird

This bird lives in groups called coveys. The crest of feathers on the head is used to warn of danger.

Termite - Insect

This insect lives in the dead trees in the desert and helps to break down the dead wood into good soil.

Yucca Moth - Insect

This insect lays its eggs in Joshua tree blossoms and helps to pollinate the flowers. Its young will eat the seeds of the tree.

Scavenger Hunt

Without picking up anything, see how many of the following you can find. Remember to sketch and tell where you found it in each box.

a bird	a plant with leaves	something with thorns	a burrow
a nest	a reptile	a light rock	a tree
a cactus	gravel/ sand	a wash	an insect
water source	a bush	a mammal	tracks
an arachnid	grows on a rock	a plant with hairs	2 plants together

T

S

P

O

STOP

THINK

OBSERVE

PLAN

