CONSERVATION, PRESERVATION, AND THE NATIONAL PARKS

THE U.S. NATIONAL PARKS SYSTEM BEGAN IN THE LATE 19TH CENTURY. OVER TIME, THE RATIONALE FOR NATIONAL PARKS HAS EXPANDED FROM SIMPLY MAINTAINING SCENERY FOR TOURISTS TO RESTORING ORIGINAL ECOSYSTEMS.

The Eastern United States shares with Canada one of the world’s most spectacular places in nature: Niagara Falls. By the 1830s, most of the land next to the falls on the American side was privately owned and fenced. Tourists crowded into commercial viewing areas and souvenir shops. Those disheartened by the spoiling of this natural wonder referred to it as “the shame of Niagara Falls.”

By the mid-1800s, most of the land in the Eastern U.S. was in private hands. But in the West, the federal government owned vast stretches of land. There the idea of national parks took root.

First National Parks
The beauty of California’s Yosemite Valley stunned early visitors to the area. They saw massive cliffs, a rock dome sheared in half, and one waterfall plunging 2,245 feet, the highest in North America.

When settlers began claiming land in Yosemite Valley, a public outcry arose to protect it and also to preserve a nearby grove of giant sequoia trees threatened by loggers. Many feared a repeat of the shame of Niagara. In 1864, Congress and...
President Abraham Lincoln enacted a law that handed Yosemite over to California to manage as a state park for “public use, resort, and recreation.”

In 1868, John Muir arrived in California. An expert on plants who had hiked many wilderness areas in the U.S., he discovered the wonders of Yosemite. Muir published articles on his spiritual experiences in the wilderness and also wrote scientific papers. Contradicting most geologists, he argued correctly that glaciers had formed the Yosemite Valley. His fame as a naturalist spread throughout the U.S.

Yosemite did not become America’s first national park. That honor went to Yellowstone, located mainly in northwest Wyoming.

Reports of Yellowstone’s regularly erupting water geysers, steaming rivers, and bubbling mud pools had been dismissed as “Yellowstone hallucinations” for many years. Finally, a U.S. government expedition led by geologist Ferdinand Hayden in 1871 documented these fantastic features and more.

Hayden became the leading advocate for Congress to preserve Yellowstone as a national park. He warned against business interests planning to enter Yellowstone “to fence in these rare wonders so as to charge visitors a fee as is now done at Niagara Falls.”

During the debate in Congress over creating Yellowstone National Park, many had to be convinced that the federal public land involved was useless for homesteading, farming, ranching, mining, lumbering, or other economic purposes. For them, public lands were meant to be sold or leased for settlement and their resources. Hayden argued that Yellowstone’s high altitude, harsh climate, and poor soil made it “worthless lands” except for their scenery and natural wonders.

In 1872, Congress and President Ulysses Grant made Yellowstone the first national park — not only in the U.S., but in the world. The law set aside 3,500 square miles of federal land as “a public park or pleasing ground for the benefit and enjoyment of the people.”

Meanwhile, John Muir was lobbying for Yosemite to be returned to federal control and made a national park. He made the same “worthless lands” argument that Hayden had used for Yellowstone.

In 1890, Congress created three California national parks. The Sequoia and General Grant (later King’s Canyon) parks protected groves of giant redwoods. Yosemite National Park included mountain and forest areas but not the spectacular Yosemite Valley or nearby Mariposa Grove of sequoias. They remained in California’s hands. Disappointed, Muir founded the Sierra Club, in part to work toward including these jewels of nature within the park.

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In 1887, Theodore Roosevelt, then a federal civil servant, helped organize the Boone and Crockett Club. Originally for rich big game hunters, the club supported the creation of national parks as essential refuges for endangered wildlife. The club took up the cause of saving a small herd of the vanishing buffalo in Yellowstone National Park.

Roosevelt lobbied Congress to pass the Yellowstone Game Protection Act of 1894, which strengthened enforcement of laws against illegal hunting in the park. This expanded the rationale for national parks beyond protecting scenery to also protecting wildlife.

**Saving the Wilderness**

Theodore Roosevelt had been a sickly child, but had relied on willpower to force himself to become, in his word, “manly.” He hunted, fished, hiked, and embraced the outdoor life. After graduating from Harvard, he traveled throughout the West and started a ranch in North Dakota.

In 1890, the U.S. Census Bureau announced the West had been largely settled and the frontier had come to an end. This got Roosevelt thinking about the importance of holding on to what was left of America’s wilderness.

When President William McKinley was assassinated in 1901, Vice President Roosevelt moved into the White House. His top wilderness priority was to make Arizona’s Grand Canyon a national park. But fierce opposition from local miners, ranchers, loggers, and tourist businesses killed his proposal in Congress.

In 1903, Roosevelt toured the West by train. At the Grand Canyon, he pleaded with Arizonans to “keep this great wonder of nature as it now is.” He then visited California and joined John Muir in a campout under the stars at Yosemite. Muir spent his time with Roosevelt arguing for the return of the Yosemite Valley and Mariposa Grove of giant trees to federal control as part of Yosemite National Park.

In 1906, Roosevelt persuaded Congress to include the Yosemite Valley and Mariposa Grove within park boundaries. But he grew frustrated...
by how long it took Congress to act and to approve new national parks he wanted like Grand Canyon.

Congressman John F. Lacy (R-Iowa) became an ally of Roosevelt. A supporter of protecting cliff dwellings and other ruins of the ancient southwest pueblo people, he designed a bill modeled after an 1871 law that had given the president the power to create national forests on his own. The Antiquities Act of 1906 gave the president the authority to protect “historic landmarks, historic preservation structures, and other objects of scientific interest” on public land as national monuments.

The Antiquities Act proved to be just the legal tool Roosevelt needed to bypass Congress and speed up the protection of America’s natural and man-made heritage. Within a year, he created seven national monuments by executive order such as New Mexico’s Chaco Canyon, the largest U.S. archaeological site of ancient pueblo ruins.

Then, in 1908, Roosevelt declared Grand Canyon an “object of unusual scientific interest” and made it a national monument. Shortly after he did this, Roosevelt appealed to Americans that places like Grand Canyon should be “preserved for their children and their children’s children forever, with their majestic beauty all unmarred.”

Before Congress realized it, Roosevelt was using the Antiquities Act to protect national parks from private exploitation while awaiting full national park protection. Under the Antiquities Act, the rationale for national parks again expanded to include protection for places with historic and scientific importance.

In the last months of his second term, Roosevelt went on a frenzy, using his executive powers to create or expand national monuments, national forests, game preserves, and bird reservations. Altogether, he left an astounding legacy: five national parks, 18 national monuments, 150 national forests (created or enlarged), 51 bird reservations, and four national game preserves.

**Conservation vs. Preservation**

In 1905, President Roosevelt had put Gifford Pinchot in charge of the new U.S. Forest Service, which took over management of the national forests. Pinchot had studied forestry at Yale and in Europe and was America’s first professional forest expert.

In 1907, Pinchot proposed the word “conservation” to describe Roosevelt’s wilderness protection campaign. Pinchot believed, and Roosevelt agreed, that federal lands, even national parks, should be useful by giving up valuable resources when needed. In fact, this had always been the prevailing view in Congress when national parks were proposed.

In 1907, Pinchot proposed the word “conservation” to describe Roosevelt’s wilderness protection campaign. Pinchot believed, and Roosevelt agreed, that federal lands, even national parks, should be useful by giving up valuable resources when needed. In fact, this had always been the prevailing view in Congress when national parks were proposed.

Preservationists like John Muir, however, thought that mountains, forests, and other wild places should be left alone. He defended the usefulness of national parks in a different way:

Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home, that wildness is a necessity, and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life.

Pinchot and Muir became friends and allies during numerous trips in the West. But they clashed bitterly when San Francisco proposed to dam the river running through the Hetch Hetchy Valley of Yosemite National Park in order to create a city water reservoir.

Preservationists like Muir described Hetch Hetchy as almost a twin to the magnificent Yosemite Valley. But unlike it, Hetch Hetchy was a truly wild place not yet spoiled by tourism. Preservationists feared that if the Hetch Hetchy dam was built, all the national parks could be threatened by demands for their resources.

Conservationist Pinchot backed San Francisco, arguing that national parks should be used to benefit the people. Many asked why scenery should be more important than the growing needs of a city.

Both sides appealed to President Roosevelt. In the end, he supported his trusted adviser Pinchot over his friend Muir. The fight dragged on until 1913 when President Woodrow Wilson signed the law that approved construction of the dam.
The National Park Service

Well into the 20th century, the national parks had no single federal agency to manage them. Responsibility was split among the Department of the Interior, the Forest Service, and the War Department, which sent cavalry units to build roads and guard against illegal hunting.

After their Hetch Hetchy defeat, preservationists began to lobby for a new government agency dedicated to protecting and promoting the national parks. The preservationists gained an unexpected ally in politically powerful railroads that wanted to transport tourists to the parks.

In 1916, Congress established the National Park Service (NPS). Its mission was to maintain the national parks for the “enjoyment” of the people while leaving the parks “unimpaired” for future generations. But how could the NPS both cater to tourist enjoyment and keep the parks unimpaired and natural?

Stephen Mather, the first NPS director, adopted policies heavily on the enjoyment side. He worked to make the national parks self-supporting by promoting tourism. He encouraged park hotels built by the railroads, roads for automobile access, and private concessions like restaurants and tourist cabins. He supported park tourist attractions like the giant sequoia with a car tunnel, bear feeding shows, and Yosemite’s “firefall” where a stream of burning embers were dropped at night from Glacier Point to the valley far below.

Mather also introduced park rangers and championed new national parks such as Alaska’s Mount McKinley, Hawaii Volcanoes, and Acadia in Maine, the first park created east of the Mississippi. In 1919, he helped get Congress to finally upgrade Grand Canyon to a national park.

In the late 1920s, George Wright, a young naturalist at Yosemite National Park, began to publicly question NPS policies that mainly focused on tourism. He pointed to the other NPS mission to leave the parks unimpaired for future generations.

Wright conducted studies that contradicted long-held NPS ideas about such things as fighting all fires in the parks and removing predators like wolves. He concluded that park environments and wildlife should be largely left alone to take their natural course without interference from humans.

In 1933, Wright was appointed to head a new NPS wildlife division. He immediately began to hire biologists to work on habitat protection. Tragically, he was killed in an auto crash two years later, and the NPS lost interest in his ideas.

Restoring Ecosystems

After World War II, with the dramatic expansion of the national highway system, national parks became more popular than ever. Overcrowding led to demands for more roads and visitor facilities. But preservationists began to argue as George Wright did that healthy park ecosystems were more important than additional parking lots.

In 1963, a team of scientists studied NPS wildlife management policies. The scientists recommended restoring park ecosystems as much as possible back to their original natural condition. Congress responded to this new thinking by passing the Wilderness Act of 1964. Wilderness areas established within national parks and other protected areas were to remain wild without roads or motorized vehicles.

Following Alaska statehood in 1959, a major battle erupted among the state’s residents, native peoples, commercial interests, and preservationists over the distribution of millions of acres of federal land. Much of it was untouched by humans and teeming with wildlife. The preservationists saw Alaska as their last chance to get wilderness protection right. Others saw it as a storehouse of natural resources like oil to be tapped.

After a decade of debate, Congress passed a compromise act that President Jimmy Carter signed in
1980. The law created new national forests, wildlife refuges, wilderness preserves, and seven new national parks. This was the single largest expansion of protected land in world history. It more than doubled the national park system.

The current rationale for national parks has expanded again. It now includes restoring, where possible, original ecosystems. In 1967, the NPS reversed its long-held policy of suppressing all fires in the parks because natural fires are necessary to clear space for new growth and for certain tree seeds to germinate. In 1995, wolves were reintroduced into Yellowstone to restore nature’s way of weeding out weak animals and reducing overpopulated elk herds.

For nearly 150 years, the rationale for national parks expanded from simply preserving scenery to protecting wildlife, objects of historical and scientific value, endangered environments, and wilderness areas. Today, the rationale goes beyond protection to restoration of original park ecosystems.

The national park system now includes 59 national parks and 76 national monuments. The NPS also manages or helps to administer 263 historic parks and sites, battlefields, wildlife refuges, seashores, lake shores, wild rivers, trails, and other special places.

President Theodore Roosevelt declared Pinnacles, an area of unusual rock formations in central California, a national monument in 1908. More than 100 years later, President Barack Obama signed the law making it the newest national park in 2013.

Writer and environmentalist Wallace Stegner once said, “National parks are the best idea we ever had.” Evidence of this is that more than 100 nations have copied our national park idea to establish some 1,200 parks and preserves of their own.

**For Further Reading**


**DISCUSSION & WRITING**

1. What is the difference between “conservation” and “preservation” as championed by Gifford Pinchot and John Muir? Whose view do you agree with more? Why?

2. Do you agree with President Theodore Roosevelt’s decision to back the building of a dam in Yosemite’s Hetch Hetchy Valley? Explain.

3. The National Park Service has two somewhat contradictory missions: to provide for the people’s “enjoyment” of the national parks and to leave them “unimpaired.” Which mission do you think is more important? Why?

**National Park System Dilemmas**

Much controversy surrounds today’s national park system policies on preserving and restoring original ecosystem conditions. Form small groups. Each group should discuss and decide one of the following dilemmas. Each group will then report and defend its decision.

1. Lightning has ignited a forest in Yosemite National Park. Some want to let the fire naturally burn itself out. But this will scar the scenery for a decade or more, destroy many animals, and possibly threaten communities outside the park. What should park authorities do?

2. Wolves have been reintroduced in Yellowstone National Park. The state of Wyoming has set a limit on the number of wolves hunters may kill outside the park each year. After the limit is reached, should ranchers near the park be allowed to kill a wolf that is threatening livestock?

3. An elk has broken through the ice on a lake in Grand Teton National Park. The elk is weakening and will soon drown. Nearby is an NPS ranger with his vehicle that has a winch and rope. What should the ranger do?

4. The Arctic National Wildlife Refuge along Alaska’s northern coast is the largest protected wilderness in the U.S. Congress delayed deciding whether to permit oil drilling in Area 1002, making up less than 10 percent of the refuge. Supporters say drilling is needed to reduce U.S. dependence on foreign oil and keep gas prices from going too high. Opponents say that drilling sites, roads, pipelines and possible oil spills will harm the primitive ecosystem of Area 1002, which includes a birthing ground for caribou. What should Congress do?

5. In 2010, Congress and President Obama lifted the federal ban on visitors carrying concealed and loaded guns into the national parks. Those in favor cited the need for self-defense and Second Amendment rights. Those against warned about shooting at wildlife, illegal hunting, and park vandalism. As potential visitors to national parks, what is your view?
RACHEL CARSON
AND THE MODERN ENVIRONMENTAL MOVEMENT

In 1962, American biologist Rachel Carson wrote *Silent Spring*. Her explosive book revealed to the public the potential dangers of pesticides and also helped spark the modern environmental movement.

Rachel Carson developed an early interest in nature when her mother took her on walks in the nearby Pennsylvania fields and woods to observe wildlife. Even when she was young, she seemed to have a gift for writing.

Carson attended a small Pittsburgh woman’s college (now called Chatham University). She was determined to become a writer. After taking biology classes from an outstanding female professor, Carson decided to become a marine biologist, a career then dominated by men.

Following graduation in 1929, Carson got a full scholarship as a zoology graduate student at Johns Hopkins University in Baltimore, Maryland. She completed her master’s thesis on catfish embryo development in 1932 and received her MA degree, but she did not have the money to go on for a PhD.

America was in the midst of the Great Depression, and Carson’s impoverished parents came to live with her in Baltimore. Carson supported them by working part time. Later, her divorced sister and brother also moved in. She never married, but she supported and took care of her family. She even adopted her young grandnephew when his mother died.

In 1935, Carson found a job with the U.S. Bureau of Fisheries (later called the Fish and Wildlife Service), writing short radio scripts on fish biology. This experience taught her how to write about science in a way that appealed to the public. The next year, her boss at the Bureau hired Carson as a junior aquatic biologist.

Carson wrote an essay for the Bureau describing a tour of the sea from the shoreline to the ocean’s depths. Her boss said it was too good for a Bureau publication and encouraged her to submit it to a magazine. *Atlantic Monthly* quickly accepted the essay and published it in September 1937.

A book publisher contacted Carson to expand her essay. Published in 1941, *Under the Sea Wind* told the story of the sea from the viewpoint of a bird, a fish, and an eel. While most marine biologists of the time studied sea creatures in the lab, Carson studied and wrote about the creatures’ relationships with one another and their environment.

Carson wrote two more books about the sea, which made her a national best-selling author on ocean life. By 1955, she was financially secure and had quit her government job to do more writing.

‘Rachel’s Poison Book’

In 1958, Carson learned about a court case in New York. Residents were suing the U.S. Department of Agriculture to stop aerial (from airplanes) spraying of the pesticide DDT to kill a bothersome insect. The residents claimed that the DDT spraying was poisoning birds, fish, marine life, beneficial insects, and probably people.

Pesticides come in two common types: insecticides, which kill insects, and herbicides, which kill weeds. DDT (dichlorodiphenyltrichloroethane) is a synthetic (man-made) chemical insecticide. DDT was used successfully during
World War II to control malaria and other diseases carried by insects. After the war, it was adopted widely to kill insects damaging farm crops and other insect pests.

Carson decided that her next book would describe the effects caused by the careless use of DDT and other synthetic chemical pesticides on the environment, wildlife, and humans. Her friends referred to this as “Rachel’s poison book.”

Carson wanted to build her case on a solid foundation. She did not, however, conduct scientific studies herself. Instead, she took four years to assemble the most current scientific research, reports from government agencies, testimony before committees in Congress, and case studies of what happened when pesticides were used.

In the middle of her writing, Carson was diagnosed with breast cancer. Radiation treatment and a temporary episode of blindness prevented her from working. She finally recovered enough in the summer of 1961 to continue writing.

Silent Spring

In September 1962, Silent Spring appeared in bookstores nationwide and caused an immediate sensation. Carson said her purpose in writing this book was first to inform the public about the downside of pesticides and to spur the government to take necessary action.

Carson put most of the blame for this threat to life on government scientists because they failed to test the effects of pesticides but still assured the public they were safe. She also faulted chemical companies that sought economic gain with little concern for damage to the environment.

Carson discussed what her research revealed about DDT. This synthetic chemical insecticide can be stored in the fatty tissues of animals and humans and can accumulate to high levels. DDT also lasts a long time in the environment after it is used to get rid of pests. Scientists at the time were not sure how much DDT could be stored in the human body without causing illness.

Carson studied research on other insecticides that were sometimes more deadly than DDT. Parathion attacked the nervous system of insects. Persons exposed to this insecticide experienced trembling, muscle spasms, convulsions, and in some cases death.

Carson described the case of Clear Lake, Calif., where diluted amounts of an insecticide weaker than DDT were applied to get kill gnats that bothered fishermen. When grebes and other birds began to die, scientists found they were loaded with the insecticide. Yet, it was no longer present in the lake water.

Toxicity

The scientists discovered that tiny organisms had absorbed the insecticide. Fish ate the organisms, and birds ate the fish. The astonishing thing was that as the insecticide traveled up the food chain, its concentration increased until it reached a toxic level in the birds.

Carson described the spraying of DDT to exterminate the elm tree bark beetle. The DDT got into the soil where it persisted for a long time. Robins ate earthworms that had digested the DDT. Many of the birds either died or could not reproduce.

The killing off of up to 80 percent of robins in some areas greatly cut down the number of insects they ate. What started as an effort to eliminate a bark beetle ended up enabling insect populations to explode.

By 1950, scientists noticed a drastic decline in bald eagles. The scientists Carson contacted didn’t know the reason for the decline, but suspected insecticides were somehow involved.

Carson was especially critical of the widespread practice of aerial spraying of pesticides. She called this “the chemical death rain” that
not only killed the targeted insect or weed, but also wildlife, animal habitats, and sometimes people.

In 1958, the U.S. Department of Agriculture (USDA) began an aerial spraying program to eradicate fire ants. The ants had a nasty sting and built mounded nests up to five feet high that hindered farm equipment. The USDA sprayed millions of acres with insecticides more deadly than DDT. This blanket spraying killed bees and other beneficial insects, wild birds and mammals, farm animals, and pets. It also contaminated cows’ milk. But the fire ant continued to thrive.

The main reason the fire ant survived, Carson explained, was that they, like other pests, can develop a resistance to insecticides. Some insects inherit immunity against chemical attack. When sprayed, the insects without immunity are killed off. Those with this protection pass it on to the next generation. In a matter of a few years, the insecticide becomes ineffective.

Carson also criticized the over-use of herbicides. Blanket spraying to kill weeds destroyed other plants that reduced wildlife food supplies and habitats.

Carson investigated whether pesticides could cause cancer in humans. At the time, studies involving lab animals proved some pesticides were carcinogens (cancer causing agents). But the connection between pesticides and cancer in humans was unproven.

Carson ended *Silent Spring* with a discussion of alternatives to the destructive pesticide practices she had described. To avoid the problem of insect genetic resistance, she called for alternatives such as introducing the natural enemies of pests to keep them in check.

Carson stated clearly: “It is not my contention that chemical insecticides must never be used.” She realized that they may have to be used to control human diseases. Her main concern was that they were largely untested, carelessly used, and could “destroy us along with the insects.”

### The Explosive Reaction

The reaction of some scientists, government agencies, and chemical companies was harshly critical. The worst attacks accused her of being a “fanatic defender of the culture of the balance of nature,” an “emotional spinster,” “not a scientist,” and “probably a Communist.”

Government scientists denied pesticides were harmful and pointed to their role in increasing food production. The chemical industry launched a campaign to show the horrors of starvation and disease that would occur if pesticides were banned. But academic scientists and environmental groups applauded Carson. Meanwhile, *Silent Spring* zoomed to the top of the bestseller list and won numerous awards.

On April 3, 1963, *CBS Reports* presented a TV program on the controversy over *Silent Spring*. Carson calmly explained the evidence from her book. The chemical industry representative appealed to emotion, charging that Carson wanted to take us back to a time when insects and diseases dom-inated the Earth.

An estimated 10–15 million people saw the program. Suddenly, the environment was on the national agenda. The following month, President John Kennedy’s Science Advisory Committee released its report, “The Use of Pesticides.” It clearly supported Carson’s evidence and criticized government pesticide programs.

Carson presented her own recommendations before a congressional committee in June 1963. She called for strict control of aerial spraying and the eventual elimination of long-lasting pesticides like DDT.

Although she was suffering from cancer, Carson kept on making speeches to explain her views on pesticides. On April 14, 1964, she suffered a heart attack at her Maryland home and died at age 56.

### The Modern Environmental Movement

*Silent Spring* revived interest in ecology, the study of the relationships between living things and their environment. Carson’s point was that people were fouling the environment, which threatened all life, including human.

In January 1970, President Richard Nixon in his State of the Union address said that past carelessness had created a “debt to nature.” He called for a major effort to repair “the damage we have done to our air, to our land, and to our water.”

April 22, 1970 was the first Earth Day, when millions of Americans demonstrated to increase public awareness about pesticides, pollution, and other environmental issues.

Congress and President Nixon responded with the first significant federal environmental protection laws in U.S. history. The National
Environmental Policy Act of 1970 established the Environment Protection Agency. Other important legislation included:

- Clean Air Act Amendments (1970)
- Clean Water Act (1970)
- Federal Environmental Pesticide Control Act (1972)
- Endangered Species Act (1973)

The Environmental Protection Agency (EPA) had authority to certify only those pesticides with “no unreasonable adverse effects.” In 1972, the EPA banned DDT use, except to protect public health.

During the 1970s, the modern environmental movement emerged and achieved a great deal, including the creation of an entirely new area of law that remains in effect today. By the end of that decade, environmentalism had reached its peak. Environmentalists began to encounter resistance from those who argued that the laws and regulations went too far and slowed economic growth.

Fifty Years Later

Rachel Carson still has critics today. Some charge that her relentless criticism of DDT caused its extensive global banning, which has resulted in the deaths of millions from insect-carrying diseases like malaria. Nevertheless, the early scientific evidence about the hazards of pesticides that she reported in *Silent Spring* has been largely confirmed.

The puzzle about what was causing the drastic reduction in bald eagles was solved when studies proved that DDT sterilized them or thinned their eggs. The eggs were often crushed by the weight of the big birds while hatching them.

In humans, DDT and other long-lasting pesticide chemicals may cause such conditions as diabetes, nervous system disorders, and child development problems. The Environmental Protection Agency classifies DDT as a “probable” carcinogen.

The biggest controversy over pesticides today involves using DDT to combat malaria. In 2010, more than 200 million malaria cases, resulting in 655,000 deaths, were reported, mostly African children under age 5. Long-lasting DDT has been proven to be the most effective and cheapest way to eliminate malaria by killing the mosquitoes that carry it.

The U.N.’s World Health Organization (WHO) successfully relied on DDT to combat malaria in the 1950s and ’60s. Genetically resistant mosquitoes brought about mainly by the widespread use of DDT in agriculture, however, made it less effective. In 1970, WHO began to promote the use of non-chemical alternatives. These included such things as distributing bed nets, draining mosquito breeding areas, and providing increased medical treatment for malaria victims. But they proved to be less effective than DDT.

In 2001, 150 nations signed a treaty that banned DDT and other long-lasting pesticides in agriculture, but permitted it to control diseases like malaria. In 2006, WHO recommended DDT spraying of indoor walls and other surfaces in people’s houses. This minimized its harmful effects on wildlife and the environment.

Evidence now exists, however, that many exposed to indoor spraying have high levels of DDT chemicals in their bodies. These chemicals in the breast milk of some mothers exceed allowable levels, which could be dangerous to their babies.

**DISCUSSION & WRITING**

1. What do you think was the most harmful thing about the use of pesticides that Carson revealed in *Silent Spring*? Why?
2. How did Carson use ecology to make her case against the careless use of pesticides?
3. Do you agree or disagree with the charge made by some that Rachel Carson is responsible for the deaths of millions of malaria victims? Why?

For Further Reading


**ACTIVITY**

**Should DDT Be Used to Combat Malaria?**

Form small groups to discuss which policy you think the U.N.’s World Health Organization should adopt, regarding the use of DDT to combat malaria. Each group will report its decision along with its reasons backed up by information from the article.

A. DDT should be banned and replaced with non-chemical alternatives.
B. DDT should be used only for indoor spraying.
C. DDT should be used until an equally effective pesticide is developed that is less harmful to the environment and humans.
D. DDT should be used only in areas that are greatly impacted with malaria.
E. DDT should be used without restriction to eradicate malaria.
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One of our most popular texts returns in a new edition – Of Codes & Crowns is fully revised and updated. And it now has a companion volume, Of Democrats & Dictators, which begins where Codes leaves off. The two volumes trace the development of law from ancient Mesopotamia to modern times. Each volume features lessons with:
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Web Links: Our web site has links to additional resources for each unit.

Volume One: Of Codes & Crowns (3rd Ed.)
From the Ancient World to the Renaissance

Unit 1: Hammurabi’s Treasure explores one of the first-known written codes of laws, the Code of Hammurabi, based on an “eye for an eye.”

Unit 2: Blood Feud highlights one of the major problems with an “eye for an eye,” the never-ending blood feud. It tells the story of Orestes, which is the mythological origin of the Greek tribunal, and examines the tribunal process for settling blood feuds.

Unit 3: Jewish Law looks at one of the foundations of the Western legal tradition, the law of Moses.

Unit 4: Roman Law examines the most influential and sophisticated legal system of the ancient world and shows how it developed.

Unit 5: Islamic Law analyzes the Sharia, the system of law based on the Koran and the Sunna (the teachings and practices of the Prophet Muhammad).

Unit 6: Merry Old England looks at different legal processes in medieval England – trial by combat and ordeal – and examines the beginnings of the jury system.

Unit 7: The Magna Carta tells the story of King John’s battles with the church and his barons and how his battles led to his signing the Magna Carta, one of basic guarantees of English freedom.

Unit 8: The Trial of Galileo tells the story of Galileo, the greatest scientist of his time, and his conflict with the Catholic Church, which resulted in his trial for heresy.

Volume Two: Of Democrat & Dictators
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Unit 3: The Code Napoleon explores the first modern code of laws, which became the model for legal systems in most other nations in the world.

Unit 4: The Dreyfus Affair examines the trials of the innocent man Alfred Dreyfus and the role the press played in his convictions and ultimate vindication.

Unit 5: The Totalitarians looks at the perversion of law under Hitler’s Nazi Germany and Stalin’s Soviet Union.

Unit 6: War Crimes focuses on the development of rules of war, their implementation in the Nuremberg trials following World War II, and the creation of the International Criminal Court.

Unit 7: Gandhi and Civil Disobedience looks at Gandhi and the question of when it is proper to disobey the law.

Unit 8: International Law traces the emergence of international law in the modern age and looks at its value and limitations.

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- Plessy v. Ferguson (1896)
- Schenck v. U.S. (1919)
- Palko v. Connecticut (1937)
- Brown v. Board of Education (1954)
- Mapp v. Ohio (1961)
- Gideon v. Wainwright (1963)
- Miranda v. Arizona (1966)
- Regents of UC v. Bakke (1978)

Web Links: Landmarks Links offer extensive links to more information on each case and on how the Supreme Court works.

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