AIR FORCE HISTORICAL STUDIES

Natural Defense

U.S. Air Force Origins of the Department of Defense Natural Resources Conservation Program

Jean A. Mansavage

AIR FORCE History and Museums PROGRAM

COVER

A moose crosses in front of an F–16C Fighting Falcon at Eielson Air Force Base, Alaska, during an exercise on May 13, 2003. Photo by TSgt. Robert Jensen. *USAF.*

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U.S. Air Force Origins of the Department of Defense Natural Resources Conservation Program

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This work relates the story of why the U.S. Air Force took the lead among the military services in developing a comprehensive conservation program and how efforts by the Air Force laid the groundwork for the Department of Defense natural resources program that followed. The book also situates USAF/DOD conservation efforts within the context of U.S. military environmental engagement across the decades, and within the broader scope of the emerging conservation/environmental movement in the post-World War II United States.

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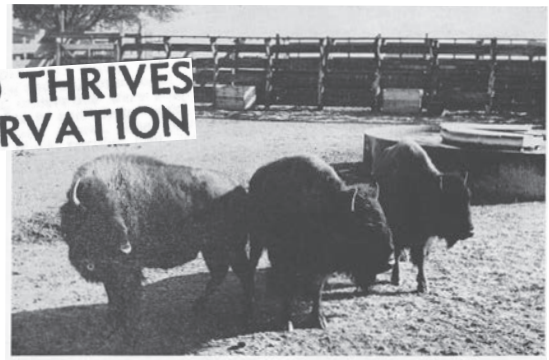
FORT HUACHUCA RANGE SOUGHT FOR WILDLIFE

HERD OF BUFFALO THRIVES ON ARIZONA RESERVATION



Before being run through a fenced chute to be shot with high-powered rifles, the bison were corralled and then released for slaughter in small groups.

GAME GROUP THREATENS TO JAIL GENERAL

TUCSON (AP) — The Arizona Game Protective Assn. has demanded that the U.S. 6th Army deliver Brig. Gen. Emil Lenzner, commanding officer of Ft. Huachuca, to Arizona civil authorities "for prosecution as a criminal when criminal charges are filed against him" for killing deer on the Ft. Huachuca reservation.

Death Knell Sounded for Buffalo Herd

PHOENIX (AP) — Most of Arizona's Ft Huachuca buffalo herd will be killed off in a two-section hunt between Jan. 12 and Jan. 25.

The Arizona Game and Fish Commission authorized the hunt for 220 of the 290 animals in the herd Saturday. The commission said the herd was causing too much interference with operation of the military reservation by the Army Signal Corps.

The remaining buffalo, along with some calves and a few yearlings, will be moved to Raymond Ranch, near Flagstaff, and to Kaibab National Forest.

The commission said a previously scheduled buffalo hunt Jan. 12-15 will go on as planned with 85 hunters each permitted to kill one animal.

Tragedy at Huachuca

I ATTENDED a political execution. There was an Arizona range, shining gold to the horizon. Coverlets of sparkling snow lay on the timbered hills around us. The very ground was a Federal area, but, notwithstanding its setting, the tragic affair was as completely confused as those pogroms that accompany other conflicts of political groups.

By the time these words are read Arizona's largest herd of buffalo, numbering 220 head, will be gone.

A part of the slaughter of the bison were the unborn calves, the bodies of many littering the ditch below the skinning racks.

Images courtesy of the family of the photographer, Frank A. Tinker.

Prologue

In January 1955, the Arizona Game and Fish Commission acquiesced to U.S. Army demands, rounded up 220 bison that had pastured since the end of World War II on idle rangeland at Fort Huachuca, Arizona, and corralled them into pens near the main post.[1] Wranglers released the bison, grouped in tens, down a narrow runway of parallel barbed-wire fences into a small clearing 200 yards away. They trotted into a field, past shooters with high-powered rifles concealed by several small oak trees. There civilian hunters, who had been selected by lottery and paid a $25 fee to take part in the hunt, fired at will at the great beasts. If they missed, horse-mounted game managers turned the animal back within shooting range until the bison was dead, or "nearly enough so that its throat can be cut." The average shooting distance from man to animal was about twenty yards. It was "like shooting fish in a barrel," according to the author of a *Nature Magazine* article who witnessed the event. After each group of animals was dead, the firing paused to allow the huntsmen to haul the carcasses to the skinning racks and claim the animal's head, hide, and a quarter of its meat. Since the shoot occurred just before birthing season, all unborn calves were discarded in a nearby ravine.[2]

How did this "exhibition of brutal indifference and ignorance too gross for tolerance" occur at Fort Huachuca?[3] When the Army post, located about twenty miles north of the Mexican border, became surplus property after World War II, the state of Arizona gained deed to the land in September 1947 and assigned administration of 35,000 of the total 76,000 acres to the state game and fish commission. The open, uninhabited Fort Huachuca rangelands were ideal for wildlife purposes and were used to reestablish native wildlife and study other species. In May 1949, the commission turned the land it had received from the state into a permanent game preserve and established a herd of 114 bison for scientific study and rangeland research. There was still a limited military presence as the National Guard trained two weeks a year on 12,000 nearby acres.[4]

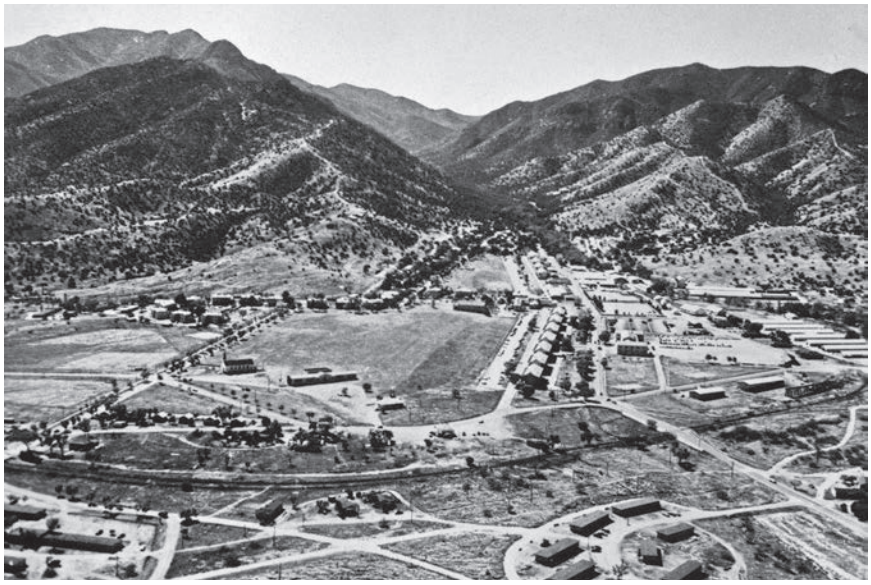
To assist with the Korean War military buildup, in January 1951, the secretary of the U.S. Air Force wrote the governor of Arizona and reversed

Arizona's deed to Fort Huachuca and briefly converted it into an Air Force base. In May 1951, the Army regained jurisdiction over the installation, although the Air Force controlled the engineer aviation training center on the post, where it conducted basic training for airmen and provided experience for aviation engineers. The Air Force encountered minimal conflict with the bison because the engineers never used the ranges.[5]

On May 1, 1953, the Department of Defense again inactivated the post, but that closure proved short-lived. In February 1954, the Army relocated its electronic proving ground from Fort Monmouth, New Jersey, to Fort Huachuca, which offered vast open space to fly drones and minimal electromagnetic interference for tests of new electronic warfare equipment. The proving ground grew rapidly under Brig. Gen. Emil Lenzner's command, leading him to order the Arizona Game and Fish Commission to move the bison herd to unused portions of the installation to make room for training and new housing areas.[6]

Demands concerning the bison intensified after the state of Arizona issued a warrant for Lenzner's arrest for authorizing an illegal deer hunt in November 1954 that killed fifty-eight deer. This hunt, by shooters lacking

Brig. Gen. Emil Lenzner, USA (*standing, in jeep*), is shown reviewing the troops at Fort Huachuca, Arizona. Despite the bison controversy, Lenzner was promoted to major general in August 1955. He remained an influential figure in the area and is buried at the fort. *U.S. Army.*



An aerial view of Fort Huachuca, Arizona, in 1950. After World War II, the facility was deeded to the state, which established a bison herd on a portion of the camp's rangeland. The herd thrived and became one of the largest in the United States. *Library of Congress.*

Arizona hunting licenses, occurred two weeks after the state's deer season closed. The game commission had denied the commander's request to allow his men to kill wildlife on the installation without licenses, but Lenzner justified the shoot by claiming that the deer were "damaging the shrubbery and were a danger to children playing in the housing area, and were damaging the golf course." Lenzner could have been liable for a fine of not less than $100 for each deer slain or six months' imprisonment on each count.[7]

Although law enforcement officials later suspended the arrest warrant, influential members of the Arizona Game Protective Association and the Prescott Sportsmen's Club decried Lenzner's actions, and the association's executive secretary, Max T. Layton, called on the commander of the U.S. Sixth Army, Lt. Gen. Willard G. Wyman, to deliver Lenzner to Arizona civil authorities for criminal prosecution for violating a pact between the governor of Arizona and state game officials and representatives of the Sixth Army. These parties had signed a written agreement authorizing the Arizona Game and Fish Commission to manage all game on the post after the Army regained jurisdiction over Fort Huachuca in 1954.[8]

In another letter from the Arizona Game Protective Association, written by executive board member William H. Beers to U.S. Senator Barry M. Goldwater (R-AZ), with copies to U.S. Army leaders and state and federal officials, the association charged that the "arrogant flouting of the laws"

by Lenzner "must be vigorously protested to assure the people of Arizona that their rights will be protected. An example must be made at this time to prohibit future incidents of this type." Beers added, "A very unhealthy situation has developed, due to one man's arrogance and egotism, and unless halted could well be used as a precedent by other military bases throughout the country to freely kill all game on these posts." State game officials anticipated repercussions for their demands that charges be filed against Lenzner and ominously predicted the bison's doom, asserting that "because of the general's show of contempt for the laws and officials of Arizona there exists a fear that until action from higher up has been taken, criminal charges might precipitate a killing of the most valuable buffalo herd."[9]

In apparent retaliation, Lenzner ordered intensified harassment of the herd in the final months of 1954. The commander made the commission move the herd on the installation forty-nine times in five months, claiming that the bison interfered with the electronic proving ground's mission and his ability to use the rangeland. Lenzner's demands made maintenance of the herd costly and physically hazardous for game managers, and as political pressure mounted on the game and fish commission, its leaders decided to rid themselves of the matter entirely.[10]

In the end, General Lenzner and the U.S. Army forced the Arizona Game and Fish Commission's hand and provoked one of the worst depredations of wildlife on military lands. The illegal deer hunt and the bison liquidation demonstrated the blurred jurisdiction over control of wildlife on military installations among state and local law-enforcement officials and local military leaders. State and local conservation officials across the country came to view incidents like the hunting violations at Fort Huachuca as demonstrations of federal agencies' encroachment on state wildlife management prerogatives, which had become what one historian described as a long-standing "simmering pot of contention between the states and federal government on jurisdiction over resident wildlife."[11]

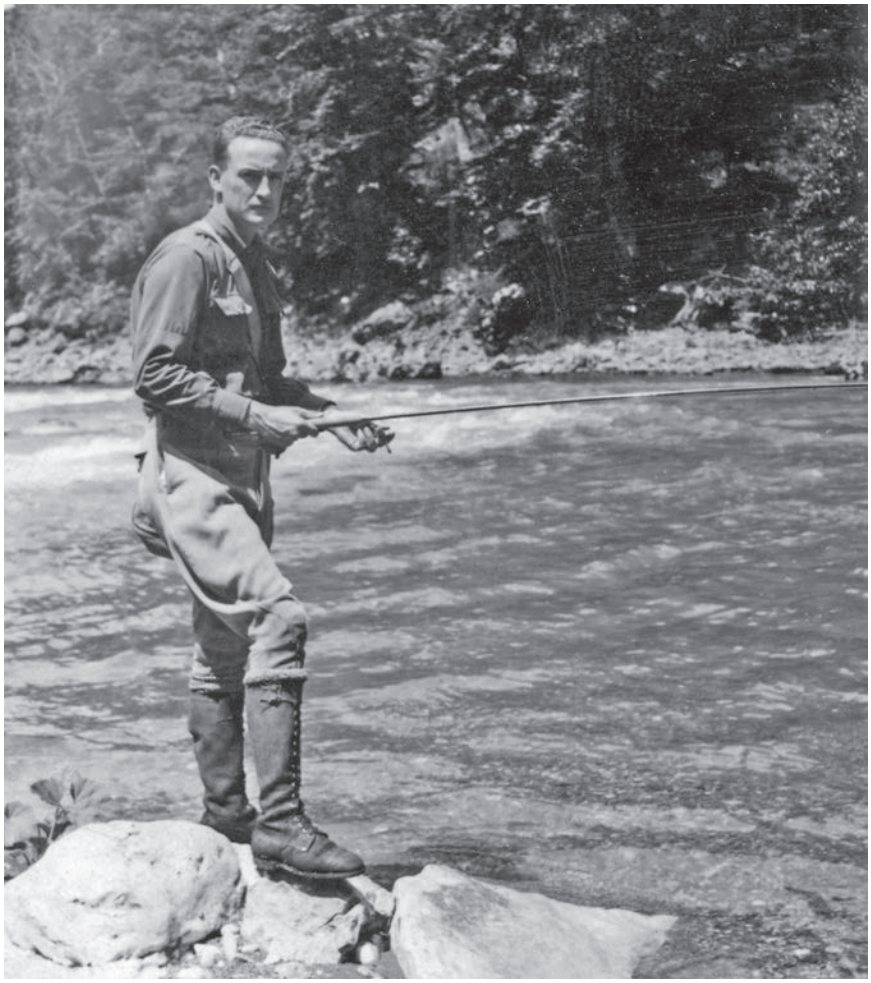
This episode, along with several concurrent high-profile cases of game law violations by military personnel elsewhere, embittered many conservationists and game management professionals against the military and created a storm of protest among local sportsmen. These incidents prompted Congress to expand a land-use investigation to include hunting and fishing activities on Defense Department lands.[12] The Air Force's proactive response to the congressional probe included the establishment of an institution-wide conservation program, which Congress would eventually mandate that the rest of the services emulate.

Introduction

This study examines the origins of the U.S. Air Force Fish and Wildlife Conservation Program and the Department of Defense natural resource management efforts that followed. It considers why the U.S. Air Force took the lead among the military services in developing a program to protect natural resources on Defense Department lands and tells how the service's top officers, who had long associations with notables in conservation and sportsman circles, shaped these conservation efforts. In addition to detailing the legislative hearings and laws that prodded the military into action, this work describes the interaction among military leaders, conservation advocates, members of Congress, and American citizens who, fueled by the broader natural resources conservation movement that was gaining traction in the country in the 1940s and 1950s, created an atmosphere conducive to substantive improvements in fish and wildlife programs on military lands.

As detailed in the first chapter, from its earliest days, the U.S. military played a significant role in exploring and documenting the country's vast natural resources and biological wealth. U.S. Army officers led the Lewis and Clark expedition and the Pacific railroad surveys, among other endeavors. In the latter part of the nineteenth century, the Army protected and helped shape the earliest national parks. With the advent of the U.S. Forest Service and National Park Service, the Army and its new Air Service found other nature-related duties during World War I and the interwar years, culminating with involvement in supervision of camps of the Civilian Conservation Corps.

Military leaders in authority after World War II had a keen understanding of the natural world. As discussed in chapter 1, these men were born at the end of the nineteenth and beginning of the twentieth centuries and raised in an era when men found respite and recreation in the outdoors, but also in a time when natural resources diminished dramatically. By the time they were established military officers in the 1930s, the ad hoc conservation efforts of their youth had evolved into a more organized national program to restore



Thomas D. White, shown in an undated photo likely prior to World War II, was an avid outdoorsman. As vice chief of staff and subsequently chief of staff of the Air Force in the 1950s, he oversaw the development and implementation of the service's conservation program. *Courtesy of the White family.*

American forests, rivers, and prairies. As products of a largely rural, often middle-class upbringing, these officers reflected the social standards of the period. Yet their military education and training instilled in them an advanced sense of ethics and behavior that also aligned them with the upper-class sportsmen conservationists who emerged in the late 1800s and early 1900s.

The U.S. Air Force established its comprehensive natural resources conservation program nearly a decade before the other services and the Department of Defense began similar initiatives. This Air Force program emerged largely because of a distinctive service culture that fostered

Col. Robert J. Pavelko (*left*), 45th Space Wing vice commander, and Lt. Col. James Sayres, 45th Space Wing Detachment 1 commander, released rehabilitated sea turtles back into their native habitat at Cape Canaveral Air Force Station, Florida, on November 29, 2012. The Florida Fish and Wildlife Conservation Commission and Sea World coordinated the turtles' recovery. *USAF.*

innovative methods of problem solving. As covered in chapter 2, Air Force culture developed during its formative years under the influence of leaders who emphasized unconventional, nonconformist approaches to problem-solving, sensitivity to public and political influences, and the power of the media and publicity. Equally important, early aviators, specifically, had a different perspective of the natural world, and military leaders, generally, had absorbed the previous generation's evolving awareness of conservation values. Those first pilots who later emerged as Air Force leaders experienced an intimate relationship with nature. Reliant on fair weather for safety and physical landmarks for navigation, these men sensed they were a part of their environment, not apart from it. Air Force generals Henry H. "Hap" Arnold, Carl A. "Tooey" Spaatz, Nathan F. Twining, and Thomas D. White—all

Steve and Erica Laine of the 96th Civil Engineer Group on a kayak tour of the range at Eglin Air Force Base, Florida, in April 2010. The Sikes Act of 1949 formally established Eglin's fish and wildlife conservation program, which served as the foundation for a later service-wide effort. Photo by Samuel King Jr. *USAF.*

enthusiastic outdoorsmen with friends in conservation and sportsman organizations—were some of the first military officers to acknowledge the relationship between natural resources and national security. They shaped a service-wide atmosphere that promoted a respect for the environment years before the concept became widely fashionable.

A significant segment of this story explains how three key pieces of legislation induced all of the military services to remedy their inconsistent, and in many cases unlawful, fish and wildlife management policies: the Sikes Act of 1949 (Public Law 81–345), the Engle Act of 1958 (Public Law 85–337), and the Sikes Act of 1960 (Public Law 86–797). These laws raised political and public awareness of conservation problems on military installations, compelled the Defense Department to overhaul its land stewardship practices, and initiated the first wave of natural resources management on military lands.

The Sikes Act of 1949, "An Act to promote effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in the Eglin Field Reservation," allowed the commander at Eglin, a 650-square-mile air installation on the Florida Panhandle near Fort Walton Beach, to reinvest fees for hunting and fishing

Peter Howorth, director of the Santa Barbara Marine Mammal Center, returns a rehabilitated baby Northern California Elephant Seal to the ocean on a beach at Vandenberg Air Force Base, California, in April 2012. The Air Force works with state and local wildlife officials across the country to help perserve animals in their native environments. Photo by Jennifer Green-Lanchoney. *USAF.*

licenses into conservation activities on the base. During consideration of the initial Sikes Act, the fledgling U.S. Air Force served as the executive agent for the Department of Defense on fish and wildlife conservation matters, which established a precedent for the Pentagon to rely on the Air Force when dealing with later environmental issues.

Throughout this post-World War II period, traditional concepts of natural resource conservation began transforming into modern environmental principles, a process that reflected significant U.S. social and economic changes. As increasing numbers of Americans participated in outdoor recreational activities, they also became aware that ecological problems that existed before the war had not disappeared and in many cases had worsened. At the same time, mounting Cold War requirements and evolving weapons technology required the Defense Department to expand its physical footprint, often onto public domain lands. That growth soon collided with intensified human use of limited land resources and led Americans and their elected officials to question the military's need for such large swaths of public land. The resulting discord developed into an official congressional inquiry about Department of Defense land acquisition and natural resource management practices.

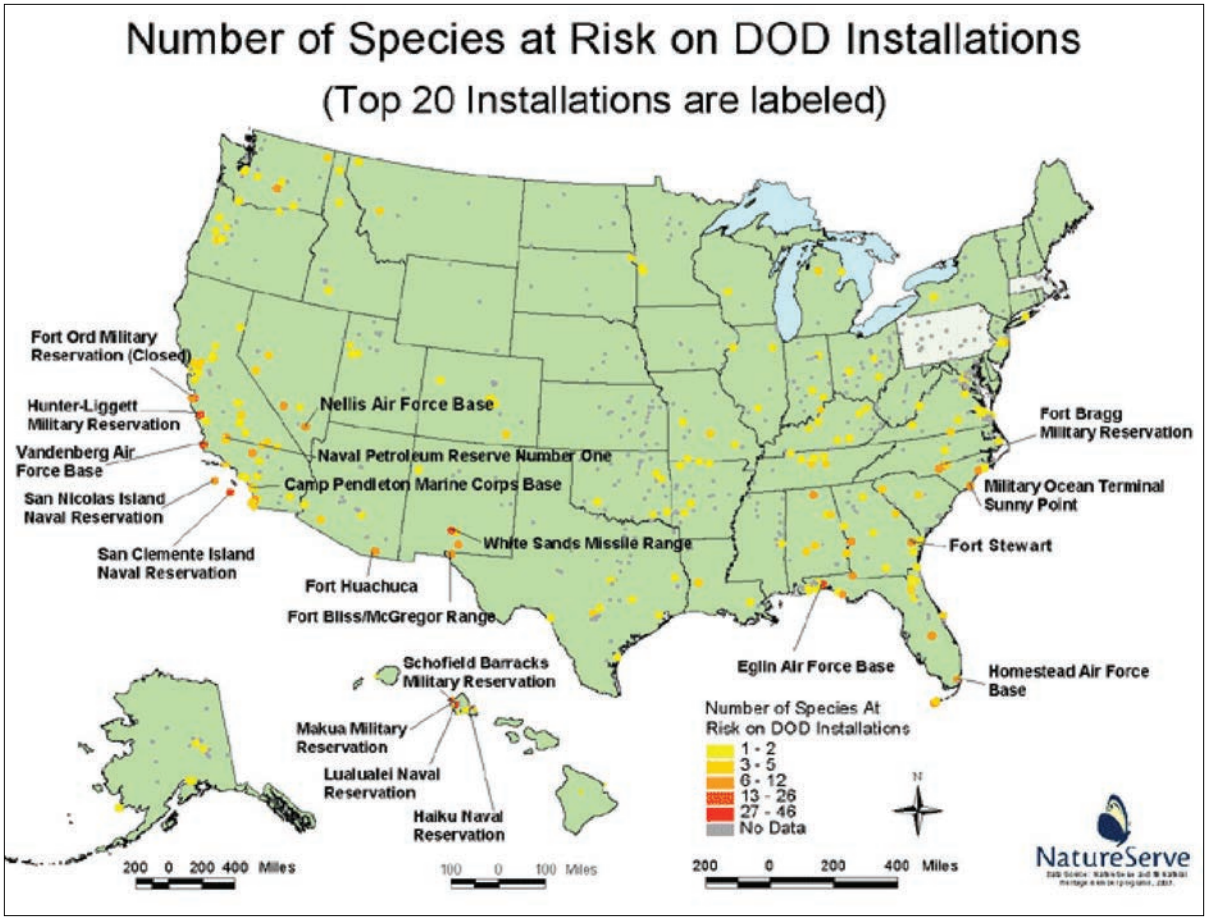
During 1956–57 congressional hearings on military landholdings, testimony from civilian natural resource professionals revealed that the Defense Department's fish and wildlife management policies were outdated, grossly inconsistent, and often violated state and local laws. Information presented during these hearings led Congress in 1958 to pass the Engle Act, "The Withdrawal and Utilization of Public Lands of the U.S. Defense Agencies Act," which required congressional approval for the military to withdraw more than 5,000 acres from the public domain. Further, it mandated that the military services overhaul their fish and wildlife regulations, standardize them across all installations, and require full compliance with local and state fish and wildlife and conservation laws.

While the 1956–57 hearings were ongoing, Air Force leaders responded proactively to congressional criticism by ordering a revision of the service's natural resource regulations; establishing a formal conservation program in Air Force headquarters; and cooperating closely with the U.S. Fish and Wildlife Service to create effective fish and game measures on Air Force bases. The Air Force took these actions largely because of its previous institutional success with conservation programs on individual installations, notably in the Alaskan Command, starting in 1948, and at Eglin Air Force Base. By the time the Engle Act became law, the Air Force had a decade of experience with these localized fish and wildlife conservation programs.

Efforts to reduce the number of bird strikes have been a point of emphasis with the Air Force Fish and Wildlife Conservation Program since its founding. The photo shows the program's first civilian advisor, Elwood A. "Woody" Seaman, manning an exhibit on this subject at a conference in the 1960s. *USAF photo, courtesy of Rusty DeGroat.*

Congress expanded the 1949 Sikes Act with the 1960 Sikes Act, which stipulated that the Defense Department create a centralized natural resource conservation program and required that all the military services fully implement the provisions of the Engle Act. Because the Army, Navy, and Marines had little practical experience with comprehensive natural resource management, the Air Force conservation program served as the model for all the services, and for the umbrella Department of Defense plan.

While congressional mandates like the Engle and Sikes Acts induced the Department of Defense to institute natural resource management plans on its military installations, it was a handful of environmentally conscious Air Force leaders who devised natural resource initiatives that established the blueprint for enduring Defense Department natural resource management policies. First within the Air Force, and later among the other services, this confluence of influential, environmentally aware men and new natural resource laws brought forth an extensive fish and wildlife program at a pivotal time in American conservation history when public concerns about environmental quality and ecology began taking shape in the environmental movement of the 1960s and 1970s.



NatureServe, 2004.

The U.S. Military and National Resource Awareness through World War II

The U.S. military played a significant role in exploring and protecting the American frontier and its natural resources during the nineteenth century. After the Louisiana Purchase in 1803, the U.S. Army was the only American institution large enough to establish federal authority over this vast expanse of land that stretched from the Mississippi River to the Pacific Ocean. During this period, the Army was charged with reconnoitering the new territory. While many Americans recognize the names of Lewis and Clark, not all are aware that it was *Captain* Meriwether Lewis and *Second Lieutenant* William Clark of the U.S. Army who led the Corps of Discovery on its mission of exploration. Soon thereafter, Lt. Zebulon Pike Jr. took an expedition into the Great Plains and Rocky Mountains. Exploration continued into the 1840s with Lt. John C. Frémont's four western expeditions. These various Army-led efforts laid out the nation's boundaries, aided western settlement by constructing wagon roads, and improved rivers and harbors to develop U.S. trade.[1] Soldier-explorers scientifically surveyed and mapped the western United States while leading teams of botanists, geologists, astronomers, and meteorologists who systematically collected data and catalogued the nation's natural resources.[2]

The Army, which created the Corps of Topographical Engineers in 1838 to oversee these functions, also led three separate Pacific Railroad Explorations and Surveys during the 1850s to determine which of the northern, middle, or southern routes would be most efficient for a transcontinental railroad line. In the process, the Pacific surveys produced thirteen written volumes, 147 lithographs, and uncounted specimens that provided a scientific inventory of natural features and phenomena in the American West.[3] The Old Army, the small U.S. frontier constabulary that existed between the Revolution and Spanish-American Wars before Army modernization at the cusp of the twentieth century, also helped delineate and protect the country's fledgling national parks, Yellowstone and Yosemite, from illegal timber cutting, unauthorized sheep and cattle grazing, mining, and criminal trespassing.[4] These assignments established the first precedents for military involvement in the natural world.

Young topographical engineering officers who led many of the early expeditions made up a small component of the U.S. Army, no more than thirty-six officers at any one time. Yet in the years when the Corps of Topographical Engineers existed as an independent unit equal to the regular Corps of Engineers, between 1838 and 1863, more than 85 percent of Topographical Corps officers were trained at the U.S. Military Academy at West Point. As such, they had absorbed the West Point values that associated the country's land and natural resources with the strength of its democracy. According to historian William H. Goetzman, the Corps of Topographical Engineers was a "central institution of Manifest Destiny."[5]

The core of the West Point curriculum—mathematics—provided the foundation for engineering and secondary physical science subjects such as geology, astronomy, chemistry, mineralogy, and botany, disciplines that would have direct application in the future topographers' western exploration.[6] According to historian Harvey Meyerson, this curriculum had a significant influence on the "Old Army's character, including army attitudes toward the natural environment. . . . [I]t made army officers skilled and knowledgeable scientific observers of nature." By the time West Point graduates began their Army careers, they already understood "their country's geography, meteorology, and geological composition. They could prepare detailed topographical maps of its mountains and valleys. They had learned to identify and sketch its flora and fauna. And they had been trained to write about the natural environment with scientific clarity and precision." Academy men "stood out for merging scientific and aesthetic perspectives on nature" and were christened "earthy patriots."[7]

Meyerson also described a socioeconomic aspect of nineteenth-century West Point graduates. Because the young country's citizens feared that the U.S. Military Academy could become a source for an undemocratic officer corps, university administrators purposely avoided an "aristocratical" selection process. The congressional district nomination system created a student body that closely resembled the national population. Each West Point cadet also learned that "he belongs no longer to section or party, but, in his life and all his faculties, to his country," and was instilled with a strong sense of public service. Through these principles, the U.S. Army became an "embodiment of ideas, of national community" and officers "patriotic defenders of another equally American civic value system."[8]

Capt. William Ludlow, a West Point-trained topographer, demonstrated the values and skills he learned at the academy in 1875 while leading the third Army expedition to the Yellowstone area of western Wyoming, which had become a national park in 1872. In addition to charting routes to existing Army forts, Ludlow sought to examine more thoroughly

Company F, 6th Cavalry, posed with the Fallen Monarch, circa 1900. The giant sequoia fell centuries earlier in Mariposa Grove, California, in an area that became part of Yosemite National Park. The U.S. Army maintained authority over Yosemite and other park areas until 1916, when the National Park Service was founded. *Library of Congress.*

Yellowstone's zoology, geology, and paleontology and recruited respected scientists George Bird Grinnell and Edward S. Dana to join the expedition.[9] In his official report of the reconnaissance mission, Ludlow provided maps of their routes, personal field notes and sketches, astronomical observations, and separate reports from Dana and Grinnell. Ludlow's report is best known for his recommendation to transfer the park "to the control of the War Department" to protect natural artifacts from tourists' hammers and wildlife from local poachers' rifles. He agreed with earlier Army Yellowstone explorers' efforts to restrain concessional development within the new national park by the national railroads and wealthy business entrepreneurs and to keep miners and land developers at a safe distance from the park's wildlife.[10]

Ludlow fully supported Grinnell's zoological report, which called attention to the "terrible destruction of large game, for their hides alone. . . . Buffalo, elk, mule-deer, and antelope are being slaughtered by thousands each year, without regard to age or sex, and at all seasons." Grinnell feared the ultimate extermination of these animals, especially buffalo, unless the Army stepped in to drive off the skin hunters. He differentiated between the

The heads of poached bison, seized by the U.S. Army at Yellowstone National Park. They may have been taken from Ed Howell, a notorious poacher who was captured in 1894 with ten hides in his possession. *Yellowstone National Park.*

"better class of frontiersman, guides, hunters, and settlers" who practiced early sportsmanship behavior, in contrast to the market hunters engaged in "wholesale and short-sighted slaughter" of wildlife.[11]

As a result of Ludlow's report and other early conservationists' calls to defend the park, Congress, in a series of moves in the early 1880s, granted the U.S. Army authority over Yellowstone National Park, which continued until 1916 when Congress established the National Park Service. Under Army leadership, all wood gathering and livestock grazing within Yellowstone's boundaries became illegal; the transport of dead game, even if killed legally outside Yellowstone, across park borders was forbidden; and after 1897, all park visitors were required to surrender their weapons at the park's entrances.[12] In 1890, the Army also assumed command of Yosemite National Park and responsibility for protection of its land and wildlife resources.[13]

During this same era, in 1893, historian Frederick Jackson Turner declared that the American frontier, which had forged the country's character, had ceased to exist.[14] It was also the period in which Americans first awakened to the looming scarcity of natural resources.[15] A century later, historian William Cronon observed that it was "no accident that the movement to set aside national parks and wilderness areas began to gain real momentum at precisely the time that laments [like Turner's] about

the passing of the frontier reached their peak." He believed that "in the myth of the vanishing frontier lay the seeds of wilderness preservation in the United States, for if wild land had been so crucial in the making of the nation, then surely one must save its last remnants as monuments to the American past—and as an insurance policy to protect its future."[16]

The Sportsman's Ethic and Officers' Noblesse Oblige

Historian John F. Reiger has asserted that beginning in the 1870s and through the end of the century, sportsmen—hunters and fishermen—were the first group of Americans to recognize the severe depletion of fish and game and led early U.S. conservation efforts.[17] In *American Sportsmen and the Origins of Conservation*, he argued that the American patrician class fashioned an American sportsman's code of conduct that laid the groundwork for a formal conservation movement.[18] This "code of the sportsman" had Old World aristocratic roots that emphasized that a gentleman hunted or fished for recreation rather than commerce or necessity. This self-imposed protocol required that "game should not be killed in the breeding season or sold for profit; that it should be taken only in reasonable numbers, without waste; and that it should be pursued only by means of sporting methods. The individual fish, bird, or mammal was to have a 'fair chance' of escape." Reiger added that a "'true sportsman' of the upper classes came to see himself as superior to the great majority of hunters and fishermen at least partly because of the generous spirit he supposedly manifested toward the game" and decried the actions of poachers and the wastefulness of market hunters and commercial fishing companies. The gentleman sportsman also mastered naturalist skills because "the best hunters are those who 'know' the game and its habits." Further, these gentlemen sportsmen shared the patricians' sense of noblesse oblige that engendered an innate right to set policies to protect the American peoples' wildlife assets.[19]

The Boone and Crockett Club, the exclusive sportsmen's group and wildlife lobbying organization founded by Theodore Roosevelt and other patrician outsdoorsmen in 1887, embodied the gentleman sportsmen's view that conservation was a means of protecting America's frontier heritage and fostered a culture of masculinity during that period of rapid American industrialization. The club's mission focused on "conservation and management of wildlife, especially big game, and its habitat, to preserve and encourage hunting and to maintain the highest ethical standards of fair chase and sportsmanship in America."[20] In its early years, the club also supported founding member George Grinnell's desire to expand and

protect Yellowstone National Park; lobbied to end commercial market hunting; and promoted the creation of the National Park, National Forest, and National Wildlife Refuge systems.[21]

The views of gentleman sportsmen were widely expressed in popular outdoors weekly and monthly publications that began appearing in the late 1800s. Through these magazines, sportsmen learned of new fish and game laws and the reasoning behind other conservation programs. Magazines like *The American Sportsman* (founded 1871), *Forest and Stream* (1873), and *American Angler* (1881) were available to anyone interested in hunting and fishing.[22]

Readers of these publications may have included the boys who were raised in this early era of conservation awareness and would grow up to become military leaders in the 1950s. As young men, these future military leaders hunted and fished in small towns across the country. According to sociologist Morris Janowitz's empirical research on high-ranking military leaders in the 1950s, *The Professional Soldier: A Social and Political Portrait*, almost 70 percent of Army and Air Force leaders came from rural towns of less than 2,500 people. That "out-of-doors existence, the concern with nature, sport, and weapons which is part of rural culture," influenced many men from these areas to join the military.[23]

Several of the young men born in the late 1800s and early 1900s who grew up in this milieu and later led the Air Force received West Point educations and were instilled with the academy's appreciation for the nation's natural resources. These cadets included Henry H. Arnold, class of 1907; Carl A. Spaatz, class of 1914; Nathan F. Twining, class of 1918; and Thomas D. White, class of 1920. All were enthusiastic outsdoorsmen.[24]

Military leaders of the middle twentieth century displayed many of the same social traits of previous generations' gentlemen sportsmen. Like earlier sport fishermen and hunters, military elites' code of honor, which specifies how officers ought to behave, led them to assume that they were standard-bearers who embodied the superior virtues of men and transcended the commercialism of the business classes. According to Janowitz, professional soldiers believed that toughness and tenacity were moral virtues of military officers and that urbanization weakened these natural traits in men. Officers of the period felt they were best "equipped to counteract these effete tendencies." The professional soldier was expected to be "'above politics' in domestic affairs" to ensure the military's partisan neutrality. Janowitz explained that four basic elements comprised the components of professional officers' honor code—gentlemanly conduct, personal fealty, self-regulating brotherhood, and the pursuit of glory—the most significant being gentlemenly conduct.

President Theodore Roosevelt and naturalist John Muir in 1903 at Glacier Point overlooking Yosemite Falls in Yosemite National Park, California. Roosevelt, one of the founders of the Boone and Crockett Club, was seen as the epitome of the turn-of-the-century gentleman sportsman. *Library of Congress.*

According to traditional concepts, gentlemen upheld social manners and considered "enforced rejection of monetary pursuits as the highest personal value."[25]

Even without great personal wealth, young officers who became senior leaders in the 1950s developed strong ties to the civilian upper social classes and exhibited etiquette comparable to "upper crust" American families. Certain military customs and protocol were "carry-overs from old-fashioned 'high society,' after which the military sought to model itself." For example, a man "should be able to tell a good story, but he should not be a notorious braggart; a man should be able to drink a lot, but he should not be an alcoholic; it is good to be well educated, but not to show off your education."[26]

According to Janowitz, members of the military elite were "energetic socializers, and they work[ed] hard at their ceremonial obligations. No other occupation, with the exception of professional diplomacy, is so concerned with courtesy and protocol. 'Old fashioned' politeness and formal manners survive, although they have been adapted to the realities of modern organizational life." Senior naval officers, most of

whom were U.S. Naval Academy graduates, had received training in proper social behavior—poise, formal ballroom etiquette, formal dinner manners, after-dinner conversation. Army officers also displayed "old fashioned" politeness.[27]

Of all the services, Janowitz viewed the Air Force, established as an independent service in 1947, as the most sensitive about military protocol. He found that the Air Force, the newest service, "displays all the concern and rigidity of the newly arrived." As such, the Air Force operated by its own standards of behavior and sought to impose stricter military protocol on its members.[28]

Each of the services sought different paths to establish social contact with the upper classes. Naval officers engaged in yachting and boating with local elites, and Army officers played bridge and polo and rode horseback with them. Although the Air Force often relied on the other services and their traditional activities for entrée to traditional upper-class circles, it also actively engaged with entertainers and members of the mass communications industry to broaden its access to higher-prestige social groups.[29]

While military elites became accepted members of American power cliques, sometimes marrying into families with inherited wealth, in general they were as Janowitz described, "like 'second cousins' to established upper-class socialite families." Even though military leaders had increased power and influence after World War II, they did not integrate into the upper classes because "in the United States upper-class gentility is based on inherited wealth and not on public service alone, and the military profession is no road to wealth."[30] Sociologist C. Wright Mills had presaged Janowitz's findings when he wrote in *The Power Elite* that senior military officers have been "men of the upper-middle classes rather than truly higher or definitely lower classes" and that the military honor code served as their source of prestige, their "pay-off" for renouncing political power and excessive monetary remuneration.[31]

Elite military leaders' social origins, their strict adherence to custom and protocol, and their penchant for recreational fishing and hunting linked them with the social circles of the previous generations of sportsmen who had fostered the early conservation movement.[32] These factors, combined obliquely, suggest that elite military leaders were predisposed to recognize natural resource problems in the first half of the twentieth century. Later, their friendships with civilian sportsmen-conservationists expanded their knowledge of emerging ecological concepts and of the critical need for environmental restoration. As a result, when military leaders who were enlightened about natural resource challenges were presented with an opportunity to help implement fish and wildlife conservation programs

The mixing of society and the young elite of the U.S. Army Air Corps, circa 1930. Seated at right is Maj. Carl A. "Tooey" Spaatz, next to Amelia Earhart. At left on the front is Maj. Gen. James E. Fechet, chief of the Air Corps. The servicemen standing are (*left to right***) Sgt. Roy G. Hooe, Capt. Ira C. Eaker, and 1st Lt. Elwood R. "Pete" Quesada, the men of Spaatz's** *Question Mark* **crew. The other civilians are unknown. Spaatz, Eaker, and Quesada all rose to become general officers.** *Library of Congress.*

on lands under their control in the 1950s, they did so willingly. As a nascent service, the Air Force in the 1950s patterned much of its military etiquette and ceremony on the older Army and Navy, yet it also sought to establish distinct standards of behavior and methods of social integration. It would also apply this inventive approach to managing natural resources conservation on military lands.

The Military and Natural Resources in the Early Twentieth Century

The twentieth-century Army into which these young officers were commissioned extended the conservation engagement of its smaller nineteenth-century predecessor. As described above, its stewardship of several national parks continued until the eve of U.S. involvement in World War I. In a notable conservation effort during the war, the U.S. Army Air Service instituted a selective logging program to preserve

Pacific Northwest spruce forests for airplane lumber.* In the infancy of flight, aircraft production required perfectly straight-grained lumber from logs at least twenty-two feet in length. Only certain spruce trees could meet those specifications. The Sitka spruce available to the military grew in relative isolation, and typically only one spruce per acre proved suitable for aircraft. To access the most board feet of usable spruce in the compressed schedule of the wartime emergency, the commander of the Spruce Production Division of the Bureau of Aircraft Production, Col. Brice P. Disque, opted to employ selective logging techniques that were unpopular and uneconomical at the time. He sent timber cruisers to mark the "fugitive spruce" that met the high standards, and only those trees were logged. If selective cutting had not been used, more than an estimated 16 billion feet of lumber would have been taken for which there was no immediate use. More significantly, the process staved off depletion of forests for ten to twenty years. This selective logging was, according to the Spruce Production Division historian, a "conservation measure of large proportions."[33]

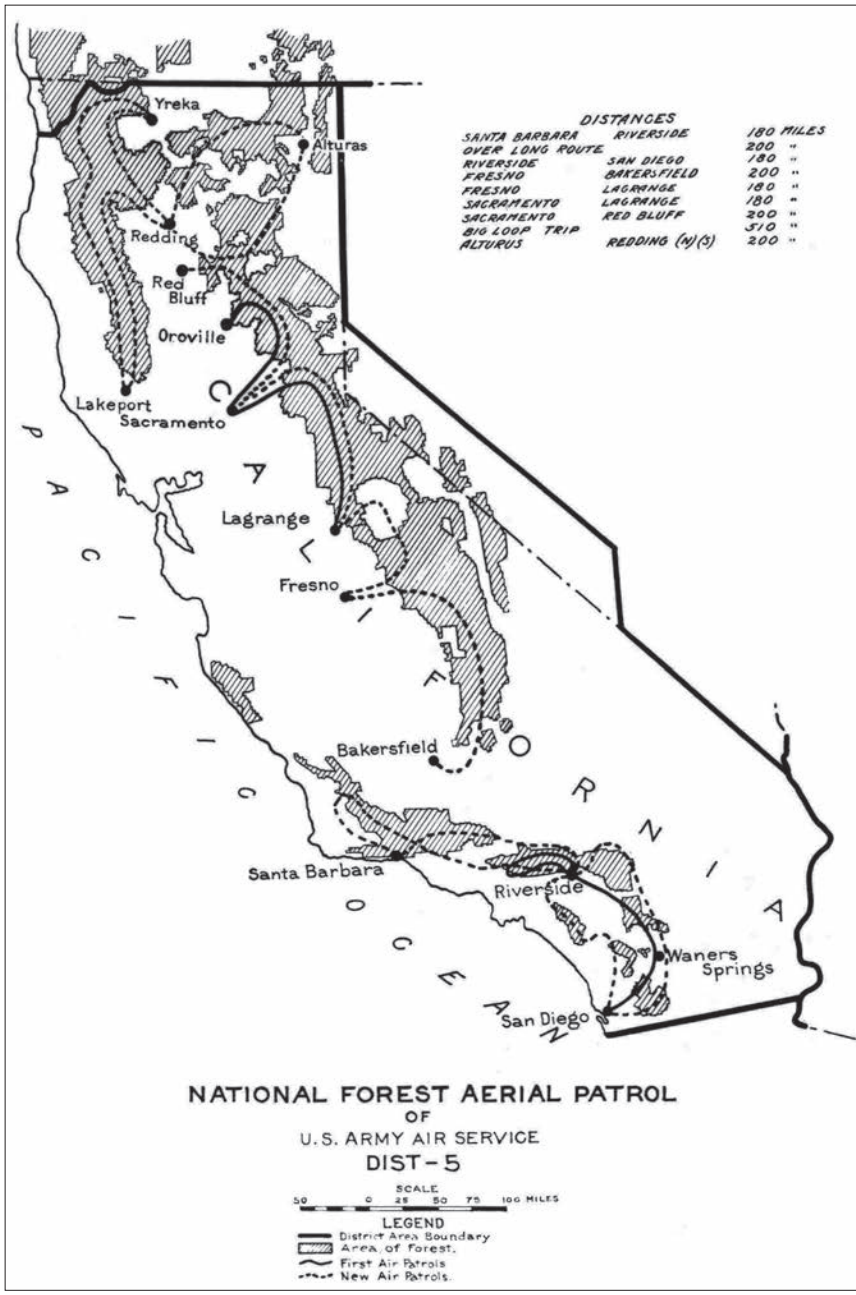
After World War I, the Army Air Service sought new missions to maintain its relevancy and its flyers' competency. In early 1919, U.S. Army Lt. Col. Coert duBois, still in uniform after his recent discharge from the Corps of Engineers and soon to assume responsibility as the U.S. Forest Service district forester for the Western District, based in San Francisco, walked into a Bay-area bar and struck up a conversation with another man in uniform. That officer turned out to be Maj. Henry "Hap" Arnold, who was transitioning between assignments from supervisor of the Air Service at Coronado, California, to air officer of the 9th Corps Area at the Presidio, in San Francisco, in charge of the U.S. Army Air Service in California. Arnold lamented to duBois that demobilization cutbacks were undermining his flyers' proficiency and observed that even civilian-related assignments "would keep them pepped up and maybe let the public know they used to have an Air Force."[34]

* The lineage of the U.S. Air Force includes several different designations as its mission evolved. For the purposes of this work, the name modifications and the timing of those changes are as follows: the Aeronautical Division, U.S. Army Signal Corps, August 1, 1907–July 17, 1914; Aviation Section, U.S. Army Signal Corps, July 18, 1914–May 23, 1918; the U.S. Army Air Service (USAAS), May 24, 1918–July 2, 1926; the U.S. Army Air Corps (USAAC), July 2, 1926–September 18, 1947; the USAAC was concurrently a subordinate element of the U.S. Army Air Forces (USAAF) from June 20, 1941–September 18, 1947; and the U.S. Air Force (USAF), as an independent military service, September 18, 1947–present. U.S. Air Force Historical Studies Office, "Fact Sheet: 1907–1947," http://www.afhso.af.mil/topics/factsheets/factsheet.asp?id=15235; U.S. Air Force, "Air Force History Overview," http://www.airforcehistory.af.mil/overview/index.asp.

Loggers with the Spruce Production Division of the Bureau of Aircraft Production in Washington state during World War I with a twenty-two-ton section of a spruce tree. Selective logging during the conflict saved an estimated 16 billion feet of lumber for which there would have been no immediate use. *USAF.*

That evening over dinner, Arnold and duBois conceived the idea of using Air Service pilots to search for fires. This chance encounter led to the first large-scale use of aircraft for aerial forest patrols for detection, suppression, and prevention of wildfires.[35] Air Service pilots operated aerial reconnaissance patrols out of March and Rockwell Fields in Southern California and Mather Field in the north over national forests. Airmen also parachuted supplies to fire camps and made the first water "bomb" test drops. Arnold sponsored a joint airman/forester training conference in 1920 at March Field where pilots and foresters exchanged professional expertise, with the former providing courses on flying, map reading, and radio communication and the latter teaching forestry basics, Forest Service organization and mission, and methods of safeguarding timber.[36]

To maintain the morale of pilots and fire observers who flew long, hazardous missions over mountainous and vast forested expanses of land, the Air and Forest Services established a recreational camp where the flyers could relax. The camp allowed the forest patrolmen a chance to get "away from the continuous roar of his motor; from the constant vibration of the plane; from the strain and worry of flying over a country which affords no safe landing fields." Once at the camp in Gold Lake, California,



From 1919 to 1924, pilots of the U.S. Army Air Service flew fire patrol missions across California. Maj. Henry A. "Hap" Arnold conceived the idea for the patrols in conjunction with the district forester for the U.S. Forest Service. Arnold believed the patrols helped pilots maintain proficiency, while the program generated goodwill for the Air Service and provided invaluable support for the Forest Service. *USAF.*

The Civil Conservation Corps conditioning camp at March Field, California, where Lt. Col. Henry "Hap" Arnold served as CCC district commander, overseeing thirty camps. The photo is from May 1933. *USAF.*

in the Sierra Nevada northwest of Lake Tahoe, flyers were required to "do nothing but read, hunt, fish, and rest."[37]

The fire patrol experience forged a strong relationship between Arnold and Forest Service leaders, including Fred P. Cronemiller and DeWitt "Swede" Nelson, who became Arnold's lifelong friends and regular fishing partners.[38] Arnold later wrote that "the finest people anywhere are the people who live their lives in the forests and mountains. I mean the trained men who run our forest services, our park people, and our fish and game workers."[39] Although the Air Service played a prominent role in conserving timber resources and established a precedent for aerial fire patrols, its involvement in the forest fire patrol program ended in 1924 when Congress failed to appropriate funds for the program.[40]

The U.S. military renewed its contact with conservation activities during the Great Depression when Army and Army Air Corps officers administered Civilian Conservation Corps (CCC) districts and worked closely with natural resource professionals to restore the country's depleted lands. Beginning in May 1933, Lt. Col. Arnold, while commander at March Field east of Los Angeles, supervised a district of thirty CCC camps, composed of more than 7,000 men who fought fires and planted trees across the western United States.[41] Throughout that time, Arnold enjoyed visiting the many CCC camps among the sequoias and across the High Sierras, not only to evaluate the work at those camps, but because, as historian DeWitt S. Copp wrote, he "loved the out-of-doors, the mountains and the trout-laden streams that coursed through them."[42]After his retirement in

On a fishing respite near Fairbanks during the celebrated B–10B flight he led to Alaska in 1934, Lt. Col. Henry "Hap" Arnold (*holding fish*) met and befriended writers Corey H. Ford (*far left*) and Alastair MacBain (*second from right*). Arnold used Ford and MacBain, who became commissioned officers, to write a series of articles on the Army Air Forces during World War II, and Ford and MacBain later mined their extensive contacts to help with the establishment of the Air Force's conservation program in the late 1950s. *Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.*

1946, Arnold's interest in conservation issues continued as he served on the California Fish and Game Commission until heart problems forced his resignation in 1948.[43] While on the commission, Arnold sought to increase public conservation education and corresponded on the topic with R. Aldo Leopold, the renowned ecology and wildlife expert and author of the seminal environmental book *A Sand County Almanac*.[44]

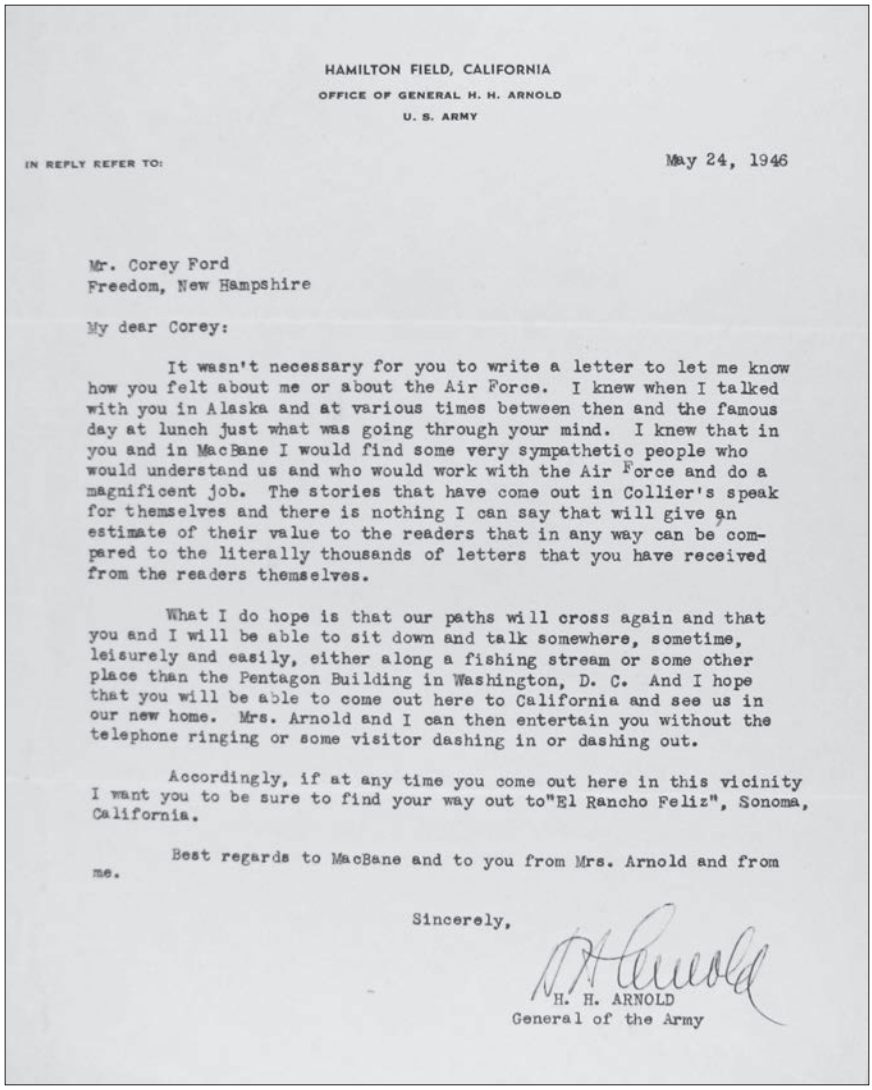
Several other mid-career officers with similar CCC assignments also rose to the heights of military leadership. Future Army generals George C. Marshall and Mark W. Clark both directed several Civilian Conservation Corps districts, and future Air Force general Bernard A. Schriever was employed as a civilian CCC administrator between stints with the Army Air Corps.[45] This work put them in direct contact with the efforts of the Forest Service, Biological Survey, the Soil Conservation Service, and the National Park Service and introduced these rising military leaders to the importance of habitat restoration and natural resource conservation. The

massive effort the military expended to run the CCC camps was repaid by CCC enrollees as roughly 90 percent of the three million young men who labored in the Corps later served in the armed forces during World War II. In addition to improving the health and developing the work skills of these men who later became soldiers, sailors, marines, and airmen, in 1940, the CCC began redirecting its conservation efforts toward national defense-related projects such as building airplane landing fields and troop barracks and training recruits for military service.[46]

Soon after his CCC experience, in August 1934, Hap Arnold's love of fly fishing brought him into contact with two nationally published outdoors writers, author and humorist Corey H. Ford and his writing partner, Alastair MacBain, who would later direct the U.S. Fish and Wildlife Service's public affairs division. The three men met and fished in Alaska during a respite Arnold took from his highly touted round-trip flight of ten Martin B–10B bombers 4,000 miles from Washington, D.C., to Fairbanks, Alaska.[47] Ford and MacBain's concurrent Alaska trip was part of field research for a series of conservation-related articles on the status of American wildlife that George H. Lorimer, editor of the *Saturday Evening Post*, had commissioned earlier in 1934. The writers hoped their articles would heighten public awareness about the impact of deforestation, erosion, and overgrazing on wildlife habitat and gain support for environmental restoration efforts demonstrated by the CCC.

At this time, concerns about the country's "vanishing wild-life"* had risen to the highest political levels, with President Franklin D. Roosevelt creating the Committee on Wild-Life Restoration to develop and supervise a nationwide plan for promoting and protecting wildlife, an idea that had been proposed by Thomas H. Beck, editorial director of *Collier's* magazine and chairman of the Connecticut Board of Fisheries and Game.[48] Beck chaired Roosevelt's wild-life committee with members Jay N. "Ding" Darling, a Pulitzer Prize-winning editorial cartoonist who

* The contemporary spelling of the word "wildlife" has evolved from the late-nineteenth century/early-twentieth century use of two words, "wild life," and the mid-twentieth century use of the hyphenated form, "wild-life." The use of two words or the hyphenated form quoted in this work accurately reflects the use in the original source. According to conservationist Howard Zahnizer, in the late 1930s, the U.S. Government Printing Office (GPO) ruled that "wildlife" was one word, conforming to the GPO compounding rules that the word conveys "a unit idea that is not conveyed by the component words in unconnected succession." This change in expression reflects frequent use or reader recognition of the word units as a unique idea. Zahnizer noted that the change of terminology also reflected a change of attitude toward and awareness of wildlife as a conservation issue. Howard Zahnizer, "Nation Celebrated Wildlife Week; Interest Aroused by Artist, Government Printing Office Recognizes Word as One Concept," *Washington Post*, March 19, 1939, T11.



HAMILTON FIELD, CALIFORNIA
OFFICE OF GENERAL H. H. ARNOLD
U. S. ARMY

IN REPLY REFER TO:

May 24, 1946

Mr. Corey Ford
Freedom, New Hampshire

My dear Corey:

It wasn't necessary for you to write a letter to let me know how you felt about me or about the Air Force. I knew when I talked with you in Alaska and at various times between then and the famous day at lunch just what was going through your mind. I knew that in you and in MacBane I would find some very sympathetic people who would understand us and who would work with the Air Force and do a magnificent job. The stories that have come out in Collier's speak for themselves and there is nothing I can say that will give an estimate of their value to the readers that in any way can be compared to the literally thousands of letters that you have received from the readers themselves.

What I do hope is that our paths will cross again and that you and I will be able to sit down and talk somewhere, sometime, leisurely and easily, either along a fishing stream or some other place than the Pentagon Building in Washington, D. C. And I hope that you will be able to come out here to California and see us in our new home. Mrs. Arnold and I can then entertain you without the telephone ringing or some visitor dashing in or dashing out.

Accordingly, if at any time you come out here in this vicinity I want you to be sure to find your way out to"El Rancho Feliz", Sonoma, California.

Best regards to MacBane and to you from Mrs. Arnold and from me.

Sincerely,

H. H. ARNOLD
General of the Army

Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.

served as chief of the Bureau of Biological Survey (later the U.S. Fish and Wildlife Service) from 1934 to 1935, and Aldo Leopold, the prominent conservationist.[49] In its final report to the president, the committee wrote, "The destruction of our once abundant wild-life resources, though waste and neglect, constitutes one of the sorriest chapters in our national history. The knowledge, the facilities, and the funds necessary for restoration are available if we will put them to work. Extensive restoration of our wild life will re-create a national resource of incalculable value, which will add


Among the leading conservationists whom Corey Ford and Alastair MacBain consulted were Aldo Leopold (*left, Aldo Leopold Foundation***) and Ira Gabrielson (***right, Library of Congress***). When Hap Arnold served on the California Fish and Game Commission after his retirement, he also corresponded with Leopold.**

measurably to the health, happiness, and prosperity of the people of the United States."[50]

After months of field work in Alaska and across the United States for their conservation articles, Ford and MacBain consulted on environmental science and policy issues with Darling and Leopold before publishing their stories. They also sought advice from other conservation professionals, including Ira N. Gabrielson, chief of the Bureau of Biological Survey (1935–46) and president of the Wildlife Management Institute (1947–70); and Seth E. Gordon, president of the American Game Protective Association (later the Wildlife Management Institute), two-term member of the Pennsylvania Game Commission, conservation director of the Izaak Walton League, and California Fish and Game Commission consultant.[51] With these professionals' input, Ford and MacBain fashioned numerous articles about the conservation problems that existed in the 1930s and their possible solutions that were published in mainstream periodicals, including the *Saturday Evening Post* and *Collier's*. These articles reached a broad audience and served to educate the American public about the gloomy status of the country's fish and wildlife.[52]

During World War II, in early 1942, Lt. Gen. Arnold, by then chief of the U.S. Army Air Forces (USAAF), recruited his fishing companions, Ford and MacBain, to write stories about the young men fighting the war in the USAAF. The writers did just that, publishing more than fifty articles in popular magazines and several book-length features.[53] Initially, the journalists embedded as civilians, but after MacBain was drafted, Arnold commissioned Ford as a major and MacBain as a captain on February 25, 1944, to keep them under his command.[54] Ford and MacBain's stories

Corey Ford (*left*) and Alastair MacBain with Maj. Gen. George E. Stratemeyer, likely during the period when Stratemeyer was in Washington as Arnold's chief of staff, mid-1942 to mid-1943. Ford and MacBain later visited Stratemeyer in the field when he commanded the Army Air Forces in the China-Burma-India Theater. *Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.*

provided Arnold a voice to citizens across the United States; explained the role of the USAAF in the war effort; generated favorable publicity for the aviators; and helped set the stage for Air Force independence following the war. The articles ranged from a series on the Alaskan Air Patrol to the Hump[55] pilots flying dangerous routes in the Himalayan Mountains of China, Burma, and India. While researching these reports, Ford and MacBain received letters of introduction from Arnold that helped them establish or renew relationships with Generals Spaatz, Twining, Curtis E. LeMay, George E. Stratemeyer, and the director of the Office of Strategic Services (precursor to the Central Intelligence Agency, CIA), Maj. Gen. William J. "Wild Bill" Donovan—friendships and working associations that would endure.[56] In turn, Ford and MacBain's personal and professional association with the first commanders of the U.S. Air Force afforded the writers opportunities to convey their understanding of evolving environmental concepts to the generals and helped foster military leaders' sense of responsibility toward the land and its wild inhabitants.[57]

Two

The Newly Independent Air Force, Its Culture, and Post-World War II Conservation Efforts

The U.S. Air Force traces its origins to the start of the twentieth century with the invention of the airplane and later to 1947 when it became an independent service. The newness of the service allowed for innovative thinking in the post-World War II era, while the backgrounds of Air Force leaders, dating to the days of the open cockpit, gave them a connection with nature and a willingness to act to preserve it when opportunities arose to do so.

Although the Air Service was initially a part of the Signal Corps of the U.S. Army, because airmen acquired different skills and used different machines, they formed a subculture distinct from that of the infantry-dominated Army culture. "The air-going people have a spirit, language, and customs of their own," Brig. Gen. William L. "Billy" Mitchell observed in 1925. "These are just as different from those on the ground as those of seamen are from those of land men. In fact, they are much more so because our sea-going and land-going communities have been with us from the inception of time and everybody knows something about them, whereas the air-going people form such a new class that only those engaged in its actual development and the younger generation appreciate what it means."[1]

The experiences of early aviators who sensed both the wonder and the terror of flight created a brotherhood among fliers. As Mitchell eloquently explained, "Few people outside of the air fraternity itself know or understand the dangers that these men face, the lives that they lead and how they actually act when in the air, how they find their way across the continent with unerring exactness—over mountains, forests, rivers and deserts; what they actually do in improving the science and art of flying and how they feel when engaged in combat with enemy aircraft. No one can explain these things except the airmen themselves."[2]

Scholars have theorized that, as with all large organizations, each of the military services has an identity, a set of underlying beliefs and values that comprise a corporate character. More precisely, each service has a

distinct personality that is shaped by its historical origins, the personalities of its founders, and the means by which it executes its defense roles and mission. The military services are also products of American society and reflect changing norms, beliefs, and values.[3]

The emergence of an Air Force culture predates the service's independence in 1947. Early airpower advocates such as Mitchell, Henry H. "Hap" Arnold, and Carl A. "Tooey" Spaatz challenged the Army's limited use of air power and vociferously supported strategic bombing as a new way of waging and winning wars. When these airmen broke with the military tradition of operating apolitically and presented their airpower theories to Congress, the press, and the American public, Army leadership court-martialed Mitchell and spurned Arnold and Spaatz for supporting him. The Army exiled Arnold from Washington, D.C., to Fort Riley, Kansas, and Spaatz endured a seventeen-year wait between promotions.[4] This experience reinforced Arnold and Spaatz's nonconformist tendencies and helped establish the individualistic tone of the Air Service. Later, during its efforts to achieve independence after World War II, the Air Force waged political battles with the Navy and the Army that further buttressed the service's distinct set of underlying beliefs and values. This early imprinting on its maverick founders' behavior and values created a culture that encouraged Air Force leaders to preemptively act on political undercurrents and public perception to maintain budgetary and civic support for its air mission.[5]

Morris Janowitz's research led him to conclude that Air Force leaders, and the distinct service character they cultivated, created an atmosphere that fostered innovative thinking. The sociologist's data demonstrated that there were some clear sociological differences among the military elites who led the Army, Navy,* and newly independent Air Force. For example, the average age of Army Air Forces general officers in 1945, at the end of World War II, was 46.9 years, with the youngest being 28. Admirals in the Navy averaged 56.4 years, and its youngest was 42. In the Army, general officers averaged 51.4 years of age, with the youngest being 34.[6] Air Force leaders also differed from the Army and Navy in respect to social origin. Air Force elites were almost twice as likely as Army and Navy officers to hail from north central states, and air officers were also the least likely to have come from southern states. While most military leadership at the time had rural backgrounds, the highest percentage from small towns with populations less than 2,500 occurred in the Air Force. As of 1950, the Air Force also had the lowest percentage of general officers who had

* Janowitz did not differentiate between members of the Navy and Marines; both the U.S. Marine Corps and the U.S. Navy are components of the U.S. Department of the Navy.

Early aviation leaders sought publicity for the Air Corps in many ways. Here Lt. Col. Henry H. "Hap" Arnold escorted actress Bebe Daniels, soon to star in the movie musical *42nd Street*, at the air field in Long Beach, California, in October 1932. When a devastating earthquake struck Southern California the following spring, Arnold coordinated aerial support for relief efforts. *USAF.*

graduated from the service academies. Of note, 100 percent of Navy and Army four-star general or full-admiral grade officers had attended either Annapolis or West Point, while only 50 percent of Air Force four-stars had been academy graduates.[7]

Because Air Force generals were younger and had different social origins from Army and Navy officers, they likely were more receptive to nontraditional ideas, including newly emerging ecological concepts. Indeed, biographers of several early Air Force leaders concluded that their subjects exhibited individualist tendencies that allowed the fledgling service to seek unconventional solutions to the challenges it faced.[8]

Aviators' Boundless View of the Land

The proactive approach the Air Force took concerning fish and wildlife conservation existed largely because of leaders like Arnold, Spaatz, Nathan F. Twining, and Thomas D. White, men who appreciated the natural world and who provided high-level authorization and patronage for natural resource initiatives in the service. Those leaders were some of

the first men to fly and demonstrated a deep respect for nature's forces. Early aviators in open-air cockpits interacted directly with the earth as they deciphered the clouds and winds for clues to turbulence and updrafts and observed the trees and grass to determine wind direction and speed. Their observations of the earth from above provided an awareness of intricate relationships among mountains and prairies, oceans and rivers, and forests and fields. As these men found respite from the anxieties associated with early flight and wartime pressures in the outdoors—fishing, hunting, and camping—their intimate knowledge of the natural world instilled in them immense deference and appreciation for the earth and its inhabitants.[9]

Aviators' view from the cockpit afforded them an unparalleled perspective of the landscape below. Early airmen marveled at their new perceptions of the land. Mitchell illuminated, "The airmen fly over the country in all directions constantly, winter and summer they go, as well as by night and by day. . . . The pilots of these planes, from vantage points on high, see more of the country, know more about it, and appreciate more what the country means to them than any other class of persons."[10] Much later in the century, aerial photographer David T. Hanson suggested that fliers' perspectives allowed them a more integrated view of the land, one that framed relationships between fragments of the landscape that may otherwise seem unrelated on the ground. Aerial observation permits viewers from above to analyze ecosystems and recognize how humans have altered their landscape.[11] Charles A. Lindbergh, the first aviator to complete a solo transatlantic flight, articulated the harmony between flight and the land:

> I realized that to a flyer's senses the earth's size is inversely proportional to speed. With a swoop of my wings I could land at a town or on a farm below me. With a glance from my cockpit I could encompass a desert, a valley, or a mountain range. Flying put me in closer contact with the earth through distance, a comprehension devolved from a spatial viewpoint. I could experience the ocean's squalls and the hill's air currents as well as altitude's distant contours and horizons. For me, the airplane shaped the near and the far into a single form of gigantic intimacy."[12]

Lindbergh's flying career corresponded with an era of increasing industrialization and urbanization of the United States, and he witnessed the resulting profound alteration of the landscape. He wrote later in life that "in the decades I spent flying civil and military aircraft, I saw

Twenty-one-year-old Charles A. Lindbergh in an open cockpit at Lambert Field in St. Louis, Missouri, in 1923. Lindbergh fondly recalled his connection to the earth when he flew and became an ardent conservationist later in life. He remained close to the aviation operations of the U.S. military and, as a civilian contractor, reportedly flew as many as fifty combat missions during World War II. *Library of Congress.*

tremendous changes take place on the earth's surface. Trees disappeared from mountains and valleys. Erosion turned clear rivers yellow. Power lines and highways stretched out beyond horizons." Aviators not only saw the land differently, they also distinguished gradual changes occurring on the surface of the earth. Lindbergh recognized the relationship between the changes in the land and the diminished nature of wildlife, adding that "almost everywhere I landed, I heard stories of disappearing wilderness, wildlife, and natural resources. Many species of animals that had taken epochs to evolve were, within decades, on the verge of extinction."[13]

Lindbergh's conservation consciousness sprang not only from his observations in flight, but also from stories his father told him as a child about the senior Lindbergh's boyhood in Minnesota. As the younger Lindbergh recalled to a group of conservationists, when his father hunted wildlife, "The woods were full of game, and the sky black with ducks. His stories fascinated me. But one generation afterwards, there was no big game. I envied my Dad for this."[14] During the last two decades of his life, Lindbergh evolved into a passionate and articulate spokesperson for

environmental conservation. He served on the board of directors of the World Wildlife Fund, worked on behalf of the International Union for the Conservation of Nature, and the Nature Conservancy, and President Richard M. Nixon appointed him to the President's Citizens Committee on Environmental Quality.[15]

Lindbergh's increasing awareness of the degradation of the environment through aerial observation presumably was experienced by other early aviators who emerged to lead the Air Force. Because Air Force senior officers emanated from rural origins more predominately than their Army or Navy counterparts, as boys they too heard their fathers' stories of the past generation's wildlife abundance and observed its depletion.[16] Later, as adults, many military leaders of the period found respite in the outdoors, where they fished for trout in uncharted rivers and scouted the backcountry for elk. Their experiences in the natural world from boyhood into adulthood raised their awareness that wildlife could not flourish without expansive forests and clear streams. As ecologist and wildlife expert R. Aldo Leopold wrote, if an individual saw and felt, loved and admired, understood and respected the land, it would have greater significance to him. Thus the individual who had a personal relationship with the land and its inhabitants would value it more and seek to conserve and protect it.[17] Airmen had that close connection to the natural world.

Germination of the Air Force Conservation Program

At the end of World War II, what conservation efforts that existed on U.S. military bases were informal and often centered on the activities of rod and gun clubs on the installations. Base commanders set local hunting and fishing policies, rarely in conjunction with federal, state, and local wildlife officials. The newly independent U.S. Air Force was the first service to take steps toward a more cohesive policy. In 1948, as commander of all military forces in Alaska, Air Force Lt. Gen. Nathan Twining, an enthusiastic sportsman and conservationist, met with the Alaska regional director of the U.S. Fish and Wildlife Service (USFWS), Clarence J. Rhode, to discuss issues the USFWS had with service members violating hunting regulations and problems the USFWS encountered patrolling its large, mostly unpopulated region to enforce fish and game laws. As a result of the meeting, each large Air Force installation within the command appointed military game wardens to investigate alleged violations committed by military personnel. Also in response to Twining's initiative, Maj. Gen. Joseph H. Atkinson, the concurrent head of the Alaskan Air Command,

A moose outside the headquarters of Alaskan Command at Elmendorf Air Force Base. In 1948, as the head of the command, Lt. Gen. Nathan B. Twining worked with the U.S. Fish and Wildlife Service to establish a command-wide wildlife conservation program. Photo (2005) by TSgt. Keith Brown. *USAF.*

established the Alaskan Command Wildlife Conservation Program that his successors vigorously carried out.[18]

Prior to these actions, U.S. military service personnel stationed in large numbers in Alaska during World War II had earned a negative reputation with local citizens for their wanton destruction of wildlife. Under wartime conditions, the only real recreation for off-duty personnel at these remote military installations was in the surrounding countryside. Every serviceman had his own firearm and plenty of ammunition. As a result, local wildlife populations experienced greatly intensified hunting and fishing pressures. After the war ended in 1945, local citizens grew weary of servicemen who often violated local fish and game laws. Between 1945 and 1947, numerous court cases against military men for game law breaches caused the U.S. Army and Army Air Forces great embarrassment and strained public relations with the local population. When General Twining took over the Alaskan Command in late 1947, he sought a constructive solution to the problem and found a willing partner in Rhode, a licensed pilot who trained his wildlife biologists to fly so they could conduct aerial game surveys and provide supplies for their field camps.[19]

Clarence J. Rhode, the Alaska regional director for the U.S. Fish and Wildlife Service, worked with Maj. Gen. Nathan Twining to develop a wildlife conservation program for Alaskan Command. *U.S. Biological Survey, U.S. Fish and Wildlife Service.*

As part of the program initiated in 1948, the commander of each large Alaska Air Force installation appointed a military game warden to assist local agents' investigations of hunting and fishing law violations committed by military personnel. The bases established rod and gun clubs to indoctrinate newcomers to the principles of proper game conservation. According to the Alaskan Air Command Wildlife Conservation Program manual, circa 1953, "The commander desires that all military personnel be afforded every opportunity to enjoy the natural resources of Alaska, . . . utilize them as you would your personal resources. *Wisely—without*

U.S. Army troops water an air installation in 1945 to reduce dust and erosion. They followed the water application with a layer of oil. *U.S. War Department Technical Manual TM 5-630.*

waste—leave something for tomorrow." Successive Alaskan Air Command leaders continued Twining's conservation agenda during the early Cold War years, adhering to the belief that "wildlife conservation *is* a component part of National Defense. Without natural resources, of all types, in general abundance, there can be little national security."[20]

Alaskan Air Command's Wildlife Conservation Program proved an exception to most military land management strategies of the time and established a new precedent for military natural resource programs. While the Air Force needed large land tracts for overflight and bomb testing purposes, it did not have a physical footprint over its entire acreage and as a result could be more flexible in conserving the habitat for fish and wildlife resources.[21] In contrast, the U.S. Army's natural resource program had focused largely on erosion and pest control during World War II. The Army prioritized erosion control because poor soil conditions hampered troop training and tank activities on the ground. It also worked on eradicating disease-carrying insects and vermin to keep its troops healthy. After the war, the Army's natural resource program concentrated on timber production, fire control, agricultural leasing, and pest control. However, a lack of command support and limited budgets impeded development of a comprehensive conservation program, which the Army did not establish until the mid-1960s.[22]

The Navy's World War II-era natural resource policies emphasized runoff control and soil stabilization projects to protect naval facility lands

and engineering improvements to guard against wind and water damage. In 1960, the Navy consolidated control over its forest, soil, and wildlife conservation programs in the Natural Resources Management Branch, under the Bureau of Yards and Docks.[23] By the time the Navy and Army formalized their conservation policies, the Air Force had more than a decade of experience with effective natural resource management projects.

The Air Force's fish and wildlife conservation efforts received grounding in statute on October 11, 1949, when President Harry Truman signed into law H.R. 2418, "Eglin Field Reservation—Wildlife, Fish, and Game Conservation Act," the original Sikes Act, Public Law 91–345.[24] This act directed the secretary of the Air Force to create a program at Eglin Field, Florida,* for "planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation" in cooperation with the U.S. Fish and Wildlife Service. The law also authorized the Air Force to issue hunting and fishing licenses for a fee, funds that in turn could be used to support wildlife conservation activities at Eglin, and exempted the Air Force from having to transfer those funds into the U.S. Treasury.[25]

Prior to the bill's passage, the Air Force had no authority to reinvest the money accrued from license fees in its conservation program. In October 1947, the U.S. comptroller general had asserted that officials at Eglin could not legally administer fees collected for permits to hunt and fish on the installation. Instead, permit funds had to be deposited with the treasurer of the United States. In response, Brig. Gen. Carl A. Brandt, the commander at Eglin, wrote the Air Force chief of staff, General Spaatz, and requested that Air Force headquarters seek "Congressional or other required action" to allow hunting fees to be used for wildlife conservation and restocking on his base.[26]

When the issue first surfaced, Congressman Robert L. F. "Bob" Sikes, who represented the Florida district in which Eglin was located, was at his home near the air field. After gathering information from Brandt, Sikes quickly engaged his staff. On October 15, 1947, the congressman wrote the senior secretary in his Washington office, Merrill Y. Winslett, asking him to contact the Air Force chief of staff's office and urge General Spaatz

* The Army used the term "air field" to refer to its installations prior to the creation of the U.S. Air Force as an independent military service in September 1947. The Air Force designed its installations as bases and capitalized them when used with a named base; for example, Eglin Field became Eglin Air Force Base after independence. Because the timeline of this subject matter is on both sides of the 1947 transition, the correct term relative to the date is used in reference to air installations. An Air Force reservation is the land reserved for bombing or gunnery practice. Woodford A. Heflin, *The United States Air Force Dictionary* (Princeton, NJ: D. Van Nostrand, 1956), 20, 26, 201, 327.

An undated photo shows a pier on Weekly Bayou at Eglin Air Force Base. This installation, on the Florida Panhandle just northeast of Fort Walton Beach, became the center of a debate in 1947 over the collection of fishing and hunting fees. The U.S. congressman from the district, Robert L. F. "Bob" Sikes, sponsored legislation to codify the practice. The Sikes Act, passed in 1949, established benchmarks for military environmental policies. *Library of Congress.*

to authorize Eglin's commander to collect the hunting and fish permit fees. Sikes added that it was likely that a new law would have to be passed to allow permanent collection of the monies and wrote, "I am willing to undertake passage of such legislation. . . . This is very important to me and I want it expedited in every way possible."[27]

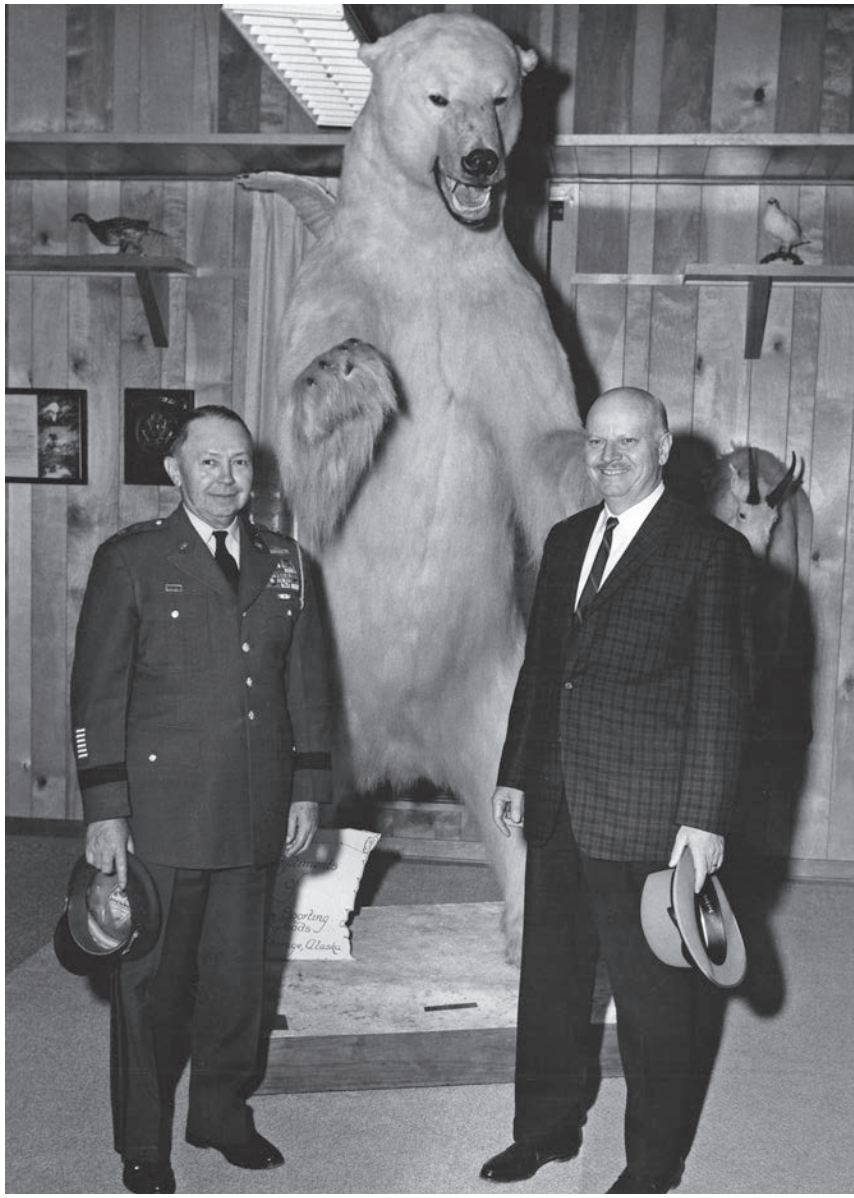
Sikes's telegrams and telephone calls elicited quick responses from Air Force leaders. Secretary of the Air Force W. Stuart Symington informed the congressman on October 23 that he was looking into the matter, and General Spaatz's office replied to Sikes on October 27 that Air Force headquarters had no objection to the Eglin commander continuing the practice of collecting hunting and fishing fees for use in conservation practices.[28] However, the Air Force comptroller and inspector general's offices overruled Symington and Spaatz and dictated that funds could not be collected without congressional authority. Fully aware of the hindrance this created for his sportsmen constituents who hunted and fished at Eglin, and for the Air Force tenants on the Florida Panhandle, Sikes initiated the legislative process to redress the issue.[29]

The 1949 Sikes Act for Eglin Air Field

Bob Sikes was born in Georgia in 1906 and settled in Florida in 1928. After a stint as a newspaper owner and publisher, the Democrat won a congressional election in 1940 and represented the Florida Panhandle in the U.S. House of Representatives for thirty-eight years, from 1941 to 1979. During his time in office, Sikes, who rose to chairmanship of the House Appropriations Subcommittee on Military Construction, built his district into an arsenal, with fourteen military bases at the height of his career in the mid-1960s.[30] Sikes is also credited with creating the Gulf Islands National Seashore and shepherding numerous conservation and forestry bills through Congress that helped the once-barren Florida Panhandle recover from years of destructive farming and logging practices.[31] Recognized as a proponent of safeguarding the panhandle's natural resources and an avid hunter and fisherman, Sikes loved the Florida natural environment and used his position of power to protect it. According to one U.S. Forest Service forester in Florida, Sikes was to "forestry what Edison was to electricity—he brings the light. Bob fits the description of a great conservationist." Sikes also understood how the military functioned based on his own military service, and he maintained strong relationships with uniformed leaders. In 1944, Sikes temporarily left Congress to join the U.S. Army at the rank of major and served under Maj. Gen. William L. Donovan. Sikes remained a U.S. Army Reserve officer after the war, reaching the rank of major general at the time of his retirement in 1967.[32]

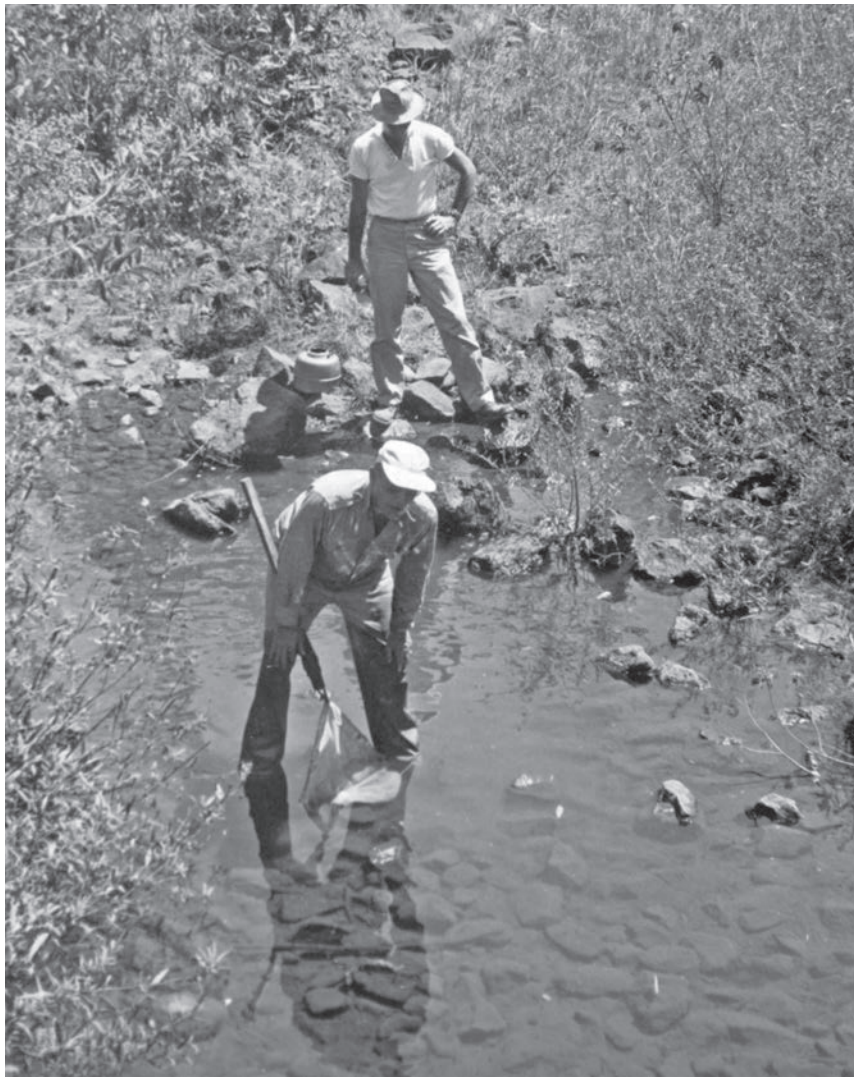
When the opportunity arose to assist his state's military landholders and local sportsmen, Sikes proposed the necessary legislation. In February 1948, he introduced H.R. 5506, "A bill to authorize restocking, propagation, and conservation of game in the Eglin Field Reservation," designed to authorize all of the funds collected through the sale of hunting and fishing permits at Eglin to be expended to improve fish and game populations at the base. When the bill did not progress through congressional channels during that session, Sikes reintroduced identical legislation on February 7, 1949.[33]

The most strident opponent of the Sikes bill was Lindsay G. Warren, the comptroller general of the United States, who asserted that this type of special legislation, allowing public monies to be accepted without lawful accounting requirements, would establish an undesirable precedent. He expressed an additional objection to the bill, echoed by other detractors: that "propagation, distribution, and conservation of game appear[ed] clearly to be outside the scope of the normal functions of the Department of the Air Force . . . [and such legislation was] inconsistent with the efforts now being made to eliminate overlapping of activities and to prevent



Robert L. F. "Bob" Sikes (D-FL), with the self-proclaimed nickname of "He Coon," served thirty-eight years in Congress. The photo shows him during a tour of Fort Richardson, Alaska, in 1964 with Maj. Gen. Ned D. Moore (USA). *University of West Florida Archives and West Florida History Center.*

the expansion of departments . . . into fields which are foreign" to their purpose. If Congress did pass the bill, Warren asked that all funds for the program be accountable to the comptroller.[34]



Gen. Thomas D. White (*front*) is shown collecting fish in Panama in March 1956 when he was vice chief of staff of the Air Force. White had a serious interest in ichthyology, and he and his wife had two previously unidentified species of tropical fish named after them. Four months after this photo was taken, he began overseeing the establishment of the Air Force's conservation program. *Courtesy of the White family.*

In response to this opposition, Sikes provided Warren details about the scope of the fish and wildlife program at Eglin. Sikes explained that allowing the Air Force to manage conservation programs on its own lands would avoid duplication of effort required by the U.S. Fish and Wildlife Service, a point on which the Department of the Interior concurred. Sikes acquiesced to Warren's desire for a provision that required the Air Force to

submit an accounting of Eglin's fish and wildlife conservation funds to the comptroller's office. He successfully converted Warren to his side, and in July 1949, the comptroller's office reported favorably on the bill when it came to the Senate floor. Sikes secured passage of the Eglin bill with little debate, and H.R. 2418 was signed into law in October.[35]

Secretary of the Air Force Symington provided crucial support for the Eglin conservation program. He wrote the chairman of the House Committee on Armed Services, Carl Vinson (D-GA), in May 1949 to express the Department of Defense's, and the Air Force's, full support of Sikes's resolution: "The Department of the Air Force is of the opinion that legislation which has as its design the conservation and propagation of fish and wildlife on any Government owned lands, whether they be Army, Navy, or Air Force, is worthy of favorable consideration by the Congress." Further, Symington stated that the "Secretary of Defense has delegated to this Department [of the Air Force] the responsibility for expressing the views of the National Military Establishment" with regard to the game conservation bill. This designation, colloquially known as "executive agent," established the Air Force as the proxy for the Pentagon on issues related to the Sikes bill and engaged the service in future Defense Department natural resource conservation concerns.[36]

While Sikes frequently communicated directly with the secretary and chief of staff of the Air Force as he sought passage of H.R. 2418, he also maintained a working rapport with the Air Force Office of Legislative Liaison (AFL&L) regarding details of the bill's language to ensure that the service fully backed the legislation. When initially inquiring about the conservation funding issue at Eglin, Sikes worked with Brig. Gen. John K. Gerhart, director of AFL&L from January 1947 to August 1948. Later when the bill was before Congress, Sikes kept Maj. Gen. Thomas White, the director of AFL&L from October 1948 to April 1950, "fully informed;" in turn, White assured Sikes of his cooperation and supported Sikes's efforts on the legislation.[37] This initial involvement with the Sikes bill introduced White to natural resource legislation and helped shape his outlook on Air Force fish and wildlife conservation programs and policies.

White's awareness and knowledge of the natural world began long before his experience with the Sikes Act. Born in Minnesota in 1901 and reared in Illinois, he was the son of an Episcopal bishop who taught him to fish at an early age. His sister recalled that White preferred fishing "better than anything else in the world," particularly at their family's northern Michigan cottage.[38] He graduated from the U.S. Military Academy in 1920, instilled with many of the West Point values that produced the nation's earliest explorer/engineers.[39] As an attaché in the Army Air Corps,

fluent in Chinese, Russian, Italian, Greek, Spanish, and Portuguese, White traveled the world on numerous assignments. Wherever he went, he packed his fishing tackle. In 1940, on duty in Brazil, the keen outdoorsman transformed his fly-fishing hobby into a more serious off-duty pursuit. While gathering rare tropical fish for his personal aquarium, White, with his wife, Constance, began collecting and preserving specimens for Dr. George S. Myers, a renowned ichthyologist at Stanford University. This effort led to the discovery of two previously unidentified species of tropical fish later named for the general and his wife, "Cynolebias Constanceiae" and "Cynolebias Whitei."[40]

Demobilization after World War II caused White to seriously consider a career outside the military. Regularly between 1946 and 1949, he queried Myers about the "low-down on the ichthyological field" and the admission requirements for Stanford's doctoral program in biology before the Air Force promoted him and settled his career path.[41] By the time he became vice chief of staff of the Air Force in 1953 and chief of staff in 1957, General White had a firm grasp of conservation issues in the Air Force. His experience with the Sikes legislative process and personal interest in safeguarding fish and wildlife would lead White to champion his service's conservation endeavors.

Overall, the legislative activity preceding the Sikes Act's passage served as a valuable experience that educated Air Force leaders about the increasing political and social significance of natural resource conservation issues. Notably, legislative activity surrounding the bill established the Air Force as the executive agent for the Department of Defense on such matters. Further, the 1949 law created the framework for the more encompassing Sikes Act of 1960, which strengthened cooperation between the Defense Department and U.S. Fish and Wildlife Service on a national level. As discussed in chapter 5, subsequent revisions to the Sikes Act would resonate for decades to follow in the realm of wildlife and habitat conservation, first on military lands, and later on other federally managed properties. After 1974, Sikes Act amendments even included appropriations for the Departments of Agriculture and Interior to carry out conservation and rehabilitation programs on military and other specified federally owned lands.[42]

Natural Resources Conservation, the Military Land Use Controversy, and Congressional Challenges

In the decades following World War II, the conservation movement began its transformation into the modern environmental movement, although it would be many years before it was labeled as such. An effort that once emphasized efficient use of forests, water, soil, and wildlife as commodities began evolving into an endeavor concerned with environmental protection, species preservation, quality of life, population growth, and the impact of technology on the natural world.

According to environmental historian Samuel P. Hays, new postwar environmental and ecological values reflected increasing standards of living and changing attitudes among Americans about what constituted a better life. After World War II, technology advanced at an unprecedented pace, revolutionizing production methods and fueling postwar economic expansion. As incomes rose, more people obtained the necessities of life and sought discretionary consumer goods. These expanding economic and personal opportunities intensified the depletion of natural resources and degraded the environment. At the same time, more Americans gained an appreciation of the outdoors and took an interest in protecting nature.[1]

The increase in financial security coupled with a postwar population boom accelerated housing development across the country and transformed rural farm and wild lands into suburbs. Heavy industry, radically expanded to support the war effort, flourished during the Cold War era and spread nationwide, often polluting the country's rivers and air. Concurrently, the first unified theories of ecology emerged and helped educate postwar scientists and the general public about environmental problems facing the country and the world.[2] Historian Donald Worster asserted that soon after the war, Americans began discovering that "the earth was sick, and the sickness was our doing."[3] While it would take more than a decade before the conservation movement would begin fully responding to the ecological challenges presented by vast postwar social and economic changes, a "protoenvironmental consciousness" emerged in the late 1940s and 1950s and arguably encouraged the military's conservation efforts.[4]

Conservation professionals experienced firsthand this shift in public attitude toward the environment before and immediately after World War II. In 1940, the International Association of Game, Fish, and Wildlife Conservation Commissioners noted in its annual convention proceedings the successes their profession had achieved in restoring North American wildlife during the 1930s. However, with the impending war, the organization feared that wildlife resources would be exploited in the name of patriotism. When the United States entered the conflict, this concern manifested itself as the federal government gave the military large segments of National Wildlife Refuge land for training and operations. After the war, wildlife professionals redoubled their restoration efforts by developing reliable water supplies for waterfowl, replanting cutover forests and deserted farmland with trees and shrubs, and restocking animal populations in regions where they had been extirpated.[5] While they achieved significant tangible success in reviving their earlier conservation efforts, most wildlife experts eschewed natural resource politics, allowing politicians to assume leadership in the arena of government policy.[6]

In the 1950s, natural resource professionals confronted a fresh challenge to their labors as the Dwight D. Eisenhower administration consigned its conservation efforts to politicos. Conservation historian James Trefethen opined that the result of Eisenhower's conservation agenda "for most of the federal conservation programs was near disaster."[7] The new secretary of the interior, J. Douglas McKay (1953–56), former Oregon governor and Chevrolet dealership owner, introduced the spoils system to the U.S. Fish and Wildlife Service and catered to private oil, gas, and timber companies that actively sought access to National Wildlife Refuge System lands for development. He was dubbed the "Giveaway King" by the Democratic National Committee and "Generous Doug" by journalist Drew Pearson. In three years under McKay, the Department of the Interior issued sixty-four oil and gas exploration permits on wildlife refuges; in the previous eleven years, it had issued only twenty-two such permits. McKay also granted private mining, timber, and grazing interests large parcels of land from the public domain.[8]

In 1955, McKay endorsed the Bureau of Reclamation's bid to build the massive Echo Park Dam in Colorado within Dinosaur National Monument, a part of the National Park system, which conservationists vehemently opposed. When the final bill authorizing the dam reached Congress in April 1955, anti-dam protestors organized more than 300 state and national sporting and wildlife groups to demonstrate against the perceived invasion of the National Parks.[9] By the time activists successfully lobbied members of Congress to remove the Echo Park Dam from the larger Colorado River

Had the Echo Park Dam been built in Dinosaur National Monument, Colorado, in the 1950s, much of the area in the foreground along the Green River, including 800-foot-tall Steamboat Rock (*center*), would have been submerged. *National Park Service.*

Storage Project in July, national conservation policies had emerged as a significant political issue. Historian Hal K. Rothman contended that the political endeavor to defeat this dam project politically revolutionized conservation in the United States into a complex social movement, and ultimately, "conservation was reborn as environmentalism." Professional conservationists developed strategies to defend their ground, and citizens awoke to the impending threats to their public spaces.[10] The Department of Defense (DOD) and the U.S. Air Force would soon feel the force of this energized movement.

Growing Public Outdoor Participation

Postwar social change and population growth intensified human pressures on limited recreational resources and spawned public frustration over ineffective federal land policies, particularly in respect to how much land the military was acquiring. In the 1950s through the early 1960s, personal income, leisure time, and mobility increased, and the United States grew increasingly suburban.[11] At the same time, use of outdoor recreation areas soared, while available outdoor resources remained stagnant. For

The crowded Fishing Bridge on Yellowstone Lake at Yellowstone National Park during the summer of 1962. Public participation in outdoor recreational activities such as fishing increased exponentially in the years following World War II, as did visitation at the country's national parks. *National Park Service.*

example, the number of visits to the National Park system rose from 6 million in 1942 to 33 million in 1950 and 72 million in 1960, though park facilities remained essentially the same until the mid-1950s. During the immediate postwar years, attendance rose 10 percent at National Forests; 12 percent at National Wildlife Refuges; and 28 percent at Corps of Engineers reservoirs.[12] The number of hunting and fishing licenses purchased during this time demonstrates the dramatic rise in participation in those activities. In 1940, fishing licenses in the United States totaled 7.93 million. By 1956, those numbers had rocketed to 18.7 million, a 136 percent increase. Hunting licenses rose 89 percent in the same period, from 7.65 million to 14.46 million. Both increases were significantly greater than the 28 percent increase in population, from 132.12 million in 1940 to 168.90 million in 1956.[13] By 1955, the U.S. Fish and Wildlife Service determined that one in every three households in the United States—17 million homes—had one or more outdoor sportspersons. Overall, 25 million men, women, and children over age twelve—one in every five persons—fished or hunted in 1955. Of that number, one in six households in cities with populations over 500,000 had hunters or fishermen; one in three households in small cities and suburbs; one in three households in towns with populations greater than 2,500 outside urban areas; and one in two households in rural areas with populations less than 2,500.[14] More Americans also sought enjoyment

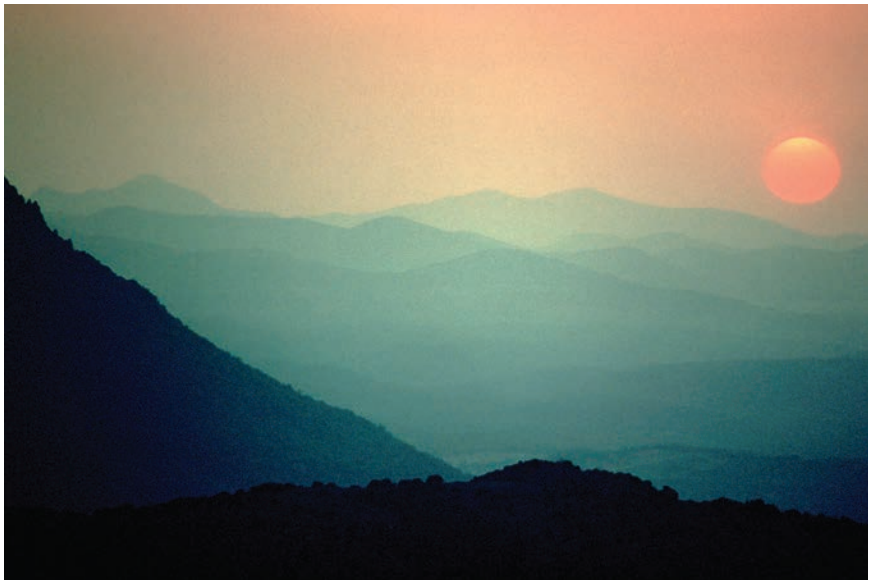
from observing wildlife, and by 1964, wildlife watchers numbered 50 million. Organizations like the National Wildlife Federation and National Audubon Society expanded their efforts to protect migratory birds and mammals and their habitat and also helped educate Americans about the need to preserve the quality of the environment.[15]

Military Land Acquisition

When the United States entered World War II, the War and Navy Departments procured land for training and operational needs through several avenues: purchasing from private owners; leasing from individuals, municipalities, and state governments; and transferring and leasing from the public domain—that is, land belonging to the U.S. federal government not reserved for any particular public purpose, primarily forest or grazing property. The outright purchase of land for military purposes differed from typical property sales with a willing seller and willing buyer. When the military sought land from multiple owners in a large area, often some owners did not want to sell their property. In the absence of a voluntary sale, the federal government could employ the General Condemnation Statute, the Declaration of Taking Act, or the War Powers Act to take immediate possession of the property while negotiations over payment concluded.[16]

During the war, when the military acquired land for varied purposes, the quality of the land needed for each function differed widely. In general, ordnance plants required some of the best agricultural land in a community—level, deep soil in which explosive shocks settled quickly and on which heavy foundations could be laid. These plants needed established rail and highway transportation, adequate water availability, and a nearby labor supply, all of which often already existed in thriving farm communities. Like ordnance plants, air fields also required high-quality land—level, cleared parcels at least 160 acres in area. Military camps and maneuver areas were located on lands not well adapted to agriculture but commonly near a sizeable city with railroad and recreational facilities for large numbers of men. The military placed bombing and artillery ranges on the poorest land available, primarily inferior grazing acreage in the western states and woodlands of the east.[17]

After the war, different federal agencies dispersed excess military properties. The Department of Agriculture was responsible for disposing of surplus agricultural and forest land; the Interior Department for grazing and mineral areas; the Federal Works Agency for nonindustrial real estate; and the National Housing Agency for housing property. The military could also transfer unneeded land to another government agency;



U.S. Army efforts in 1955 to take title to 10,700 acres in the Wichita Mountains National Wildlife Refuge (*above*), near Fort Sill, Oklahoma, prompted a public backlash and was one of a series of high-profile military "landgrabs" that led to congressional hearings the following year. Photo by Robert A. Karges. *U.S. Fish and Wildlife Service.*

however, public lands almost automatically reverted to the former tenant agency. Surplus land that had been privately owned could be returned to former owners and tenants at a fair market price.[18] Significantly, however, while some wartime military property was restored to its original owners, defense agencies' overall acreage increased from its prewar level.[19]

The Defense Department elected to retain much of its wartime land gains instead of returning the property to its previous owners largely because of evolving weapons systems. Technological advances like guided missiles and high-speed, high-altitude jet aircraft able to break the sound barrier needed more space to maneuver safely. Expanding support facilities—increasingly needed to sustain bombing, gunnery, rocketry, missile-test, and survival range operations—also required more land.[20] Expressed more tangibly by George S. Robinson, deputy special assistant for installations, Office of the Secretary of the Air Force, in January 1956, "The high speed and altitude requirements of our modern weapons systems generate requirements for training and test areas of large dimensions, dimensions which can be more readily visualized when one pictures an aircraft moving at 6 miles or more per minute at 40,000 feet, using weapons with fallout trajectories which are measured in miles, with many additional miles required for maneuvering and assurance of the

safety of the general public."[21] Consequently, the military argued that it needed not only the land it already possessed, but also more territory to maintain readiness with its new, state-of-the-art weapons.

Defense Department property acquisition considerations were based not only on existing needs, but also on projected requirements. Army Brig. Gen. Alfred D. Starbird, director of the Division of Military Application, Atomic Energy Commission (AEC), testified before the Congress in May 1956 that his agency and the Department of Defense "have an immediate need for ballistic test range facilities to test bomb shapes now under development." According to Starbird, it became apparent in 1955 that the existing Defense ranges would not be suitable for impending supersonic aircraft weapons testing and that more land was required for "permanent and exclusive AEC use for classified projects for which the present Nevada test site is inadequate and for which this additional land is urgently needed."[22] Thus, even with World War II over, new Cold War exigencies for retaining existing properties and obtaining new lands persisted within the military establishment.

The Military Land Controversy

Regardless of the military's emerging land requirements, state and local politicians, particularly those in the West, sought to regain control of public domain lands that the military had appropriated for wartime purposes. Many political leaders supported big river irrigation, power, and drinking-water projects for their burgeoning populations. Prior to 1955, few citizens challenged the military's need to restrict access to and control over activities taking place on those lands. By that time, however, and concurrent with the rise in environmental awareness generated by the Echo Park Dam fight, numerous overreaches by each military service to acquire public domain land, and a growing concern about the military's poor wildlife stewardship, generated a public and political backlash.

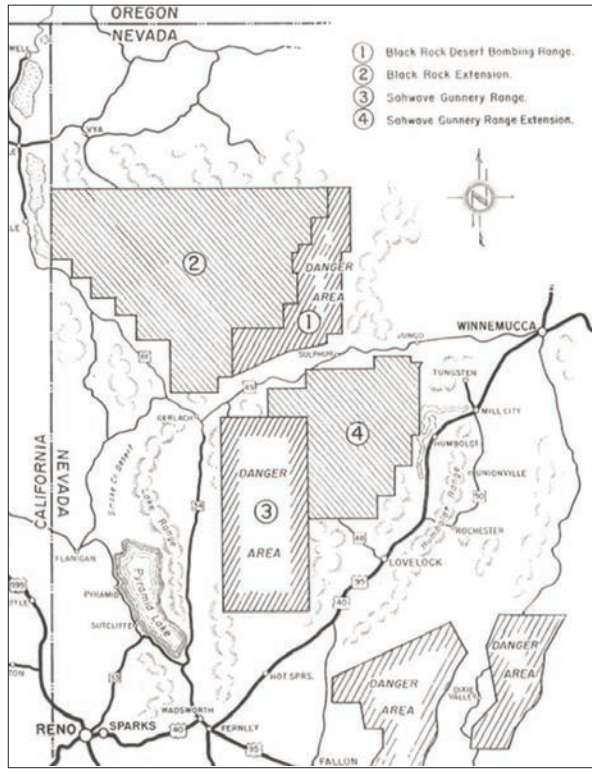
Three incidents in particular spurred Congress to investigate military land-use practices. In 1955, buried in a massive military construction bill, the U.S. Army sought title to 10,700 acres of the Wichita Mountains National Wildlife Refuge near Fort Sill Military Reservation, Oklahoma, in addition to purchasing outright 20,000 adjacent acres to use as a firing range for atomic cannons and rockets. Before wildlife conservationists and local land owners could mount opposition to the bill, both the House and Senate Armed Services Committees approved the land transfer in June 1955. The following month, a coalition of conservationists appeared before the House and Senate Appropriations Committees to protest the

handover. Army officials asserted that the refuge land they wanted was of no value to the U.S. Fish and Wildlife Service. But Fish and Wildlife Service leaders and professional conservationists, led by the Wildlife Management Institute and the National Parks Association, maintained that this particular sector was "in the heart of the area used for recreation," enjoyed by 850,000 people in 1954, and comprised the most significant watershed in the refuge.[23]

The Army's bid for the Wichita refuge through backdoor congressional deals was what *New York Times* reporter Raymond R. Camp labeled "legislative predation, one of the most persistent enemies of wildlife, [and] is more difficult to control than such natural predators as wolves, mountain lions, foxes, wildcats, and skunks."[24] His *Times* colleague, distinguished outdoors writer and editorial page editor John B. Oakes, added that the "stubborn attitude of the Army in this matter is unfortunately characteristic of the approach the armed forces have frequently shown when it comes to acquiring desirable land. . . . If this were vital to the national defense, there could be no serious resistance by conservationists or any one [sic] else to taking of the land; but the Army has yet to prove that the safety of the country depends on the destruction of this 10,700 acres."[25]

In October 1955, Interior secretary McKay vetoed the land transfer from the refuge to the Army. While the Army ultimately conceded that it had other operational facilities where it could fire its big weapons and did not require the Wichita refuge land, it continued to agitate, unsuccessfully, in 1956 and 1957 for congressional action to transfer the land. This push occurred even though the Interior Department had set aside an area of the Wichita refuge as a buffer zone when the Army tested weapons and had issued the Army a land-use permit to establish firing sites from within the refuge onto Fort Sill to obviate the need of firing from the fort into the refuge.[26]

In another land acquisition case, in March 1955, the U.S. Navy sought exponentially more property than the Army—nearly two million acres of land in northwest Nevada in addition to 602,880 acres recently taken for the Sahwave Gunnery Range and another 54,974 acres that had been leased—a total claim of 2,629,760 acres. The Navy told Congress it needed the expanse for air-to-air gunnery exercises that involved aviators firing their weapons at targets towed by other aircraft at high altitudes. The bigger parcel of 1,372,160 was more than five times larger than the existing Black Rock Desert Bombing Range for which it would have served as an extension. The second one, of 654,720 acres, was slightly larger than the neighboring Sahwave range.[27] This withdrawal request led to nearly 250 individual protests from Nevada residents seeking recourse through Congress, from



The U.S. Navy's Black Rock Desert Bombing Range (1) and proposed extension (2) and Sahwave Gunnery Range (3) and proposed extension (4). Map by Norton Allen. Desert Magazine, *October 1956.*

grazing, mining, and wildlife interests and from politicians who viewed this "landgrab" as an unnecessary and unjust encroachment by the military.[28]

The Navy's proposed property gain would have imposed a great human cost of disrupted lives and thwarted plans of many Nevadans making a living from the land. Ruth and Vern Parman owned a ranch they had managed to retain though the Great Depression. In an article about the Navy's proposed acquisition, Ruth Parman remarked:

> Our long years of work are beginning to pay off. But if the Navy takes our place—what then? Where will we go? We're too old to start again from scratch—clearing sagebrush and drilling wells, and building barns, and fencing. We can't do it at our age . . . and even if we were young enough to start over and build up another ranch, what assurance would we have that in 10 or 20 years the Navy . . . wouldn't come and take that ranch, too? Where is it all going to end?[29]

While the Navy paid prices that it had negotiated with individual land owners, under court jurisdiction, for the private property it confiscated, local governments received no compensation for removing large numbers of people from their tax rolls and shrinking the tax base, which often closed schools and reduced government services. State and local elected officials took note of the lost revenue and chose to fight the Navy over the land issue.[30]

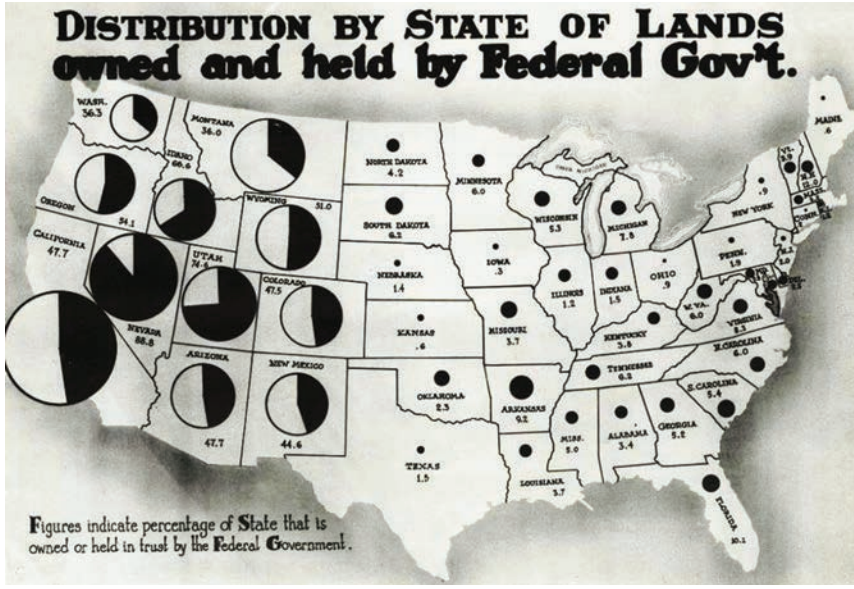
During 1956 and 1957, the Navy's attempted acquisition of the Black Rock-Sahwave land was the primary political issue in Nevada. In response to public inquiries about the service's requirement for additional land, the Navy asserted that its new high-performance jet aircraft required larger training areas. However, the Navy could not convince the public why it needed so much more land, particularly after the Air Force offered its two-million-acre Nellis Range for joint service use. In the face of public resistance and negative publicity, by March 1957, the Navy revised its request. It reduced the land it sought to 1.3 million acres, eliminated the additional Black Rock Range extension, and reached an understanding with the Air Force to share the Nellis Range. The Navy also consented to purchase mining claims outright from their owners and to halt its operations for five months of the year to allow livestock ranchers and hunters access to the area. The final agreement in May 1958 gave the Navy 272,000 acres of the Black Rock Range, for which it had previously negotiated a five-year renewable lease in 1949 with the Bureau of Land Management and local livestock owners; and an additional 519,000 acres of the Sahwave Range. The Navy operated these ranges until the first lease ended in 1963, by which time newer, faster aircraft had made them obsolete.[31]

Another controversy in 1955 involved the Air Force Strategic Air Command's proposed expansion of its photoflash bombing range to within a mile of the Aransas National Wildlife Refuge, on the Texas Gulf Coast, where the only surviving flock of an estimated twenty-six Whooping Cranes wintered. This proposal generated significant public and professional protest as it would likely have resulted in the demise of the remaining cranes. J. Clark Salyer II, chief of the Wildlife Refuge Branch of the U.S. Fish and Wildlife Service, argued that it was just one more instance of the armed services "trying to take over" lands originally set aside for conservation.[32] On September 20, 1955, the Canadian government delivered a formal protest to the United States by way of the Department of State in an effort to protect the cranes, which summer in Canada. The U.S. Fish and Wildlife Service joined the dissent, along with the Natural Resources Council of America, the National Audubon Society,

Whooping Cranes take flight at the Aransas National Wildlife Refuge on the Texas Gulf Coast. As of 1955, the only surviving flock of cranes wintered at this reserve in an area endangered by a proposed expansion of a U.S. Air Force bombing range. Photo by Steve Hillebrand. *U.S. Fish and Wildlife Service.*

the National Wildlife Federation, the American Nature Association, and the National Parks Association, and coerced the Air Force to abandon its plan to expand the range within a month of the formal protest.[33] The Air Force did not refer to the cranes when it announced on October 14, 1955, that "there had been a conflict of interest 'between military requirements and private interests'" and dropped its request for the new bombing range, but the press made the wildlife connection. As a *Washington Post and Times Herald* headline put it, "AF Yields to Whoopers after Sally by Bird Lovers."[34]

These controversies concerning military land withdrawals prompted many politicians and citizens to question the military's right and need to acquire additional property. Within three years of the outbreak of World War II, military land holdings had increased 800 percent, and postwar, the Defense Department sought to keep that property and increase its holdings for future needs.[35] In 1937, defense agencies owned or controlled 3.1 million acres of land in the continental United States (CONUS). By June 1945, they held 25.1 million acres. That number rose to 27.6 million acres in CONUS by June 1956, with an additional 3.1 million acres in the Alaska territory. Of those 30.7 million acres, 16.9 million acres had



Based on information from the 1957 edition of the *Statistical Abstract of the United States***.** *Clair Engle Papers, Special Collections, Meriam Library, California State University, Chico.*

been transferred from public domain lands. More tangibly expressed by the House Committee on Interior and Insular Affairs in its final report in 1957 on military land withdrawals from the public domain, in CONUS, the Defense Department occupied a "strip of land 14.34 miles in width from New York to San Francisco."[36]

To halt the rapid expansion of military reservations onto public domain lands, on October 29, 1955, Representative Clair W. Engle (D-CA), chairman of the House Committee on Interior and Insular Affairs, requested that the Department of the Interior, which had authority to dispose of public domain property, withhold approval of any further land withdrawals until Congress could fully consider the matter. On November 4, Wesley A. D'Ewart, assistant secretary of the interior, agreed to withhold approval of pending requests.[37]

Engle's first awareness of the military land issue had been prompted by previous Navy efforts to secure land in the Saline Valley of his home district and acreage across the border in Nevada that was owned in large part by his California constituents. Almost 100 individuals and families—ranchers grazing their cattle and sheep, prospectors mining strategic minerals, and conservationists concerned about local wildlife—filed formal protests against the proposed Navy land withdrawal beginning in 1951, and Engle took up their cause.[38] After the series of events in 1955, particularly the Navy's threat to the Nevada land near the Black Rock-Sahwave Desert

Range that was owned in part by some of his California constituents, Engle initiated a congressional investigation.

In his opening statement of the House Committee on Interior and Insular Affairs hearings on military land withdrawals, which began in January 1956, Engle called for the return of full congressional authority regarding stewardship over public domain lands, powers that had in practice, through inertia over the years, been effectively ceded to the executive branch. At issue was the constitutional obligation to manage public lands as noted in article 4, section 3, clause 2 of the Constitution: "The Congress shall have the power to dispose of and make all needful rules and regulations respecting the Territory or other property belonging to the United States."[39] The committee hearings, and the legislation that the investigation ultimately prompted, also sought to establish clear statutory requirements for multiple-use management and fish and game conservation on military installations, opening these public lands for mineral, grazing, timber, and water uses along with conservation, scenic, and recreational purposes.[40]

Clair Engle and the House Committee Hearings on Military Land Withdrawals

Congressman Engle's concern for northern and eastern California and the western United States guided his politics. Born in Bakersfield in 1911 and reared near Red Bluff, 120 miles north of Sacramento on the Shingletown Plateau, Clair Engle grew up in the saddle, riding and roping calves almost before he could read and write. He spent many afternoons fishing in local streams and hunting squirrels and mountain quail in nearby thickets. His grandfather had arrived in California during the Gold Rush and worked in the mines for several years before establishing a successful cattle ranch. Engle's father carried on the family ranching tradition, which experienced recurrent setbacks due to drought. Engle's hometown relied on agriculture, lumbering, mining, and hydroelectric development. However, broader state and urban interests often challenged Tehama and Shasta County ranchers and farmers over control of local natural resources. As a child, Engle saw water rights issues pit his neighbors and family in armed confrontation with large western power company officials over access to water. The ensuing protracted legal battles impoverished the Engle family and community members. These formative years strongly influenced Engle's political bearings, with one of Engle's cousins recalling that he "never forgave PG&E [Pacific Gas and Electric Company] for interfering with their home and [thereafter] lined up [with] the common people against big business."[41]

Congressman Clair W. Engle (D-CA) in the cockpit of a new F–104B Starfighter at Andrews Air Force Base, Maryland, in March 1958. Engle was a private licensed pilot and rose to the rank of colonel in the U.S. Air Force Reserve. During his youth, his hometown of Red Bluff, California, was a base for U.S. Army Air Service fire patrol flights. *Clair Engle Papers, Special Collections, Meriam Library, California State University, Chico.*

Engle was elected district attorney of Tehama County at age twenty-three; California state senator at thirty-one; U.S. congressman at thirty-two; and U.S. senator at forty-five. He was best known politically for sponsoring legislation authorizing the Central Valley Project, a system that protected the California Central Valley from water shortages and floods; restraining the role of the federal government in his home district; and fostering domestic mining and local reclamation ventures. Biographer Stephen P. Sayles wrote that Engle's congressional colleagues dubbed him "Congressman Fireball" for his enthusiasm and energy, his ability to steer more than 100 bills into law, and the cloud of cigar smoke that typically trailed him through the halls of Congress.[42]

A private licensed pilot, Engle once served in the National Guard and reached the rank of colonel with the Air Force Reserve. In the summer of 1952, he finessed an active-duty assignment to investigate the impact of the new military justice code in Korea for the Air Force Judge Advocate branch. While there he "flew north of the thirty-eighth parallel on jet reconnaissance missions, peered down into the front lines from a rescue helicopter, fired a .50-caliber machine gun at the Chinese trenches from

a tank, drank beer with dive-bomber pilots, and in general succeeded in living dangerously," according to a *Saturday Evening Post* article titled "Wildcat in Washington."[43] Engle is most remembered for his final vote on June 10, 1964. While Engle was dying from a brain tumor, a Navy corpsman wheeled him onto the Senate floor to vote to end the filibuster against the 1964 Civil Rights bill. As the Red Bluff, California, newspaper recounted, the "senator was visibly trying to speak. He could not. Finally he raised his left arm . . . as though trying to point toward his eyes." The Senate clerk declared that Senator Engle voted aye.[44]

Other powerful members of the House Committee on Interior and Insular Affairs as of 1956 included Stewart L. Udall (D-AZ), who had served as a B–24 enlisted gunner in the Army Air Forces during World War II and flew fifty missions over Europe. Later an icon in the environmental movement as secretary of the interior from 1961 to 1969 under presidents John F. Kennedy and Lyndon B. Johnson, Udall directed the addition of four parks, six national monuments, eight seashores and lakeshores, nine recreation areas, and twenty historic sites to the National Park system and fifty-six wildlife refuges to the National Wildlife Refuge system. He also ushered the Wilderness Act, the Water Quality Act, and the Wild and Scenic Rivers Act into law. His best-selling book, *The Quiet Crisis* (1963), helped awaken the environmental awareness of millions of Americans.[45]

Another key committee member, John P. Saylor (R-PA), christened "St. John" by environmental advocates and called the "congressional Theodore Roosevelt" by Gerald R. Ford, consistently prioritized environmental issues ahead of economic development. The former U.S. Navy enlistee served in the World War II Pacific Theater and became a representative from Pennsylvania in 1949. Saylor often fought the U.S. Bureau of Reclamation over dam development and vigorously supported the Wilderness Act and the National Wild and Scenic Rivers Act.[46]

Another prominent committee member, Wayne N. Aspinall (D-CO), promoted natural resources development in the West and often drew fire from the increasingly powerful conservation lobby. Aspinall considered Floyd E. Dominy, the Bureau of Reclamation commissioner, a close friend and strongly supported the Colorado River Storage Project, which included the controversial Echo Park Dam.[47] Also serving on Engle's committee was Lee W. Metcalf (D-MT), who enlisted in the Army during World War II and participated in the Normandy invasion and the Battle of the Bulge. He served his state as both a congressman and senator. His successor, Senator John Melcher (D-MT), called Metcalf a "pioneer of the conservation movement" for his legislative efforts to preserve natural resources and regulate utilities.[48] Another notable member, Clarence

C. Young (R-NV), later became president of the National Wildlife Federation, from 1981 to 1983.[49] Several additional committee members represented the interests of western states and, typical of the time, many congressmen had served in the military during either World War II or the Korean conflict.

The first round of House Committee on Interior and Insular Affairs hearings on military land withdrawals lasted for twelve days spaced over five months, from January to May 1956; the second round for six more days, from June to July 1956; and a third round for six days, from January to February 1957. Very broadly, the first round of hearings covered controversial issues related to military land withdrawals and usage, with Defense officials describing general property policies and procedures and offering a statistical picture of Defense Department land holdings. During the second round of hearings, representatives from national, regional, and local conservation groups testified about wildlife and land management practices on military installations. The third round of hearings provided committee members updates on information military officials submitted the previous year, and Department of Defense representatives also presented their final comments on pending legislation.[50]

During the initial round of hearings, the committee learned that the Pentagon did not begin effective property control procedures until August 1955.[51] Until then, the Defense Department had not required any service branch to conduct an inventory of its land holdings or to justify needs for additional lands. Although Franklin G. Floete, assistant secretary of defense for properties and installations, had ordered all services to conduct reviews before the land-withdrawal hearings began, Secretary of Defense Charles E. Wilson did not require submission of those reports until August 1957.[52] The U.S. Air Force, however, moved forward quickly with this task when, in November 1955, Vice Chief of Staff Gen. Thomas D. White recommended creating a high-level board to study existing and projected range requirements. Consequently, Gen. Nathan F. Twining, the chief of staff, established the Air Force Weapons Range Board on January 11, 1956, to determine if Air Force lands were fully utilized.[53] Records collected prior to the newly ordered inventories showed that, on January 1, 1955, the Air Force controlled about 12.1 million acres, compared to the Army's approximately 8.3 million acres and the Navy's roughly 3.8 million acres (including Marine Corps lands).[54]

The Engle committee hearings also created a graver public relations issue for the Pentagon. Testimony during the second round of hearings from conservation experts exposed open wounds of public resentment regarding fish and game management on military lands, constituting

Members of a subcommittee of the House Committee on Interior and Insular Affairs, shown in August 1956 at the time of the miliary land hearings: (*front***) John P. Saylor (R-PA), Edward A. Edmondson (D-OK), Wayne N. Aspinall (D-CO); (***standing***) J. Edgar Chenoweth (R-CO), William A. Dawson (R-UT), Stewart L. Udall (D-AZ), Clair W. Engle (D-CA), Lee W. Metcalf (D-MT).** *Clair Engle Papers, Special Collections, Meriam Library, California State University, Chico.*

what the House committee deemed an "almost wholesale indictment" of Defense Department wildlife management policies and procedures. Committee members concluded that "in light of the abuses of sound conservation practices that have unquestionably been permitted to prevail at a number of military reservations, and the inability or unwillingness of the respective military departments and the Department of Defense to remedy the situation, action by Congress is a must."[55]

Although each of the services permitted civilians to hunt on military lands in the years following World War II, commanders of each installation had final authority to issue hunting and fishing permits. These commanders could restrict civilian sportsmen from using their installations based on security and safety requirements or the impact on their ability to efficiently accomplish the units' missions. Further, commanders often set rules for their facilities, including hunting seasons, bag limits, and licensing requirements.[56] In August 1949, Secretary of Defense Louis A. Johnson (1949–50) recognized that many commanders were not requiring their members to heed state hunting and fishing laws on military installations, leading to highly visible

public conflicts with conservation officials. As a result, Johnson issued a memorandum to the secretaries of the Army, Navy, and Air Force:

> It has been recently brought to my attention that members of the armed services are, in certain instances, allowed to hunt or fish on military and naval installations without strict compliance with State laws, particularly those laws with respect to seasons and bag limits.
>
> I wish you would notify your respective commanding officers of your installations of the prudence of abiding by State regulations designed to conserve fish and wildlife. In my opinion, the State regulations applicable to a resident property owner on his own land should be abided by at military installations wherever this course is possible. This will bring about greater conservation of fish and wildlife and result in better relations with local sportsmen who, in a large measure, provide the funds for improving the hunting and fishing within the area.[57]

At the second round of hearings in 1956, Clinton Raymond "C. R." Gutermuth, vice president of the Wildlife Management Institute and former Indiana fish and game commissioner, criticized Johnson's memo as an early effort to forestall congressional action on the issue and stated that "conservation organizations and sportsmen have no faith in any such order. That was tried before, and failed."[58] This accusation had credibility: even though the services had issued several new fish and game regulations between 1949 and 1951, some installation commanders still deliberately ignored the orders. These breaches of military discipline resulted in publicized cases of wildlife law violations that those officers had condoned. At Camp McCoy, Wisconsin, during the 1955 deer season, military personnel illegally killed in large numbers both does and fawns when only forked bucks were allowed to be hunted. These hunters also shot deer by "shining" them, using bright lights to temporarily blind the deer and hinder any attempt of escape, and shot the animals from cars and trucks, both state-prohibited methods of hunting. Additional hunting violations were reported to have occurred since the 1930s at Fort Bliss, which straddles the Texas-New Mexico border near El Paso. There the commanding general permitted the carcasses of deer killed by members of the military without licenses in New Mexico to be transferred to Texas, in violation of New Mexico fish and game laws, by military aircraft that could not be searched by civilian fish and game wardens. At Fort Bragg, North Carolina, between 1951 and 1956, deer were live-trapped and transported

"Of course you can have some—if there's any left." San Francisco Chronicle, *June 9, 1957, from Clair Engle Papers, Special Collections, Meriam Library, California State University, Chico.*

by military aircraft across state lines to Fort Benning, Georgia, defying state statutes. Military personnel at Fort Bragg also hunted both sexes of deer of any age, and on Sundays, not keeping with state laws.[59]

While citizens in general and conservationists alike willingly sacrificed their land-use interests for military land requirements in the name of national defense during the Cold War, they disapproved of what committee chairman Engle deemed "monkeyshines" and land grabbing by the services and were further incensed by service personnel violating local and state game laws.[60] David R. Brower, the first executive director of the Sierra Club and a retired major in the U.S. Army Reserve who had been an officer in the 10th Mountain Division and trained soldiers in mountaineering and cross-country skiing during World War II, testified that "this military yen for Federal lands is not an easy thing to oppose. After all, these men are single-minded and aggressive in their pursuit of national defense, as they ought to be. Nobody wants to hamstring them. But on the other hand they should be prevented from unnecessarily damaging the Nation they are pledged to protect."[61]

Significant controversy surrounded the subject of Defense Department land and wildlife management practices during the second round of hearings. In reference to federal military reservations that held fish, game, and wildlife resources, the Engle committee concluded in its 1957 final report that "in too many instances such areas have taken on all the aspects of exclusive military hunting preserves, closed to the public at large, closed to the Federal and State officials charged with responsibility for fish and game law enforcement." The unethical conduct of some officers and enlisted service members led to strident objections from local conservation officials regarding military officers and enlisted personnel ignoring fixed seasons for taking game, bag limits, and methods and times

of capture. Additional friction between the military and conservation officials involved fishing and hunting on military reservations by visiting or training personnel during periods that coincided with hunting and fishing seasons.[62] The *Washington Post* and *New York Times* publicized violations that conservationists highlighted in the hearings, reporting that the "committee had heard charges that military 'stinkers' were staging mass slaughters of game animals in defiance of state laws" and that at Fort Huachuca, Arizona, the "commanding officer virtually compeled [sic] state officials to consent to a special hunt to kill off" the resident bison herd (the episode described in the prologue of this book).[63]

Leading conservationists testified during the second round of hearings about natural resource abuses on Defense Department lands. Clark Salyer of the U.S. Fish and Wildlife Service described earlier incidents of hunting excesses by service members: "I could tell you a lot about what happened in Alaska during the war—the walruses being machine-gunned from B–29s, sea otters and brown bears being machine-gunned, and so forth." Salyer, employing Winston S. Churchill's Cold War "iron curtain" imagery, then described a more current situation at the Desert National Wildlife Refuge, Nevada, "in which our sheep are mysteriously disappearing from the ranges on which we cannot get in to examine the situation. I have no doubt where those sheep are going, but at the present it is a surmise [sic]. An impenetrable khaki curtain stands between us and the proper control of those lands."[64]

Other fish and wildlife experts criticized the military's natural resource stewardship practices, including J. W. Penfold, conservation director for the Izaak Walton League, one of the nation's oldest conservation organizations, formed in 1922, which sought to protect the natural environment through public policy.[65] Penfold observed that "the military seems to have shown a bland disregard of the multiple natural resource values pertaining to the lands they seek for their own single purposes," adding that "millions of sportsmen, and the public generally, are getting a bit irked at the attitude of some military personnel, who apparently under the guise of national defense, flaunt State laws pertaining to the protection, management, and harvest of fish and wildlife."[66]

Michael Hoduba, Washington editor of *Sports Afield* magazine, noted: "It seems peculiar that in so many of these cases of withdrawal the lands desired and requested happen to contain choice and prime areas with fish and wildlife facilities." He stated that "we are concerned [about] . . . the general policy which permits the commanding officer of an installation wholly owned by the military to make his own rules. They bring our youngsters into the armed services, and if the youngsters see or come across some type of violations that have been alleged to occur, we are concerned over their future citizenship as

Congressman Clair W. Engle, who represented California's vast Second District in Congress from 1943 until he was elected to the Senate in 1958. *Clair Engle Papers, Special Collections, Meriam Library, California State University, Chico.*

sportsmen." Charles Callison, conservation director for the National Wildlife Federation, added, "Certainly the military forces recognize their responsibility to set an example of obedience to and respect for civil laws in peacetime as well as in time of war. Certainly they do not wish to have the flouting of State conservation law by their own personnel serve as an example to invite and encourage similar violations by the civilian population."[67]

Several witnesses stated their philosophical beliefs about the military's responsibility to properly manage its lands. Callison submitted an article in which Ernest F. Swift, executive director of the National Wildlife Federation and former assistant director of the U.S. Fish and Wildlife Service, argued that the issue went deeper than violations of game laws. Noting that natural resources built the military's strength, "making it possible for them to be the best paid, the best dressed, and the best fed army in the world," Swift added that "patriotism takes on many forms, in peace as well as war, and frugality and wise management of resources is a form of patriotism that gives the necessary strength to the stresses of war."

He concluded, "Our structure of government, our social philosophies, and the husbandry of our national resources are one and inseparable. All three are elements basic to the perpetuity of an enlightened civilization. The Armed Forces are a part of this structure. When there is peace, they should at least respect the will of the people regarding fish, game, and fire laws."[68]

In the same vein, Penfold wrote to the committee, "Obviously, none of our national values will be worth much if we are not prepared to defend them successfully against any eventuality from the outside." Penfold cited Olaus J. Murie, a highly respected wildlife biologist and president of the Wilderness Society, who asserted that "the defense of our country should not be destructive of what we have to defend."[69] Engle committee members considered these comments, and those made during previous testimony, as they crafted their concluding statement: "The program for the defense of our Nation's human and natural resources should not—and must not—be so conducted as to destroy the very resources it is aimed at preserving."[70]

Military officials reacted strongly to conservationists' blanket accusations of wildlife abuse on their installations. When given the opportunity to respond to these claims during the third round of hearings in January 1957, George S. Robinson, deputy special assistant for installations, Office of the Secretary of the Air Force, formally representing the views of the Defense Department, stated that the "fish and wildlife conservation practices on military reservations in the United States have been exemplary in an overwhelming number of cases. . . . The contribution of the military toward preservation of fish and wildlife resources throughout the Nation has gone unnoticed. Generalizations have been made from isolated cases of violations and controversies." Robinson believed that a thorough review of the military's conservation record would reveal overall excellent relations between state conservation agencies and the military installations within their borders.[71]

Evidence presented to the Engle committee supported Robinson's assertion. In late 1956, Air Force Fish and Wildlife Conservation Program officers sent a questionnaire to conservation agencies in all states with Air Force installations within their boundaries. One of the questions asked, "Is your agency encountering any problems in fish and game management or enforcement of fishing or hunting laws at Air Force installations in your State? If so, give details." Thirty-five states replied "no" to that question. Eight states—Colorado, Maine, Mississippi, New Jersey, North Carolina, Montana, South Dakota, and Wyoming—reported some problems, but they were issues the Air Force believed it could work out with state officials. The Air Force also provided the Engle committee the responses to the survey, including remarks from conservation officials in the states reporting hunting or fishing complaints.[72]

During the second round of hearings, the House committee also sought agreement on a bill introduced on April 10, 1956, by chairman Engle that was based on tentative conclusions reached during the first round of hearings. The bill stipulated the requirement of congressional approval for the military to withdraw tracts of more than 5,000 acres from the public domain. This size restriction for land withdrawals drew little debate and formed the foundation of the Engle Act of 1958. Without objection and with bipartisan support, during that round of hearings the committee reported Engle's version of the bill, with a dozen identical or similar bills also introduced concurrently by other representatives, including eight Democrats and four Republicans.[73]

In response to Engle's bill, George Robinson stated on June 12 that the Defense Department supported enactment of the proposed legislation, excluding the section that required hunting, trapping, and fishing on military installations to be conducted according to the law of the state or territory in which the installation was located. Defense representatives believed that existing Army, Air Force, and Navy conservation regulations adequately complied with local fish and game laws and that this section of Engle's bill was superfluous.[74] However, on June 28, Secretary of Defense Wilson, the former president of General Motors, rendered this objection moot by acknowledging the persistent problems that the conservation professionals had illuminated and pledging to the committee that the Defense Department would "take vigorous action to eliminate any abuses to the regulations on hunting and fishing which are in effect for all military personnel on military reservations."[75]

The committee incorporated minor amendments to the original bill, reported the clean document as H.R. 12185, and passed the revision on July 26, 1956, "without a dissenting vote and after receiving unprecedented support—from official State agencies of 39 States, from all major national conservation groups, from numerous regional and local groups, organizations, and individuals—and in very large measure the support of the Department of the Interior and the Department of Defense." The revised bill arrived too late for Senate consideration in the 84th Congress, and the Engle committee unanimously reported it again as H.R. 5538 on March 21, 1957.[76] Senators, after determining that Engle's House committee had conducted a thorough examination of the issues, held only limited hearings on the subject. On August 13, 1957, the Senate Committee on Interior and Insular Affairs unanimously recommended enactment of H.R. 5538. After the full Senate passed it, President Dwight D. Eisenhower signed the bill into law on February 28, 1958.[77]

The Engle Act required congressional approval for any military land withdrawals of more than 5,000 acres of public lands; compelled the

military services to follow federal, state, and local fish and game laws; and precluded high-ranking officers and "week-end sportsmen" from exploiting prime military hunting and fishing locations by requiring servicemen to be stationed on a base for thirty days before becoming eligible for state licenses.[78] It also directed the secretary of defense to require that installation commanders grant full access to state and local fish and game managers to military reservations to ensure that their laws were followed.[79]

This law was the congressional response to increasing constituent demands to preserve public domain lands from military encroachment. The public outcry that drove the legislation also alerted the services that they needed to do more to protect the areas already under their stewardship.

Four

The Air Force Response to Conservation Concerns

The Engle committee hearings proved a public relations fiasco for the Department of Defense, and for the Air Force, which held the largest amount of public land of all the services. The testimony highlighted significant deficiencies in the Pentagon's land management practices and called for swift resolution. In response to these disclosures, and prior to the passage of the Engle Act, the Air Force began rewriting regulations covering fishing and hunting on military reservations to impose greater uniformity in rules to help remedy military-civilian misunderstandings and to assuage congressional and public reactions to the revelations of wildlife abuse.[1]

With defense policy and spending in flux during the 1950s, the Air Force could not afford negative publicity. President Dwight D. Eisenhower's "New Look" defense strategy sought to balance military security with budgetary solvency and cut spending drastically on the armed forces. While building the capacity to deliver "massive retaliation" in response to an attack by the Soviet Union, Eisenhower de-emphasized conventional land and sea forces in favor of nuclear weapons, a policy that initially favored the Air Force. It received the largest percentage of the defense budget between fiscal years 1955 and 1961, averaging 44 percent of the overall defense allotment. However, America's faith in the supremacy of U.S. air power began fading by 1957. The Soviet Union launched its Sputnik satellite and created a new, unknown threat that caused citizens to question if aircraft alone could protect the United States. New technologies such as television, spaceflight, and computers diminished the marvel of aircraft. As the Cold War intensified, Americans expressed fears of nuclear weapons in antinuclear literature and film.[2]

During the 1950s, the Air Force shouldered primary responsibility for developing and preparing for the delivery of nuclear weapons. "The bomb" defined the Air Force in the minds of many American citizens, tarnishing the service's public image.[3] The destructive nature of nuclear weapons was not lost on air leaders. Gen. Henry H. Arnold, leader of the

Army Air Forces during World War II, expressed profound concern about the use of air power in the atomic age. He believed that destruction via air power had become too cheap and easy and that the "consequence of this cheapness of destruction—especially as it has been multiplied manifold by the sudden, extensive, pulverizing force of the atomic bomb—is to make the existence of civilization subject to the goodwill and good sense of the men who control the employment of airpower."[4] Nuclear weapons also disturbed aviation hero Charles A. Lindbergh, who flew with World War II combat squadrons as a civilian contractor and after the war consulted with the Air Force. During Strategic Air Command briefings, when Lindbergh learned of the lethal effects of nuclear fallout and the vast destruction atomic bombs could yield, he recognized "how vulnerable our planet was" and questioned the utility of the new weapons.[5]

These misgivings by aviation leaders coincided with public fears during the 1950s about radioactive fallout and its impact on human health. Respected atomic scientists and medical professionals debated the efficacy of atomic weapons and bomb shelters, and new research during the 1940s and 1950s demonstrated the relationship between radioactive fallout and environmental degradation.[6] Rachel L. Carson, whose book *Silent Spring* (1962) helped launch the modern environmental movement, inextricably linked radiation and chemical environmental toxins when she wrote that "in this now universal contamination of the environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world—the very nature of its life."[7] In the 1950s, ordinary citizens grew increasingly fearful of the effects of nuclear fallout and of the catastrophic impact of a possible nuclear attack. Since American bombers were the only way to deliver nuclear weapons, people often associated that anxiety with the Air Force.[8]

Ever attentive to its public perception and under threat of reduced military budgets, the Air Force sought to bolster the service's image, especially in communities near large installations where concerns about military activities were greatest.[9] Some Air Force bases held open houses so local citizens could to get to know their military neighbors and invited civilians to hunt on Air Force lands. Articles in popular magazines explained what caused sonic booms from jets, deeming the noise the sound of democracy that was "defending our homeland."[10] Sociologist Morris Janowitz wrote that the Air Force sought to enhance its reputation by disseminating information "by all proper means to merit public esteem." He judged the Air Force the most public-relations oriented of the services, noting that as of 1950, the Air Force employed 650 officers in public affairs, more than any other service.[11]

In addition to carrying the load of strategic bombing capability, the Air Force was also charged with coordinating missile defense. This image shows the construction of missile site connections across the open prairie in the early 1960s in the 12th Missile Squadron flight area at Malmstrom Air Force Base north of Great Falls, Montana. *USAF.*

The Air Service/Air Force had excelled in public affairs since the 1920s, when Brig. Gen. William L. "Billy" Mitchell publicly demonstrated that an airplane could sink a battleship as a means of garnering public and political support for air power. Gen. Henry Arnold also adeptly influenced American's perception of early air power. When only a major, he held monthly air shows in California that attracted Hollywood personalities and much publicity for the Air Corps. Arnold responded quickly and publicly to assist Southern California victims after the Long Beach earthquake on March 10, 1933. For July and August 1934, he organized a flight of ten B–10B bombers from Washington, D.C., to Fairbanks, Alaska, to renew citizens' confidence in the U.S. Army Air Corps after the ill-fated mail-flying episode earlier that year. As described in chapter 1, Arnold recruited writers Corey H. Ford and Alastair MacBain during World War II to keep the public apprised of the accomplishments of airmen during that conflict.[12]

A decade later, when the Engle committee hearings in 1956–57 exposed deficient Defense Department land and wildlife stewardship practices, the Air Force activated its public affairs capabilities to quickly and proactively respond to citizens' land-use concerns. More tangibly, it also established the first military service-wide natural resource conservation program.

USAF Weapons Range Board and Air Force Property

In November 1955, Gen. Thomas D. White, the vice chief of staff, recommended that the Air Force form a board to examine existing and projected bombing, gunnery, rocketry, and missile range requirements for training, testing, proficiency, and development purposes. In January 1956, Gen. Nathan F. Twining, the chief of staff, established the Weapons Range Board. Concurrent to the board's establishment, the Engle committee expressed concern about military land management practices, and in response, the Weapons Range Board added fish and wildlife issues to its agenda.[13]

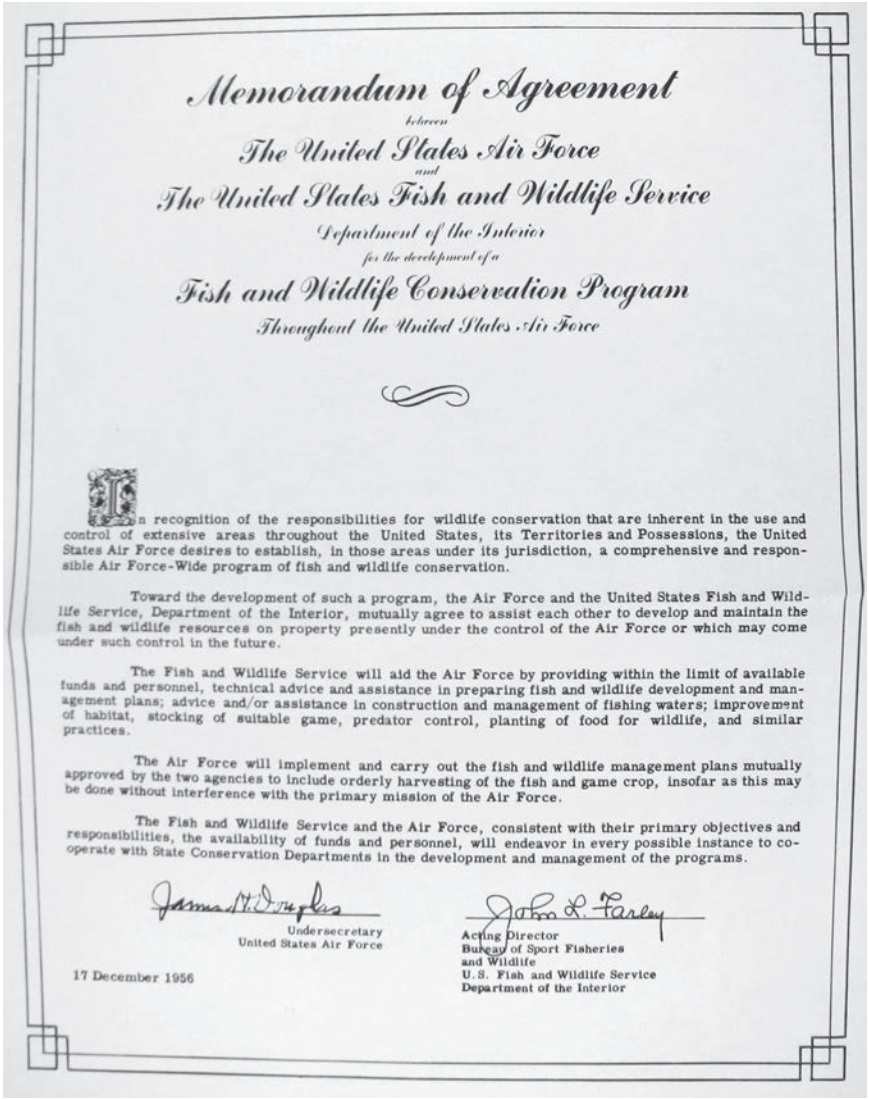
During the Weapons Range Board's first meeting on February 2, 1956, Lt. Col. David F. MacGhee of the Directorate of Real Property, positioned under White, acquainted the board with details of the Engle committee's first round of hearings on military use of public domain lands. MacGhee provided board members with background information on the problems of allowing civilians access to bases for recreational purposes, game law violations, and efforts by wildlife conservation proponents to restrict military activities in the vicinity of National Wildlife Refuges.[14]

After seven monthly meetings, the Weapons Range Board presented its final report on October 9, 1956, to the Air Force chief of staff and also provided copies to the Air Staff and the Engle committee. In it, the board determined that the Air Force lacked detailed instructions governing size requirements for bases to accommodate training missions. Moreover, since it found that approximately 5.7 million acres of the Air Force's 14.2-million-acre holdings were in excess of the service's long-range bombing and gunnery range needs, the board recommended that excess Air Force lands should be examined to determine if they could meet other Air Force requirements. If not, the board advised that such lands be returned to the federal government and the public domain.[15] One nuclear expert who appeared before the board, however, cautioned against releasing any large land holdings in isolated areas because such tracts might be required for security purposes, nuclear test facilities, and other possible dimensions of nuclear training.[16] As previously noted, Atomic Energy Commission officials had testified before the Engle committee in May 1956 that in the near future, the commission would need additional land for conducting classified nuclear tests, particularly of nuclear-powered aircraft and nuclear warheads.[17] After the officers on the Weapons Range Board, including eight generals, one colonel, one lieutenant colonel, and chaired by Maj. Gen. Leland S. Stranathan, considered all possible future scenarios, they recommended that the Air Force make certain that "no lands are disposed of which might be required."[18]

As chief of staff of the Air Force, Gen. Nathan F. Twining had his service be proactive in reviewing its range requirements. He also ordered the development of an Air Force-wide conservation program, which was largely implemented after he became chairman of the Joint Chiefs of Staff. *USAF.*

The board also concluded that existing Air Force regulations on hunting and fishing by military personnel and local civilians on its installations were divergent and ambiguous.[19] The board disclosed that "more than 5.1 million acres of land on 9 ranges in 8 States had been automatically and continually closed to fishing and hunting" for several years "without justification." In addition, the Air Force had failed to maintain adequate provisions for multiple uses on its installations. Its grazing, agriculture, and wildlife rules were outdated, inadequate, and inconsistent. To remedy these shortcomings, the board recommended that Headquarters, U.S. Air Force, consolidate its policy and guidance for land management and ensure that new provisions were in compliance with federal and state fish and game laws.[20]

In direct response to the Engle committee's first two rounds of hearings and the Air Force Weapons Range Board meetings to date, the Air Force established an official, service-wide natural resource program. In August 1956, Headquarters, U.S. Air Force, assigned the Air Force provost marshal responsibility for developing a service-wide fish and wildlife conservation



Memorandum of Agreement

between

The United States Air Force

and

The United States Fish and Wildlife Service

Department of the Interior

for the development of a

Fish and Wildlife Conservation Program

Throughout the United States Air Force

In recognition of the responsibilities for wildlife conservation that are inherent in the use and control of extensive areas throughout the United States, its Territories and Possessions, the United States Air Force desires to establish, in those areas under its jurisdiction, a comprehensive and responsible Air Force-Wide program of fish and wildlife conservation.

Toward the development of such a program, the Air Force and the United States Fish and Wildlife Service, Department of the Interior, mutually agree to assist each other to develop and maintain the fish and wildlife resources on property presently under the control of the Air Force or which may come under such control in the future.

The Fish and Wildlife Service will aid the Air Force by providing within the limit of available funds and personnel, technical advice and assistance in preparing fish and wildlife development and management plans; advice and/or assistance in construction and management of fishing waters; improvement of habitat, stocking of suitable game, predator control, planting of food for wildlife, and similar practices.

The Air Force will implement and carry out the fish and wildlife management plans mutually approved by the two agencies to include orderly harvesting of the fish and game crop, insofar as this may be done without interference with the primary mission of the Air Force.

The Fish and Wildlife Service and the Air Force, consistent with their primary objectives and responsibilities, the availability of funds and personnel, will endeavor in every possible instance to cooperate with State Conservation Departments in the development and management of the programs.

James H. Douglas
Undersecretary
United States Air Force

John L. Farley
Acting Director
Bureau of Sport Fisheries
and Wildlife
U.S. Fish and Wildlife Service
Department of the Interior

17 December 1956

Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.

program, discussed below. The first item on the program's agenda was to revise Air Force hunting and fishing regulations according to federal and state laws, as well as anticipating congressionally mandated requirements that might result from the Engle committee hearings.[21] In December, the Air Force also entered into a memorandum of agreement with the U.S. Fish and Wildlife Service for that organization to provide technical advice and assistance for the Air Force's new endeavor.[22]

Rachel L. Carson worked with Alastair MacBain at the U.S. Fish and Wildlife Service as she completed *The Sea Around Us* **(1951).** *U.S. Fish and Wildlife Service.*

Old Bonds Renewed for Conservation

In 1956, synchrony reunited fellow airmen and old fishing buddies—Corey Ford, Alastair MacBain, and several generals for whom they had worked—who joined forces to devise the Air Force-wide conservation program. MacBain, by then director of public information for the Fish and Wildlife Service since 1950, used his position to foster a collaborative relationship between Fish and Wildlife and the natural resource professionals working on early Air Force conservation projects. His experience with Fish and Wildlife equipped MacBain with knowledge of the most current environmental science and a vast contact list of civilian natural resource professionals. He also had the opportunity to learn directly from Rachel Carson, whom he supervised as she wrote *The Sea Around Us* (1951) and developed the concepts she presented in *Silent Spring* (1962). Carson considered

Corey H. Ford (*right*), who had remained a colonel in the U.S. Air Force Reserve, with his new protégé, James N. "Jim" Perkins, while Perkins was in Air Force ROTC at Dartmouth College. As an Air Force second lieutenant, Perkins devised the idea to designate Air Force bases as conservation districts, and Ford helped him draft and develop the plan. *Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.*

MacBain a friend, and they often interacted outside the confines of the Fish and Wildlife Service office.[23]

Ford had maintained his ties to the U.S. Air Force as a reserve officer. His enduring relationships with Air Force leaders from World War II allowed him to devise and perform special active-duty assignments for several Air Force chiefs of staff.[24] These generals respected Ford for giving them a voice heard by the American people during the war through his many articles on U.S. airmen published in popular magazines. They also honored Ford's close relationship with General Arnold. Officers who witnessed interactions between Ford and Arnold felt that Ford still "carried Hap Arnold's five stars on his shoulders," even after Arnold's death in 1950.[25] In addition to his military activities, Ford continued educating the American public about wildlife conservation in a *Field and Stream*-commissioned series, "Is Alaska's Wildlife Doomed?" that appeared in three successive 1953 issues.[26]

By 1956, Ford had a new protégé and writing collaborator, James N. "Jim" Perkins. The two had met in 1952 when Perkins was a sophomore at Dartmouth College, where Ford served as the college's unofficial advisor to student publications. Perkins possessed attributes Ford respected: he

was a natural writer, an outdoorsman, and an Air Force ROTC cadet. While Perkins was still a student, Ford orchestrated paid writing assignments for him with *Field and Stream* and the *Saturday Evening Post*. Later, Ford applied his informal influence within the Air Force to engineer an appointment with the Air Force Office of Public Information for young Second Lieutenant Perkins when he came on active duty in March 1956.[27]

In late 1956, Perkins's senior boss, Maj. Gen. Eugene B. "Ben" LeBailley, deputy director of the Office of Public Information, called a meeting to brainstorm a solution for a thorny issue brewing within the Air Force Office of Legislative Liaison. The House Committee on Interior and Insular Affairs had a bill under consideration—legislation that ultimately became the Engle Act—that would restrict the Defense Department's ability to withdraw land from the public domain for military use and potentially give mining, timber, oil, and gas interests access and possible development rights on Air Force bases. LeBailley carped, "They want Eglin [Florida] and Wendover [Utah] and Matagorda Island [Texas] . . . and a bunch of other places. Any ideas?" According to Perkins, several officers put forward suggestions that fell flat. The general said, "Let me know if you think of anything" as he ended the meeting.[28]

Ford (*right*) and Perkins (*center*) toured several bases with exisiting convervation programs to gain an understanding of what the service was already doing. The image shows them among the pines at Eglin Air Force Base, Florida, with base forester Walker V. Spence. *Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.*

By the next morning, Perkins had thought of a possible solution to the problem, which he shared with Maj. Timothy J. E. Dunn III, his immediate supervisor. Perkins suggested designating Air Force bases as conservation districts for the protection of wildlife and the management of soil, water, and timber resources. The Air Force would develop official guidelines for the conservation program and seek the support of conservation-minded agencies and organizations such as the National Wildlife Federation and the U.S. Fish and Wildlife Service. Dunn liked the suggestion and ordered Perkins to "give me a memo on it, something I can go over with General LeBailley."[29]

The general was intrigued by the idea and requested more details. Perkins, feeling he was in over his head, reached out to his mentor, Ford, asking, "What do I do now?" Forty-eight hours later, Ford arrived at the Pentagon, in uniform, having "recalled himself to active duty," according to Perkins.[30] Within a few days, Perkins and Ford had orders to fly to Eglin Air Force Base to learn how base conservationists ran their highly successful wildlife program. They then traveled to Matagorda Island, Wendover, and several other Air Force installations to conduct more research.[31]

Upon returning to the Pentagon, Ford and Perkins coauthored a comprehensive memo describing an "Air Force Fish and Wildlife Conservation Program" and routed it directly to General White, the Air Force vice chief of staff, with Ford providing General LeBailley a verbal notification. The memo recommended designating all Air Force bases as conservation districts for fish and wildlife; developing conservation education programs for base personnel and their families; establishing outdoor recreational activities for military personnel; and increasing local civilian access to bases for hunting and fishing. Ford and Perkins also strongly advised that the conservation program receive high-level command support, meaning that base commanders would accept responsibility for their fish and wildlife programs.[32]

Ford and Perkins stressed that the Air Force should publicize the program to clarify its purposes and to inform citizens of efforts to expand access to natural resources on bases. To accomplish this, Ford and Perkins sought direct assistance from the Fish and Wildlife Service's chief of public information, MacBain. In response, MacBain provided them with his agency's endorsement and introductions to the leaders of significant conservation and wildlife organizations such as the National Wildlife Federation, the Audubon Society, the Wildlife Management Institute, and pertinent federal agencies such as the U.S. Forest Service and U.S. Soil Conservation Service.[33]

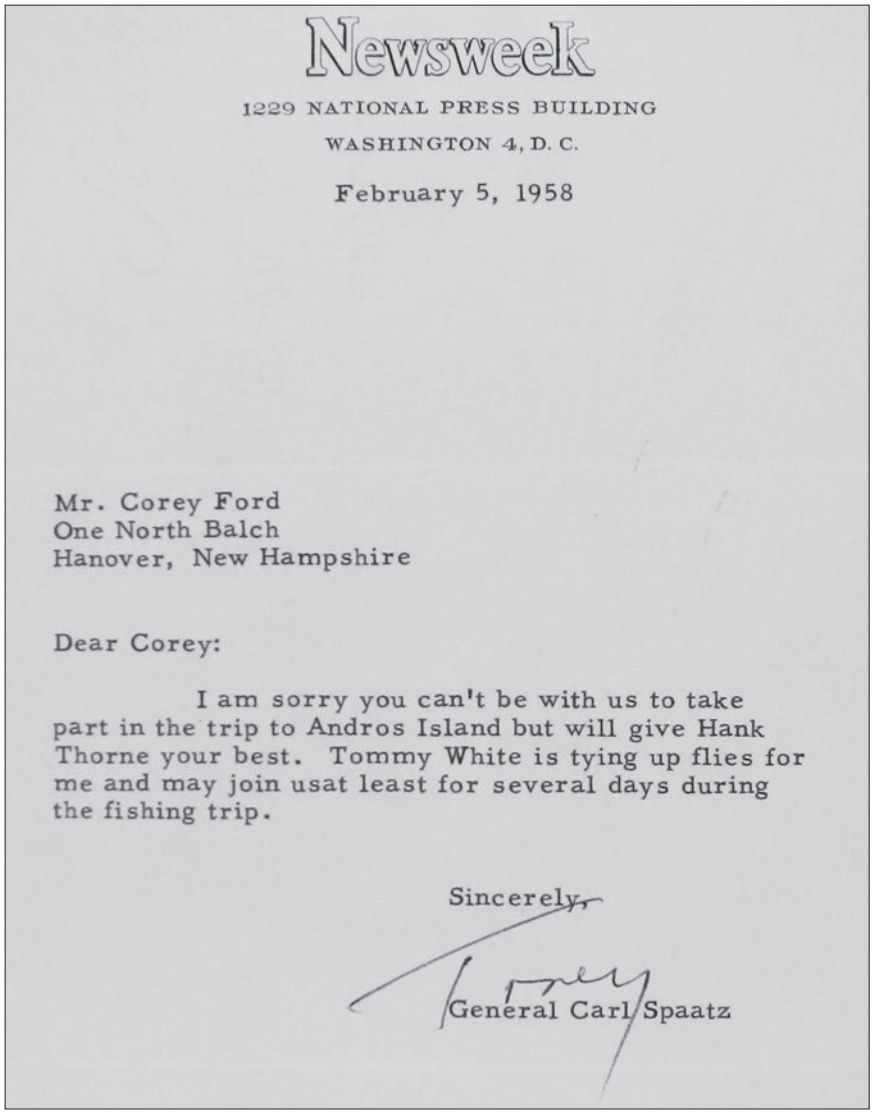
Soon after General White received the memo, he invited Ford and Perkins to meet with him to discuss the proposed conservation program.

One of the bases Ford and Perkins visited on their fact-finding trip in 1956 was on Matagorda Island, Texas, near the winter home at that time to the only surviving flock of Whooping Cranes in the world. This image shows a crane wintering on the island in January 2010. Photo by Steve Hillebrand. *U.S. Fish and Wildlife Service.*

Entering the general's office, Perkins recalled that he "sat agog" as Ford and generals White, Twining, and Carl A. "Tooey" Spaatz greeted one another.* The three generals "quickly stood, grinning, each warmly grabbing Corey's hand, greeting him as they would an old and familiar team mate. . . . Twining and Spaatz had both worked for General Hap Arnold and, like Corey, were fishermen." Perkins recalled that for "twenty minutes or so . . . they talked, reminiscently, little about the conservation plan, but about fishing, where they'd been, what lake, what stream, what fish were running, what flies were working, and so on."[34]

After a brief discussion about the conservation program, General White concluded the meeting by telling Ford and Perkins that he had approved their memo. In a letter to Ford near the time of the meeting, White added, "I have heard so much of you and read so many of your things that when we met the other day I felt that we were old friends. . . . I am so glad that you and Lieutenant Perkins are taking an interest in our conservation program and I promise you my personal support."[35] White soon appointed Lt. Col. Benjamin E. Royal to the provost marshal directorate, Office of the

* Spaatz served as the first chief of staff of the newly independent U.S. Air Force, from September 1947 to April 1948. Twining was chief of staff from June 1953 to June 1957 and chairman of the Joint Chiefs of Staff from August 1957 to September 1960.



Newsweek

1229 NATIONAL PRESS BUILDING

WASHINGTON 4, D. C.

February 5, 1958

Mr. Corey Ford
One North Balch
Hanover, New Hampshire

Dear Corey:

I am sorry you can't be with us to take part in the trip to Andros Island but will give Hank Thorne your best. Tommy White is tying up flies for me and may join usat least for several days during the fishing trip.

Sincerely,

General Carl Spaatz

Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.

Inspector General, to rewrite Air Force conservation regulations to meet the evolving standards of the ongoing Engle committee hearings, and to issue the service's orders for the conservation program. Perkins assumed responsibility for promoting the fledgling conservation effort within the Air Force and with civilian conservation groups.[36]

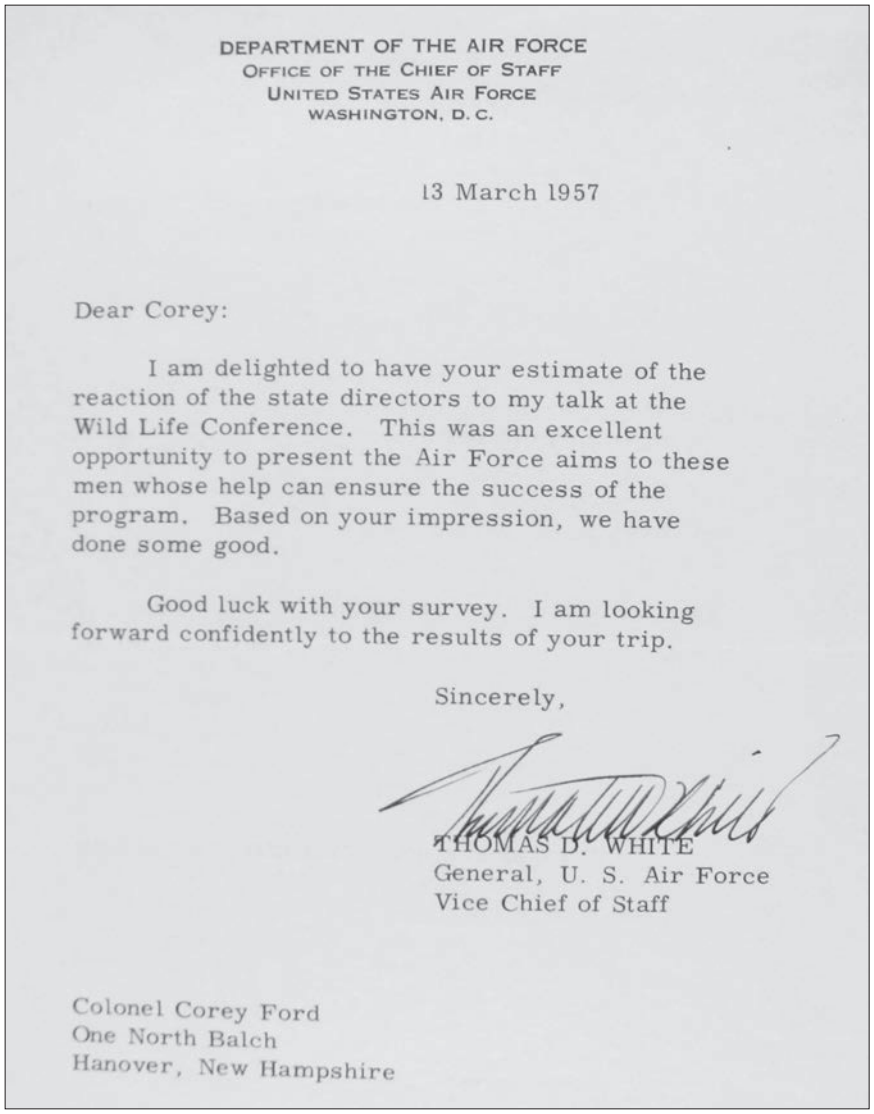
Ford and Perkins seized the momentum of White's support for the conservation program and coordinated an invitation for the general to speak at the annual North American Wildlife Conference in Washington, D.C.,

on March 4–6, 1957. White's speech, which Ford and Perkins drafted, provided an "outstanding opportunity" to explain the Air Force Fish and Wildlife Conservation Program to all state fish and game program directors, other conservation organization leaders, and members of the outdoor recreation press, some of whom had been critical of Defense Department land management practices during the congressional hearings.[37] Prior to his presentation, General White sought the consent of Secretary of the Air Force James H. Douglas Jr. to participate at the conference. Douglas approved of White's speech, believing it would help improve the Air Force's relationships with conservation organizations and gain support for the the conservation program from top civilian and military leaders.[38]

White's speech emphasized the new memorandum of agreement between the Air Force and the Fish and Wildlife Service, signed in December 1956, to develop a professionally managed conservation program on Air Force bases. He also articulated his desire to build closer relationships between military personnel and their civilian neighbors and expressed the Air Force's interest in creating new generations of outdoors enthusiasts through the program. White stressed the Air Force's commitment to adhere to all state and local fish and game regulations, a point that greatly interested audience members.[39] A week after the conference, Ford wrote White, thanking him for speaking and for lending his prestige to the Air Force project. He observed that state fish and game program directors were impressed by White's sincerity and commitment to the service's conservation program and noted that they were eager to cooperate with the Air Force. White agreed with Ford that the speech had helped improve the service's reputation with the state fish and wildlife professionals.[40]

To gain publicity and support for the Air Force conservation initiative, Perkins and Ford engaged a broad spectrum of MacBain's Fish and Wildlife Service contacts, from the Smithsonian Institution and U.S. Forest Service to congressional staffers and outdoor sportswriters. Perkins understood that a proactive approach to educating the public about the Air Force Fish and Wildlife Conservation Program would diminish public suspicions that the military was prohibiting civilians from hunting and fishing on the bases and help establish trust in the service's land stewardship practices. One *Washington Post* article disseminated by the Associated Press newswire, "You Can Hunt on AF Bases," specifically stated that civilians would be "permitted to hunt and fish on the reservations 'whenever feasible,'" in contrast to earlier times when outsiders had been allowed on bases in only a few locations.[41]

Perkins and Ford also began research in April 1957 for a longer article, "Operation Wildlife," which appeared in the January 4, 1958, issue



DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
UNITED STATES AIR FORCE
WASHINGTON, D. C.

13 March 1957

Dear Corey:

I am delighted to have your estimate of the reaction of the state directors to my talk at the Wild Life Conference. This was an excellent opportunity to present the Air Force aims to these men whose help can ensure the success of the program. Based on your impression, we have done some good.

Good luck with your survey. I am looking forward confidently to the results of your trip.

Sincerely,

THOMAS D. WHITE
General, U. S. Air Force
Vice Chief of Staff

Colonel Corey Ford
One North Balch
Hanover, New Hampshire

Corey Ford Papers, Rauner Special Collections Library, Dartmouth College.

of the *Saturday Evening Post*. For this story, Ford and Perkins surveyed air bases across the country, reported on active rod and gun clubs at each installation, and described a wide variety of base conservation efforts. Projects ranged from planting ground cover and food crops for waterfowl on Matagorda Island, to building new fish ponds at Eglin Air Force Base, to installing chukar guzzlers[42] for partridges at Edwards Air Force Base, California. Air Force leaders acknowledged in the article that the new conservation program aimed to overcome "town-versus-base prejudices"

Gen. Thomas D. White remained an avid fisherman, shown here in 1962, a year after he had retired as chief of staff. His active role in supporting the Air Force conservation program helped establish its crediblity among wildlife professionals. *Courtesy of the White family.*

and to build a "better relationship between service personnel and their civilian neighbors."[43] It concluded with the authors quoting an interview with the new Air Force chief of staff, General White, who offered his personal perspective:

> Isn't conservation really a defense effort in itself? Defense is more than planes and missiles to protect the country against an enemy attack. Part of the defense job is the safeguarding of the land and timber and water, the fish and wildlife, the priceless natural resources which make this country of ours worth defending.[44]

Just before Ford and Perkins embarked on their research trip for that article, the Engle committee released its final "Report on Military Public

Land Withdrawals" on March 21, 1957. In it, the committee observed that of the services, only the U.S. Air Force had completed land utilization reports on all of its properties. Further, the Air Force was the only service that had finished revising its fishing and hunting regulations. The committee also commended the Air Force for its "forthright and direct assault" on Air Force property control practices.[45] Pending final disposition of the bill, the committee concluded that the "sum-total of the past 12-months actions by the military in hunting-fishing matters is very meritorious and meaningful progress."[46] After reviewing the House hearings and new Defense Department conservation activities, members of the Senate Committee on Interior and Insular Affairs concluded in August 1957 that the Department of Defense and each of the military services had made "measurable and substantial improvement in military-local relations in fishing, hunting, and trapping matters, with a limited number of matters still unresolved."[47] By the time the Engle Act became law in February 1958, the Air Force had already established a service-wide conservation program that would function as the model for the other services and the Department of Defense.

Five

The Air Force and Department of Defense Launch Conservation Programs

The Air Force Fish and Wildlife Conservation Program that existed in 1958 arose from successive decisions by senior leaders who endorsed proactive natural resource management activities on service installations. The centralized effort drew heavily on two successful models: then-Lt. Gen. Nathan F. Twining's work with the U.S. Fish and Wildlife Service to establish conservation initiatives on Air Force bases in Alaska in 1948 while commander of all military forces in Alaska, and the program developed at Eglin Air Force Base, Florida, after passage of the Sikes Act in 1949. In July 1956, concurrent with the second round of the Engle committee hearings, General Twining, as chief of staff of the Air Force, formally established the Air Force Fish and Wildlife Conservation Program in the Office of the Provost Marshal, officially codifying it within the service. Six months later, on December 17, 1956, then-Undersecretary of the Air Force James H. Douglas Jr. signed a memorandum of agreement with the Fish and Wildlife Service that formalized cooperation on fish and wildlife issues on air bases and increased the program's credibility among conservation professionals.[1] Building on Twining's foundation, Gen. Thomas D. White dedicated an officer, Lt. Col. Benjamin E. Royal, as chief of the Fish and Wildlife Conservation Section in April 1957. Royal immediately began revising Air Force Regulation 125–5, dated August 20, 1957, the provision outlining the service's conservation program, and amended it again in 1958 to agree with the final language of the Engle Act. While updating the regulation, Royal coordinated with eleven Department of Defense (DOD) agencies and obtained backing from the Fish and Wildlife Service, the Wildlife Management Institute, and the National Wildlife Federation.[2]

Prior to implementation of the Engle Act in February 1958, the Air Force guideline on wildlife conservation, Air Force Regulation 93–14, dated April 30, 1954, "Installations—Control Procedures: Game Law Enforcement and Wildlife Conservation on Air Force Installations," merely stated that the service's policy was to conserve wildlife on its installations according to federal and state fish and game laws and made reference to cooperation with state and local agencies beyond

law enforcement purposes. However, after the Engle Act became law in 1958, the updated Air Force Regulation 125–5, dated November 6, 1958, "Provost Marshal Activities: Fish and Wildlife Conservation Program," required installations to develop their fish and game resources to the maximum extent, if consistent with local mission requirements, and added that commanders were encouraged to seek technical advice and assistance from federal, state, and private conservation agencies. It also required that Air Force personnel abide by state and local game laws and permitted civilians to hunt and fish on bases.[3]

At the Defense Department level, before the Engle Act became law, DOD Directive 5500.3, "Hunting and Fishing on Military Reservations," dated June 8, 1956, authorized, but did not order, commanders to permit hunting and fishing on their bases and encouraged cooperation with federal, state, and local agencies and civilian sportsmen's groups to promote conservation activities. In October of the same year, DOD twice updated Directive 5500.3, on October 10, 1956, and October 31, 1956, adding that military personnel on installations under federal jurisdiction were not required to purchase state licenses.[4] However, after the Engle law passed, the Defense Department cancelled DOD Directive 5500.3 and issued Directive 5500.5, "Management, Conservation, and Harvesting of Fish and Game Resources," dated July 16, 1958, specifically intended to implement the Engle Act. This directive required all military installations with suitable land and water to have "active, progressive program[s] for the management of renewable natural resources" and compelled commanders to "seek appropriate agreements" with federal, state, territorial, and local officials to create effective conservation programs. It also required military personnel on all installations to obtain state hunting and fishing licenses.[5]

Before the Engle Act and the updated DOD directives took effect, the Air Force had sought and hired a professionally trained and experienced civilian conservationist to lead the service's natural resource initiative. The Air Force began its search in October 1956, three months after General Twining established the Air Force Fish and Wildlife Conservation Program. It desired a person who could develop a working rapport with governmental and private conservation agencies and organizations and provide continuity to the program, which was originally staffed by two uniformed officers who were transferred into other assignments every two years. The search committee received many recommendations and interviewed several individuals but found it difficult to locate a biologist with experience in both the fish and wildlife fields. In October 1957, after a yearlong search, the Air Force hired Elwood A. "Woody" Seaman to serve as the Air Force advisor on fish and wildlife conservation.[6]

Elwood A. "Woody" Seaman (*right*), the first advisor for the Air Force Fish and Wildlife Conservation Program, and his uniformed deputy, Maj. Russell E. "Rusty" DeGroat, with the trophy for the service-wide Gen. Thomas D. White Fish and Wildlife Conservation Award. In 1962, DeGroat became the first director of natural resources for the Department of Defense. *USAF photo, courtesy of Rusty DeGroat.*

Seaman's qualifications in both fish and wildlife conservation made him ideal for the job. Prior to World War II, he had earned an undergraduate degree in biology from Wooster College and worked as a fishery biologist with the Ohio Conservation Department. During the war, Seaman served in the U.S. Navy as an epidemiologist, researching chiggers and mosquitoes to develop disease-prevention measures. That military service later eased his

Gen. Thomas D. White (*right*) fishing the Castor River in Newfoundland. White took a personal interest in the Air Force conservation program and established a strong relationship with its advisor, Woody Seaman, who was impressed with White's knowledge and understanding of conservation issues. *Courtesy of the White family.*

transition to working at the Pentagon with men in uniform. After the war, Seaman earned a master's degree from the School of Fisheries and Wildlife at Marshall College. He then served for more than seven years as chief of the Division of Fish Management with the West Virginia Conservation Commission. Later, as executive secretary of the Sport Fishing Institute and secretary-treasurer of the American Fisheries Society in Washington, D.C., Seaman gained insight into the politics of natural resources legislation and learned the inner workings of national conservation organizations.[7] He was acutely aware of the skepticism the Air Force Fish and Wildlife Conservation Program faced from some professionals in the field. As Seaman departed the Sport Fishing Institute for the Air Force, several former colleagues chided that he was "prostituting" himself and joining the "enemy" by taking a job with the military. Nevertheless, when Seaman reported for duty with the Air Force, he brought with him an extensive network of supportive colleagues in the conservation community who respected him as a trained, professional biologist.[8] Seaman's background in fish biology also established his credibility with General White, the amateur ichthyologist, who had succeeded General Twining as chief of staff.[9]

As Seaman adapted to his Air Force position, he welcomed the opportunity to implement a substantive new conservation program, with the support of senior leaders. When he received a complaint from Earl S. Herald, director of San Francisco's Steinhart Aquarium, about Air Force pilots shooting whales, porpoises, and sea lions as live targets along the California coast, he presented his concerns to General White. The Air Force chief of staff immediately sent a worldwide telegram, a TWX, to all air bases ordering a halt to the practice effective at 8 a.m. the next day. Seaman wrote in his memoir that he was amazed at White's swift response and the service's quick obedience to the general's order.[10]

As Seaman got to know White better, he realized how knowledgeable the general was about professional conservation practices. He wrote that General White "had a fine knowledge of nature [and] understood conservation better than some professional administrators who head up programs in fish and wildlife management, forestry, and soil conservation." Seaman added, "Without exception, every time I brought a conservation matter to General White's attention, be it a request to stop bad practices such as pilots shooting animals as targets-of-opportunity or initiating a special fish and wildlife and forestry project at a base somewhere, he always approved and made excellent suggestions. I have felt that Tommy could have gone into biology and made a great name for himself as he did in the military field."[11]

Because many civilian fish and wildlife experts initially doubted the sincerity of the Air Force Fish and Wildlife Conservation Program, Seaman and Lieutenant Colonel Royal worked to demonstrate the program's professionalism. They sought to dispel skepticism of the military's commitment to scientific conservation practices by hosting tours of active Air Force fish and wildlife activities at bases nationwide for leaders of civilian conservation organizations.[12] The two men also engaged in other outreach efforts. Royal addressed the Izaak Walton League annual meetings about the goals and methods of the conservation program, and Seaman attended scientific meetings of professional conservation bodies such as the American Fisheries Society, the International Association of Game and Fish Conservation Commissioners, and the American Institute of Biological Sciences. Seaman contacted state conservation directors and updated them on new Air Force conservation regulations that corrected past problems between the service and state agencies.[13] These efforts won over critics of the program and created new networks of supportive experts on whom Seaman could call for assistance.

To promote conservation within the Air Force, Seaman and Royal surveyed installations to determine the extent to which fish and wildlife programs could be developed on individual bases. Survey responses

The Air Force widely promoted its conservation efforts, both within the service and at conferences of fish and wildlife professionals. This image shows an exhibit from the late 1950s or early 1960s. *USAF photo, courtesy of Rusty DeGroat.*

showed that the Air Force had 1.3 million acres of active hunting areas and 17,000 acres of fishing waters available. With that knowledge, Seaman and Royal helped Air Force base commanders develop land management plans with professional advice from the U.S. Fish and Wildlife Service, the U.S. Forest Service, and various state and local conservation agencies. These organizations evaluated Air Force bases, made recommendations, and when possible, provided personnel and equipment to accomplish the work. To increase awareness of and participation in the conservation program, the Air Force established the General Thomas D. White Conservation Award in November 1958, a trophy presented annually to the most effective fish

An early quail shelter at the Air Force's Matagorda Island gunnery and bombing range, one of 100 built on the Gulf Coast island by the parent facility, Bergstrom Air Force Base, Texas. The fence kept the cattle from destroying the shelters. *USAF.*

and wildlife conservation program on an Air Force installation, one that is still given as of this publication.[14]

In 1959, when Lieutenant Colonel Royal moved to another military assignment, Seaman chose Maj. Russell E. "Rusty" DeGroat, an experienced forester, as Royal's replacement. Seaman had met DeGroat through Dan A. Poole, editor of the Wildlife Management Institute's (WMI) *Outdoor News Bulletin*. Poole, who later succeeded Ira N. Gabrielson as president of the WMI, and DeGroat had been classmates in the late 1940s at the University of Montana—Poole in wildlife biology and DeGroat in forestry—and had renewed their friendship when they both landed jobs in Washington. DeGroat's prior experience as Eglin Air Force Base's forestry officer under the chief civilian forester, Walker V. Spence, and his work with the Florida Fish and Game Commission made him an excellent choice to help implement the new Air Force natural resource directives.[15] As Seaman's conservation officer, DeGroat enthusiastically coordinated Air Force efforts with those of federal and state natural resource agencies. DeGroat also oversaw the making of a fifteen-minute documentary, *Runways in the Wild*, which demonstrated how the Air Force managed its natural resources at Eglin Air Force Base. The film was narrated by actor James M. "Jimmy" Stewart, who had recently been promoted to brigadier general in the U.S. Air Force Reserve. It premiered in Washington, D.C., on March 10, 1961, with General White and Florida congressman Bob Sikes among those in attendance.[16]

DeGroat also worked with Poole to persuade newspaper and magazine outdoor writers to develop stories about military conservation efforts and accompanied natural resource professionals on information-gathering and hunting trips. DeGroat's relationships with civilian conservationists fostered cooperation between the Air Force and other wildlife organizations on natural resource projects. In one case, the Air Force provided Piasecki H–21 Work Horse helicopters and pilots to the National Wildlife Federation and U.S. Fish and Wildlife Service to conduct an aerial inventory of the endangered Lesser Prairie Chicken in Oklahoma and Kansas.[17] In another, the Air Force Fish and Wildlife Conservation Program transported 400 live grayling and black fish from Alaska to the National Aquarium in Washington, D.C.[18]

DeGroat's contributions to the Air Force's early conservation efforts brought him new professional opportunities in October 1962 when the Defense Department selected him as the first Department of Defense director of natural resources.[19] Seaman remained as head of the Air Force program, a position he held for more than a decade.

The Sikes Act of 1960

The Defense Department issued new natural resource conservation directives to the Departments of the Army, Navy, and Air Force after the Engle Act became law in 1958. However, it did not create an umbrella conservation program encompassing all of the military services—the organization DeGroat came to head—until a new version of the 1949 Sikes Act compelled the Pentagon to do so in 1960. To facilitate this task, Air Force conservationists assisted DOD officials in drafting a memorandum of understanding between the Department of Defense and the U.S. Fish and Wildlife Service. That memo, signed on July 11, 1960, advised all military installation commanders to seek technical assistance from federal, state, and local conservation agencies and created a cooperative relationship between the Defense Department and the Fish and Wildlife Service.[20]

Congressman Robert L. F. "Bob" Sikes introduced legislation in 1951, 1955, and 1957 to extend the original 1949 law to all military installations, but his early attempts gained no traction in Congress. On the heels of passage of the Engle Act, Sikes again introduced his bill, H.R. 2565, in June 1959, "A Bill to promote effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations." The proposed legislation sought to require the Defense Department to establish a mandatory and centralized fish and wildlife program that individual installation commanders would be obliged to implement. It also promoted the concept of cooperative

plans between the Defense and Interior Departments and state agencies for conservation efforts on military lands. Further, if passed, it would empower the Defense Department to collect hunting and fishing fees on military lands that could be spent to support its conservation programs. Sikes believed that the bill would encourage implementation of the Engle Act and spur the services to make tangible progress on fish and wildlife conservation policies and practices.[21]

Pentagon officials responded tepidly to Sikes's proposal. Defense spokesperson Leslie V. Dix testified at congressional hearings on H.R. 2565 that Defense Department officials believed the Sikes bill was unnecessary because existing laws and regulations sufficiently addressed military fish and wildlife conservation issues. He added, however, that if the House approved the bill, the law should apply to all federal lands, not just those managed by the military.[22] He also recommended several minor wording clarifications if the bill moved forward.[23] Repeating the same contrary position argued during the 1949 Sikes Act hearings, the Bureau of the Budget and the Comptroller General's Office objected to the bill's funding mechanism, which would circumvent official military appropriations channels. The Treasury Department labeled it "back-door financing."[24]

Most individuals testifying before the House supported the Sikes bill, however, as did committee members. Congressman John D. Dingell Jr. (D-MI), who later authored the Endangered Species Act (1973), believed that the new legislation would address a weakness in the Engle Act by improving civilian access to hunting on military lands. He also invoked language from the 1957 Senate report on the Engle Act, which asserted that Congress would legislate further on the issue if the military departments failed to implement a bona fide conservation program.[25]

Civilian conservationists agreed that H.R. 2565 would enhance implementation of the Engle Act. At the same time, the Wildlife Management Institute's vice president, Clinton Raymond "C. R." Gutermuth, observed that "with the exception of the Air Force, the other services really are not making much progress in implementing" the provision of the Engle Act to allow hunting and fishing on military reservations. "The Navy apparently has done no more than issue activating instructions," he added, and "the Army appears to be doing everything possible to disregard" the provisions of the law.[26] Seaman, who testified about the Air Force hunting program at Eglin Air Force Base, observed that "there was no question but that the committee, as a whole, was in favor of H.R. 2565," and it quickly approved the bill with minor amendments.[27] When the bill reached the Senate Committee on Interstate and Foreign Commerce on May 19, 1960, Engle, by then a U.S. senator, chaired the hearings.[28] When Engle

Cmdr. Charles F. Zirzow, USN, became the first manager of the Navy's Natural Resources Management Branch in 1960. He kept taxidermic albatrosses in his office as mementos of a Navy project he led on Midway Island in the early 1960s to relocate thousands of Laysan Albatrosses away from runway areas to help prevent bird strikes. Zirzow worked closely with renowned ornitholigist Chandler Robbins of the U.S. Fish and Wildlife Service to develop and implement the plan. *Courtesy of the Zirzow family.*

issued the Senate committee's final report on May, 27, 1960, he stated that the committee approved the Sikes proposal, with minor amendments. On September 15, 1960, President Dwight D. Eisenhower signed the legislation known as the Sikes Act into law.[29]

To implement the Sikes Act, the Defense Department issued directives mandating that each military installation with land and water areas suitable for conservation establish cooperative agreements with state conservation agencies and the U.S. Fish and Wildlife Service to carry out professional land and wildlife management practices.[30] Department of Defense Directive 5500.5, "Natural Resources: Management and Harvesting of Fish and Wildlife," dated February 16, 1962, which cancelled Defense Directive 5500.5, dated July 16, 1958, explicitly stated that its purpose was to implement both the Engle and Sikes Acts and affirmed that the resulting conservation programs and the military mission "need not, and shall not, be mutually exclusive." It required that personnel "at all

echelons of command must support national conservation policies and programs" and that commanders take full responsibility for cooperating with civilian conservationists. The 1962 directive also established the Secretary of Defense Conservation Award, patterned on the Air Force's Thomas D. White Conservation Award, to encourage fish and wildlife activities on all military installations.[31] On June 26, 1962, the Air Force revised its regulation administering the fish and wildlife program to parallel the Defense Department directive's language and began enhancing its conservation activities with the support of the new Air Force chief of staff, General Curtis E. LeMay.[32]

The new DOD directive also compelled the Navy and Army to revise their fish and wildlife regulations and enhance the conservation programs initiated in response to the Engle Act. In 1960, Lt. Cmdr. Charles F. Zirzow, an environmental engineer by training, had become the first manager of the Navy's Natural Resources Management Branch, and the service extended the conservation program to twelve regional offices.[33] Later that year, the Navy delegated responsibility for its participation in wildlife, forestry, and soil and water conservation efforts to the chief of the Bureau of Yards and Docks.[34] However, Navy organizations did not receive a complete set of official instructions enabling service-wide activation of the Navy and Marine Corps' natural resources conservation program, in cooperation with state and federal agencies, until November 1962.[35]

While the Air Force and Navy natural resource programs fell under centralized control, as of 1960, the Army's fish and wildlife efforts remained haphazard.[36] G. Blair Joselyn, the former conservation and wildlife management officer at Fort Riley, Kansas, from July 1960 to April 1962, wrote in 1965, "Of the three military services, the Army has placed the least command emphasis on wildlife-management programs . . . because of the lack of firm policy and guidance from higher echelons."[37] Indeed, the 1962 DOD conservation directive compelled the Army to revise Army Regulation 210–221, "Installations: Natural Resources—Management and Harvesting of Fish and Wildlife," dated July 24, 1962, for natural resource management on the service's installations. However, Army commanders retained considerable discretion on how comprehensively they implemented the directive. As a result, they seldom provided adequate financing and personnel for effective conservation programs.[38] Civilian conservationists observed that the Air Force and Navy had made good progress with their fish and wildlife programs but began to ask in 1962 "why the Army's program is lagging behind the others."[39] It would take until 1965 and the influence of new environmental laws for the Army's efforts to match those of the Air Force and Navy.

Since 1960, Congress has amended and extended the Sikes Act on numerous occasions. Most notably, in 1974, Congress authorized conservation plans for lands belonging to the Department of Energy, Bureau of Land Management, U.S. Forest Service, and National Aeronautics and Space Administration and also provided partial appropriations for the Departments of Defense, Interior, and Agriculture to execute their natural resource plans. In 1986, seven years after namesake Bob Sikes retired, Congress again amended the Sikes Act, requiring that the Defense Department employ trained wildlife professionals and authorized, but did not require, development of periodic integrated natural resource management plans with U.S. Fish and Wildlife Service assistance.[40] Congress updated the law again in 1997 and statutorily mandated Pentagon cooperation with Fish and Wildlife to develop conservation plans. The revision also included a provision that allowed citizen participation in the drafting of military conservation plans.[41]

The Sikes Act of 1960 provided funding for Defense conservation activities through the sale of hunting and fishing permits, timber harvests, and agricultural leasing on military installations. An additional level of funding for the program began with 1968 amendments to the Sikes Act, and appropriations increased incrementally with each amendment to the law. However, the Defense Department often failed to request funds to implement the law's requirements, causing much congressional dissatisfaction. By making conservation plans mandatory through 1997 Sikes Act amendments, Congress forced the Department of Defense to request funding, some of which would be passed along to the Fish and Wildlife Service for expenditures that supported military conservation efforts.[42] In the early twenty-first century, revisions to the Sikes Act remain the guiding legislation for natural resource conservation on military installations and resonate today in the realm of wildlife and habitat conservation.

Conclusion and Epilogue

The U.S. Air Force Fish and Wildlife Conservation Program accomplished significant results during its first decade. It overcame the skepticism of civilian conservationists and the American public about the sincerity of the Air Force's commitment to its conservation responsibilities; revised outdated and insufficient Air Force regulations governing the service's fish and wildlife conservation programs; forged strong collaborative relationships with federal agencies responsible for fish and wildlife and land management; appointed trained natural resource professionals to manage Air Force lands; and established a template for the Defense Department-wide natural resources program. In 2014, more than sixty years after initiating fish and wildlife conservation activities on bases in Alaska and Florida, the Air Force remains the steward of 9.1 million acres, one-third of the Department of Defense's 27.7 million acres of land.[1]

The Air Force's first conservation efforts were largely informal, unofficial, and carried out through local rod and gun clubs established by commanders on large bases. During congressional wrangling over the 1949 Sikes bill, the Department of Defense assigned the Air Force responsibility for fish and wildlife conservation concerns. The passage of the Sikes Act of 1949 was a watershed for conservation efforts on military installations and created the framework for the more encompassing Sikes Act of 1960. In addition to establishing the Air Force as the executive agent for the Department of Defense on conservation issues, the legislative process surrounding the 1949 bill heightened Thomas D. White's awareness of the increasing political importance of conservation issues to Congress and the American public. When General White assumed more authority as vice chief and subsequently as chief of staff of the Air Force, he was well positioned to respond to congressional mandates to improve Air Force natural resource stewardship, and he personally promoted the service's conservation program.

While the Sikes Act of 1949 proved important to Air Force conservation, information brought forward during hearings of the House

Rick Gilbride (*left*), the 23d Civil Engineer Squadron base entomologist, SSgt. Kenneth Butler, and J. C. Griffin, a U.S. Department of Agriculture wildlife biologist, snared a ten-foot alligator for relocation at Moody Air Force Base, Georgia, in July 2013. Photo by SrA Eileen Meier. *USAF.*

Committee on Interior and Insular Affairs in 1956 and 1957 served as the principal catalyst for authentic and enduring change in natural resource management practices on U.S. military installations. The law that resulted from the hearings, the Engle Act of 1958, required congressional approval for any military land withdrawals of more than 5,000 acres of public lands; compelled the military services to follow state and local fish and game laws; and permitted access to military installations for game inspection and enforcement purposes.

Before the of Engle committee hearings concluded in February 1957, the Air Force responded proactively to the political and public rancor caused by natural resources professionals' testimony. In July 1956, at the Gen. Nathan F. Twining's direction, the Air Force formally established the centralized Air Force Fish and Wildlife Conservation Program and began revising regulations governing fishing and hunting on air bases to impose greater uniformity in rules and address concerns raised during the Engle hearings. In October 1956, the Air Force Weapons Range Board's final report provided the committee with an inventory of the service's total acreage, data the Army and Navy did not compile until late 1957. In December 1956, the Air Force undersecretary signed a memorandum of agreement with the U.S. Fish and Wildlife Service that strengthened the Air Force Fish and Wildlife Conservation Program on its installations.[2]

Mark Hagan, the natural resources manager at Edwards Air Force Base, California, tended to an injured brown pelican in April 2006. The pelican was transported to the California Wildlife Center in Calabasas for rehabilitation. Photo by A1C Julius Delos Reyes. *USAF.*

The 1960 Sikes Act, which extended the 1949 conservation law from Eglin Air Force Base, Florida, to all Defense installations, made mandatory the fish and wildlife conservation measures that the Engle Act had not deemed compulsory. The Department of Defense responded to the 1960 Sikes Act by establishing an umbrella conservation program and issuing DOD-wide directives for the services to follow. The law induced each service to revise its regulations on the subject, and the Air Force responded quickly by augmenting its existing centralized, professionally managed fish and wildlife conservation program. The Navy also recognized the need for unified natural resource management and established its centralized program in 1960. The Army reissued its natural resource directives in 1962 prescribing general policies and procedures for fish and game management but did not establish a coordinated conservation program until 1965.

The Defense Department's current conservation program is deeply rooted in an Air Force land ethic established by insightful leaders, principally Generals Henry H. Arnold, Twining, and White. Long before analysts coined the term "environmental security" in 1991, these men

As part of the Bird Aircraft Strike Hazard program at Travis Air Force Base, California, A1C David Mumme, 60th Civil Engineer Squadron, sends Columbia, a female lanner falcon, out to help clear the airspace. Photo (2011) by Heide Couch. *USAF.*

recognized the inextricable link between natural resource conservation and national security.[3] Arnold applied practical solutions when he used aircraft in forest-fire patrols and expanded his conservation principles after firsthand experience with the Civilian Conservation Corps. Arnold also empowered Corey H. Ford and, by later association, James N. "Jim" Perkins, to advance prevailing conservation ethics with his successors in the Air Force. Twining established an enduring fish and wildlife program in Alaska in 1948 and instituted a formal, service-wide conservation program in 1956 while chief of staff. White advanced the service's natural resource efforts by hiring highly qualified professionals and modernizing Air Force regulations that controlled the service's wildlife and land management practices and ensured compliance with state and local fishing and hunting laws. These actions earned the trust of civilian conservation professionals and the American public in the Air Force's capacity to properly manage its natural resources.

The initial Air Force Fish and Wildlife Conservation Program kept pace with innovations in earth science and more comprehensive environmental statutes. However, it was the exponential increase in environmental legislation after 1962 that stimulated the second wave of

natural resources management on Department of Defense lands. New laws such as the Clean Air Act (1963, 1970), the Clean Water Restoration Act (1966, 1970), the National Historic Preservation Act (1966), the National Environmental Protection Act (1969), and the Endangered Species Act (1973) gradually shifted the military's emphasis from fishing, hunting, and wildlife conservation to developing procedures and practices that complied with the new legislation.

It took nearly a decade for federal agencies, including the Department of Defense, to implement policies to meet National Environmental Protection Act requirements for mitigating or avoiding environmental degradation. To meet these obligations, for example, the Air Force and Navy modified flight paths over national parks in California and Texas to reduce noise pollution in sensitive natural areas. Additionally, compliance with the Endangered Species Act resulted in the military developing strategies to offset environmental impacts on an individual protected animal or plant species. For instance, when the Army expanded its national training center at Fort Irwin, California, it established a natural area to study the endangered Desert Tortoise and relocated tortoises from the training area to a protected refuge on Army land. While adhering to existing environmental

Dr. Jeffrey Lincer of the Wildlife Research Institute holds a burrowing owl he has just banded. The 452d Environmental Flight built six alternate burrows for the owls at March Air Force Base, California, to relocate them away from development in another area of the facility. Photo (2010) by Megan Just. *USAF.*

At MacDill Air Force Base, Florida, SSgt. Kevin Rocha (*above, left***), 6th Force Support Squadron, and Chris Sutton of Tampa Bay Watch installed oyster habitats on the beach in December 2008. SSgt. Rachel McCray (***below***), 6th Logistics Readiness Squadron, helped prepare a manatee for transport from MacDill to San Juan, Puerto Rico, in December 2010. The animal had been rehabilitated in Florida after suffering injuries in a boat strike. Top photo uncredited; bottom image by SSgt. Angela Ruiz.** *USAF.*

A female Loggerhead Sea Turtle on Santa Rosa Island at Eglin Air Force Base, Florida, in 2009. The Jackson Guard rescued the disoriented turtle with the help of Eglin firefighters, who used a stretcher to carry the animal for release in the Gulf of Mexico. Loggerheads are listed as an endangered species. *USAF.*

laws, military natural resources programs from the early 1960s through the 1980s established initiatives often in reaction to a specific incident or threat to a particular species. Not until the 1990s did the Pentagon implement more proactive, holistic conservation policies and activities.[4]

By the early 1990s, during the third and current wave of military natural resources conservation, Pentagon leaders reacted to two primary factors: legal action taken in response to environmental violations, and new scientific approaches to integrated ecosystem management. The former involved threats of federal criminal indictment against three civilians under military

Approximately 25 percent of the remaining Western Snowy Plover population resides at Vandenberg Air Force Base, California, which annually closes portions of its beaches to the public during nesting season. The small shorebird is federally listed under the Endangered Species Act of 1973 as threatened. *USAF.*

contract on eight counts of conspiring to violate the Endangered Species Act at Fort Benning, Georgia, in 1992. The men knew that the endangered Red-cockaded Woodpecker inhabited areas that they recommended for timber cutting, and they intentionally failed to protect the birds by submitting maps of areas that showed they were not nesting in the trees that were to be harvested. Consequently, military commanders noted that they could be held legally liable for failure to enforce existing environmental laws and

In a joint effort of Eglin Air Force Base and the Florida Fish and Wildlife Conservation Commission, a 325-pound black bear was relocated to an isolated area of the base's range in October 2012. Photo by Samuel King Jr. *USAF.*

took greater care to obey them.[5] In response to new environmental science methods, the Pentagon undertook the Biological Diversity Initiative in 1994, which sought to develop a more comprehensive approach to managing land and wildlife diversity on DOD lands. Under Air Force direction, the initiative solicited advice from military environmental experts, federal and state environmental land management professionals, and academic and nongovernmental environmental authorities. At the conclusion of a yearlong effort, the Defense Department incorporated policy recommendations into DOD Instruction 4715.3, "Environmental Conservation Program," dated May 3, 1996, that was issued to all military components, and published a book, *Conserving Biodiversity on Military Lands: A Guide for Natural Resource Managers* (1996), for commanders and natural resource professionals to use at their installations.[6]

This third wave of military conservation increased the scope of the military's program far beyond fish and wildlife concerns. As of 2013, the Defense Department spent roughly $4 billion a year on environmental programs ranging from alternative fuel development, green procurement, and recycling initiatives to cultural resource protection and environmental restoration activities.[7] One of Defense's greatest conservation successes, harking back to early military wildlife conservation efforts, has been its

A Desert Bighorn ram at a wildlife water station in June 2009 in the Air Force's Barry M. Goldwater Range, which covers 1.7 million acres in Arizona's Sonoran Desert and is used for training by pilots from Luke Air Force Base. *USAF.*

management of 420 federally listed endangered species and 523 at-risk species. Although the Defense Department shares the distinction of protecting the most federally listed species with the U.S. Forest Service, military lands have a higher density of imperiled species per acre than any other federal agencies' land and thus a disproportionate level of significance to the species' survival.[8]

The Pentagon has not always prioritized ecological stewardship, and the military's motives for species protection are not entirely altruistic. But the Defense Department recognizes that if endangered or at-risk species decline too greatly, it could be forced to relocate military activities, which is more expensive than addressing species conservation issues. Slowly, installation commanders learned that proper natural resource management maintains the ecological integrity of their lands and ultimately preserves and provides the realistic training conditions that are essential to military readiness. Brig. Gen.

Sonoran pronghorn (*below*) are shown visiting a water station in the Goldwater Range in April 2012. These stations are fed from tanks like the ones (*above*) being installed in January 2013. The tanks store rainwater and use a gravity flow system to circulate it to the drinkers. Images on the previous page and below are from motion-activated cameras; above by A. Alvidrez. *USAF.*

Airmen of the 30th Medical Operations Squadron dug up sea mussels for testing at Minuteman Beach, Vandenberg Air Force Base, California, in February 2012 (*left to right*): TSgt. Roy Champion, SrA Barry Jones, and A1C Charles Bryant. The mussels were tested for paralytic shellfish poisoning and the neurotoxin domoic acid. Photo by SSgt. Andrew Satran. *USAF.*

J. Robert Barnes, USA (ret.), who became a senior policy advisor with The Nature Conservancy, observed that "as far as the military's mission goes, the environment is a stage prop for practicing the art of war." He noted that the military "has to take good care of the land it's got, because it's not getting any more."[9]

The natural resource conservation programs established by the Air Force and the Department of Defense in the mid-twentieth century have an enduring legacy. Beginning in 1991, the National Security Strategy of the United States (NSS) has included environmental security as a key aspect of broader U.S. national security. The 1991 NSS stated, "We must manage the Earth's natural resources in ways that protect the potential for growth and opportunity for present and future generations. . . . Global environmental concerns . . . respect no international boundaries. The stress from these environmental challenges is already contributing to political conflict."[10] Beginning in 1997, the DOD Quadrennial Defense Review (QDR) has incorporated environmental security as part of its effort toward national defense, and the 2010 QDR acknowledged that climate change "may act as an accelerant of instability or conflict, placing a burden to respond on civilian institutions and militaries around the world." The 2014 QDR noted that "we have increased our preparedness for the consequences of

environmental damage and continue to seek to mitigate these risks while taking advantage of opportunities."[11]

The U.S. military's connection to the natural world dates back to the earliest era of American exploration, to the Lewis and Clark expedition and the Pacific railroad surveys. This linkage has, at times, been an imperfect relationship, as there have been many instances of military disregard for conservation and ecology, some of which are described in this work. While new conservation laws in the 1940s, '50s, and '60s compelled the Department of Defense to develop tangible natural resource management practices on its lands, it was senior military leaders who enabled the services to implement meaningful conservation programs during the initial wave of military natural resources conservation after World War II. A few innovative and forward-looking Air Force leaders in particular were keenly aware of environmental problems, and the service's unconventional culture permitted them to implement innovative programs to find solutions. The Air Force led the Department of Defense into a new era where the defense of nature is an integral part of its mission.

A pelican perched on a post by Weekly Bayou at Eglin Air Force Base in November 2011. Photo by Samuel King Jr. *USAF.*

Notes

Prologue

1. "Death Knell Sounded for Buffalo Herd," *Prescott Evening Courier*, December 20, 1954, 6; Frank A. Tinker, "Tragedy at Huachuca," *Nature Magazine*, April 1955, 202–3; U.S. House of Representatives, Committee on Interior and Insular Affairs, "Withdrawal and Utilization of the Public Lands of the United States," 84th Cong., 2d sess., June 11, 12, July 2, 3, 9, 10, 1956, 26–27, 155 (hereafter House Committee, "Withdrawal of Public Lands," 2d Round). The Arizona Game and Fish Commission did attempt to find new homes for as many of the animals as it could before resorting to the hunt. It moved thirty-five to forty animals to Raymond Ranch, near Flagstaff, Arizona, and roughly a dozen went to the state of Sonora, Mexico, with another dozen to the Kaibab National Forest in northern Arizona. "Death Knell Sounded for Buffalo Herd," 6; Cornelius C. Smith, *Fort Huachuca: The Story of a Frontier Post* (Washington, DC: U.S. Government Printing Office, 1978), 313; "Buffalo Herd is Dispersed," *Prescott Evening Courier*, January 26, 1955, 5.

2. "Selected Hunters Bang Away as Buffalo Herd is Thinned," *Prescott Evening Courier*, January 13, 1955, 4 (1st quote); Tinker, "Tragedy at Huachuca," 202–3 (2d quote).

3. Tinker, "Tragedy at Huachuca," 203.

4. "Fort Huachuca Sought for Wildlife," *Prescott Evening Courier*, May 3, 1947, 4; *Huachuca Illustrated: A Magazine of the Fort Huachuca Museum*. Vol. 10: *The Modern Era, 1950–2000* (1999), 3–5, 11–12, http://huachuca-www.army.mil/files/History_Illustrated_ModernEra.pdf (hereafter *Huachuca Illustrated*); Steve Gregory, "The Last Buffalo on Fort Huachuca," *Sierra Vista Historical Society Newsletter*, February 2011, 6.

5. *Huachuca Illustrated*, 11–12; Smith, *Fort Huachuca*, 311–12; Gregory, "Last Buffalo on Fort Huachuca," 6; Ray Hebert, "Herd of Buffalo Thrives on Arizona Reservation," *Los Angeles Times*, January 4, 1953, B1, B2.

6. *Huachuca Illustrated*, 14, 38, 91; Smith, *Fort Huachuca*, 311–13; Tinker, "Tragedy at Huachuca," 202–3; Hebert, "Herd of Buffalo Thrives on Arizona Reservation," B1, B2.

7. "Game Group Threatens to Jail General," *Prescott Evening Courier*, December 6, 1954, 1; R. G. Lynch, "Wildlife Leaders Win in Fight with Military: Department of Defense Does Not Object to Control of Hunting House Group Told," *Milwaukee Journal*, February 1, 1957, 10; Stewart L. Udall (D-AZ), in House Committee, "Withdrawal of Public Lands," 2d Round, 27 (quote).

8. "Game Group Threatens to Jail General," 1; "Sportsmen's Group Raps Gen. Lenzner," *Prescott Evening Courier*, December 8, 1954, 1; "Fort Huachuca Group to Hunt Wild Animals," *Prescott Evening Courier*, November 10, 1954, 5; Tinker, "Tragedy at Huachuca," 203; House Committee, "Withdrawal of Public Lands," 2d Round, 1956, 155.

9. "Sportsmen's Group Raps Gen. Lenzner," 1 (1st quote); "Game Group Threatens to Jail General," 1 (2d quote).

10. Tinker, "Tragedy at Huachuca," 203; "Death Knell Sounded for Buffalo Herd," 6; House Committee, "Withdrawal of Public Lands," 2d Round, 155.

11. Dian Olson Belanger, *Managing American Wildlife: A History of the International Association of Fish and Wildlife Agencies* (Amherst: University of Massachusetts Press, 1988), 7, 53, 101 (quote).

12. Lynch, "Wildlife Leaders Win in Fight with Military," 10. Many of the same incidents Lynch referenced in his article are also described in congressional testimony in House Committee, "Withdrawal of Public Lands," 2d Round, 10–14, 49–80. Other incidents included the unlawful taking of deer at Camp McCoy, Wisconsin; illegal trapping and transporting of deer from Fort Bragg, North Carolina, to Fort Benning, Georgia; the illegal killing of does out of season at Cherry Point, North Carolina; the illegal transport of wildlife killed by military personnel in New Mexico by Fort Bliss soldiers; the appearance of a deluxe officer's shooting club at Aberdeen Proving Ground, Maryland; and the plan of all the military services to acquire large tracts of public domain land in the Desert Game Refuge in Nevada, the Kenai National Moose Range in Alaska, and the Wichita Mountains National Wildlife Refuge in Oklahoma, to name a few locations.

One

1. Harvey Meyerson, *Nature's Army: When Soldiers Fought for Yosemite* (Lawrence: University Press of Kansas, 2001), 3–23; William H. Goetzman, *Army Exploration in the American West, 1803–1863* (Austin: Texas State Historical Association, 1991), 3–21; Frank N. Schubert, *Vanguard of Expansion: Army Engineers in the Trans-Mississippi West, 1819–1879* (Washington, DC: U.S. Government Printing Office, 1980), vii–xi.

2. For details of the role the U.S. Army's Corps of Topographical Engineers and other Army units played in exploration, expansion, and settlement of the United States, see Goetzman, *Army Exploration in the American West*; William H. Goetzman, *Exploration and Empire: The Explorer and the Scientist in the Winning of the American West* (New York: Knopf, 1966); Schubert, *Vanguard of Expansion*; Ray A. Billington and Martin Ridge, *Westward Expansion: A History of the American Frontier* (Albuquerque: University of New Mexico Press, 2001); Frank N. Schubert, ed., *The Nation Builders: A Sesquicentennial History of the Corps of Topographical Engineers, 1838–1863* (Fort Belvoir, VA: Office of History, U.S. Army Corps of Engineers, 1988).

3. Goetzman, *Army Exploration in the American West*, 262–304; Schubert, *Vanguard of Expansion*, 95–113; Meyerson, *Nature's Army*, 13.

4. Meyerson, *Nature's Army*, 51–232; H. Duane Hampton, *How the U.S. Cavalry Saved Our National Parks* (Bloomington: Indiana University Press, 1971), 3–5, 41–42, 79–94, 130–63; Karl Jacoby, *Crimes Again Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley: University of California Press, 2001), 99–120.

5. Goetzman, *Army Exploration in the American West*, 4 (quote), 12–13.

6. Ibid., 15–17; Meyerson, *Nature's Army*, 20–22.

7. Meyerson, *Nature's Army*, 11, 21 (1st, 2d quotes), 24 (3d quote).

8. Ibid., 22–23 (quotes); Goetzman, *Army Exploration in the American West*, 17.

9. George Bird Grinnell was a Yale-educated zoologist who became an early conservationist known for his efforts to save the American buffalo from extinction. Edward S. Dana was a classmate of Grinnell's at Yale and a respected geologist and

mineralogist. William Ludlow, *Exploring Nature's Sanctuary: Captain William Ludlow's Report of a Reconnaissance from Carroll, Montana Territory, on the Upper Missouri to the Yellowstone National Park, and Return Made in the Summer of 1875* (Washington, DC: U.S. Government Printing Office, 1985), vii; James B. Trefethen, *An American Crusade for Wildlife* (New York: Winchester Press, 1975), 17–19; James T. White, "Edward Salisbury Dana," in *National Cyclopaedia of American Biography* 30 (New York: J. T. White and Company, 1943), 332; Adolph Knopf, "Biographical Memoir of Edward Salisbury Dana, 1849–1935," presented at the National Academy of Sciences autumn Meeting, 1937, http://www.nasonline.org/publications/biographical-memoirs/memoir-pdfs/dana-edward.pdf.

10. Ludlow, *Exploring Nature's Sanctuary*, 26, 36–37 (quote, 36); Meyerson, *Nature's Army*, 79–82.

11. Grinnell's zoological report in Ludlow, *Exploring Nature's Sanctuary*, 60.

12. Jacoby, *Crimes Against Nature*, 103–8.

13. Hampton, *How the U.S. Cavalry Saved Our National Parks*, 130–63; Meyerson, *Nature's Army*, 85–155.

14. According to Turner's "frontier thesis," the "existence of an area of free land, its continuous recession, and the advance of American settlement westward explain American development" and the social conditions that exist on the frontier line "furnish the forces dominating American character." Frederick Jackson Turner, *The Frontier in American History* (New York: Henry Holt, 1920), 1, 3.

15. For history of the depletion of American natural resources and development of the conservation movement, see Peter Matthiessen, *Wildlife in America*, rev. ed. (New York: Viking, 1987); Trefethen, *American Crusade for Wildlife*; Thomas R. Dunlap, *Saving America's Wildlife: Ecology and the American Mind, 1850–1900* (Princeton, NJ: Princeton University Press, 1988); Henry E. Clepper, ed., *Origins of American Conservation* (New York: Ronald Press, 1966); William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: Norton, 1991); Mary R. McCorvie and Christopher L. Lant, "Drainage District Formation and the Loss of Midwestern Wetlands, 1850–1930,"*Agricultural History* 67 (Autumn 1993): 13–39; Donald J. Pisani, "Forests and Conservation, 1865–1890," *Journal of American History* 72 (September 1985): 340–59; Douglas W. MacCleery, *American Forests: A History of Resiliency and Recovery* (Durham, NC: Forest History Society, 1992), 13–40; Hugh M. Raup, "The View from John Sanderson's Farm: A Perspective for the Use of the Land," *Forest History* 10 (April 1966): 2–11; Robert L. Kelley, "Forgotten Giant: The Hydraulic Gold Mining Industry in California," *Pacific Historical Review* 23 (November 1954): 343–56; Robert L. Kelley, "The Mining Debris Controversy in the Sacramento Valley," *Pacific Historical Review* 25 (Nov. 1956): 331–46; David Igler, "Industrial Cowboys: Corporate Ranching in Late Nineteenth-Century California," *Agricultural History* 69 (Spring 1995): 201–15; Stuart L. Udall, *The Quiet Crisis* (New York: Holt, Rinehart and Winston, 1963).

16. William Cronon, "The Trouble with Wilderness; or, Getting Back to the Wrong Nature," in *Uncommon Ground: Rethinking the Human Place in Nature*, ed. William Cronon (New York: Norton, 1995), 69–90 (quotes, 76–77).

17. John F. Reiger, *American Sportsmen and the Origins of Conservation*, 3d ed. (Corvallis: Oregon State University Press, 2001), 3.

18. Reiger and historian Thomas R. Dunlap have had a notable public exchange concerning Reiger's work. Dunlap believes that Reiger's central thesis, that sport hunters and fishermen were the primary organizers of the conservation movement before 1901, is exaggerated, that while sport hunters may have "introduced many people to the notion of conservation and wise use, and the new game laws, . . . none of that make hunting central

to the conservation crusade or the movement's intellectual fountainhead." Dunlap asserts that the conservation movement was defined by its "concern for the 'interrelationship of all resource use' and a commitment to scientific management and bureaucratic administration," characteristics he believed the sport hunting movement lacked. However, Dunlap does agree that sport hunters did play an important role in conservation and preservation by organizing into groups that made wildlife laws more comprehensive. Reiger responds that when Dunlap asserted that he "made no differentiation between the 'sportsmen-conservationists' and the anonymous rank-and-file hunters and fishermen that Dunlap misrepresented his book's thesis. Reiger explains that he did make the distinction by repeatedly stating that the "sportsmen-conservationists" were from the upper classes, "automatically cut[ting] out the vast majority of rank-and-file hunters and fishermen." Further, Reiger writes that Dunlap's "anti-hunting bias" is implicit throughout his critique of Reiger's work. Dunlap, "Sport Hunting and Conservation, 1880–1920," *Environmental Review* 12 (Spring 1988): 51–60 (quotes, 55–56); Reiger, "John F. Reiger's commentary on Thomas R. Dunlap's article, 'Sport Hunting and Conservation, 1880–1920,' in ER 12:1 (Spring 1988)," *Environmental Review* 12 (Fall 1988): 94–96 (quotes).

19. Reiger, *American Sportsmen*, 6–7 (1st and 2d quotes), 9 (3d quote), 51, 182–84.

20. Theodore Roosevelt and founding members, "Language adapted from the Certificate of Incorporation of the Boone and Crockett Club, May 23, 1923, Washington, D.C.," in "History of the Boone and Crockett Club," https://www.boone-crockett.org/about/about_history.asp?area=about (quote); Robert V. Hine, *Frontiers: A Short History of the American West* (New Haven, CT: Yale University Press, 2007), 198–99; Reiger, *American Sportsmen*, 146.

21. Trefethen, *American Crusade for Wildlife*, 76–90, 97–105, 139–42, 195–98.

22. Reiger, *American Sportsmen*, 45–50.

23. Morris Janowitz, *The Professional Soldier: A Social and Political Portrait* (Glencoe, IL: Free Press, 1960), 84–89 (quote, 85). Janowitz surveyed 760 generals and admirals and another 576 military officers from the Pentagon and then "intensively interviewed" 113 of these high-level officers to explain the social backgrounds and career experiences of the military elites. He also provided an account of military style of life, etiquette, and the code of military honor. For more information on Janowitz's methodology, see "Methodological Appendix," 443–52. His widely praised book is one of the foundational works in the field of military sociology.

24. The outdoor interests and concerns of these men are developed throughout the book. For examples on this general subject matter from their correspondence, see Maj. Gen. Henry H. Arnold to Joe E. Elliott, Forest Supervisor, Sequoia National Forest, August 10, 1938, October 11, 1939, U.S. Air Force Historical Studies Office (AFHSO) microfilm collection, reel 280521, no frame nos.; Arnold to Corey Ford, January 25, 1940, Papers of Corey Ford, box 2, folder 10, Rauner Special Collections, Dartmouth College (hereafter Ford Papers); Arnold to Nate Milnor, President, California Fish and Game Commission, July 23, 1941, AFHSO microfilm collection, reel 28055, no frame nos.; Fred P. Cronemiller, U.S. Forest Service, to Arnold, May 14, 1947; Arnold to George C. Marshall, U.S. Secretary of State, letter with enclosures (Trip I: information supplied by Trinity National Forest; Trip II, extracted from letter of May 14 from Cronemiller), May 22, 1947; Marshall to Arnold, June 2, 1947, AFHSO microfilm collection, reel 28064, no frame nos.; Alastair MacBain, Chief, Division of Information, U.S. Fish and Wildlife Service, to Gen. Carl Spaatz, February 18, 1952; Spaatz to Ford, January 18, 1955, January 17, 1958; Ford to Spaatz, January 14, 1956, January 13, 1958, Papers of Carl Spaatz, part 2, box 14, folder: Bang Bang Club, 1952–1960, Library of Congress (hereafter Spaatz Papers); Gen. Thomas D. White to Spaatz, letter, October 16, 1957, March 19, 1958, Spaatz Papers, part 2, box 14, folder: "W"

miscellaneous, 1928, 1952–1963; White to Gen. Ira C. Eaker, September 18, 1958; Eaker to Gen. Charles P. Cabell, Deputy Director, Central Intelligence Agency, August 22, 1958, Papers of Ira Eaker, part 2, box 14, folder: 2 Mar 1958–30 Jan 1959, Library of Congress (hereafter Eaker Papers); Eaker to Gen. Nathan F. Twining, October 1, 1956, Eaker Papers, part 2, box 12, folder: 2 Aug 1956–31 May 1957; Eaker to White, August 21, 1957, Papers of Thomas D. White, box 10, folder: Corres: 1957 August, Syracuse University Manuscript Collection (hereafter White Papers-Syracuse); White to Gen. Omar N. Bradley, Chairman, Joint Chiefs of Staff, December 18, 1952, White Papers-Syracuse, box 1, folder: Corres: 1952, Nov–Dec; C. R. Slemon, Air Marshall, Chief of Staff, Canadian Department of National Defense, to White, May 30, 1957; White to Slemon, June 5, 1957, White Papers-Syracuse, box 6, folder: Corres. 1957 May; White to Spaatz, March 10, 1958, AFHSO microfilm collection, reel 23160, frame 463; White to Lee Wulff, May 16, 1960, September 10, 1960; Wulff to White, May 23, 1960, September 26, 1960, Lee Wulff Papers, box 10, folder: T. White, Manuscripts and Archives, Beinecke Library, Yale University; Spaatz to Ford, n.d., Ford Papers, box 48, folder 67; White to Ford, April 4, 1962, Ford Papers, box 4, folder 58; Twining to Gen. Frank F. Everest, March 7, 1966, AFHSO microfilm collection, reel 23389, frame 946.

Contemporary articles about their outdoors interests included Lee Wulff, "Fishing with Generals Marshall and Arnold," *Outdoor Digest*, January 1946, 5–9; Wulff, "New Fish for the General," *Outdoor Life*, May 1958, 33–35, 136–39; Drew Pearson, "AF Craft Crashes On Fishing Trip," *Washington Post and Times Herald*, August 7, 1958, C23; Thomas D. White, "I Catch My Own," n.d., George Sprague Myers Papers, Record Unit 7317, box 42, folder 4, Smithsonian Institution Archives; Thomas D. White, "Red Trout," manuscript copy, later published in *Field and Stream* (December 1962), AFHSO microfilm collection, reel 30130, no frame nos.

25. Janowitz, *Professional Soldier*, 80, 218–19 (3d quote), 229 (1st quote), 233 (2d quote).

26. Ibid., 176, 196–200 (1st quote, 200; 2d quote, 197).

27. Ibid., 176, 196 (quote), 205.

28. Ibid., 176, 197–99, 205 (quote, 199).

29. Ibid., 206–7.

30. Ibid., 209–10.

31. C. Wright Mills, *The Power Elite* (New York: Oxford University Press, 1956), 171, 175 (2d quote), 192 (1st quote).

32. For the examples of Arnold, Twining, and White, see note 24 above.

33. U.S. Army, *History of Spruce Production Division* (Portland, OR: Kilham Stationery & Print Co., 1920), ii, 34–35 (quotes, 35).

34. Coert duBois, "Autobiography of and by Coert duBois" (typescript, ca. 1953), 69–70, Carl Alwin Schenck Papers, box 66, folder 17, North Carolina State University Archives, http://www.lib.ncsu.edu/specialcollections/forestry/schenck/series_vi/bios/DuBois.html; Robert W. Cemack, *Fire in the Forest: A History of Forest Fire Control on the National Forests in California, 1898–1956* (Vallejo, CA: U.S. Forest Service, Pacific Southwest Region, 2005), 99–108; Thomas M. Coffey, *Hap: The Story of the U.S. Air Force and the Man Who Built It* (New York: Viking Press, 1982), 101–2; U.S. Air Force, "Biography: General Henry H. Arnold," http://www.af.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=858&Article=107811; Maurer Maurer, *Aviation in the U.S. Army, 1919–1939* (Washington, DC: Office of Air Force History, 1987), 131–38. In his piece, duBois wrote that Arnold wore the insignia of a major when they met, the temporary rank as an Army regular that Arnold held at the time.

35. duBois, "Autobiography," 69–70; "History of Rockwell Field, California, 1919," AFHSO microfilm collection, reel 2491, frame 1121; "Arnold and the Foresters,"

Library of Congress notes on the Henry Arnold Papers, AFHSO microfilm collection, reel 43814, no frame nos.; DeWitt Nelson, interview by Amelia R. Fry, August 17, 1976, transcript, Bancroft Library, University of California, Berkeley, https://archive.org/details/managementnat00nelsrich; Maurer, *Aviation in the U.S. Army*, 131–35.

36. *Air Service News Letter*, May 4 1920, 2; October 25, 1921, 2–3; February 20, 1922, 1–3; January 31, 1923, 1–6, AFHSO electronic collection; Maurer, *Aviation in the U.S. Army*, 131–38.

37. *Air Service News Letter*, January 4, 1921, 6, AFHSO electronic collection; Willis T. Chapman, "Forest Fliers have 'Nerve Camp' for Rest," *San Francisco Call and Post*, September 26, 1921, 3.

38. "Arnold and the Foresters;" Nelson interview; Maurer, *Aviation in the U.S. Army*, 131–35; F. P. Cronemiller, U.S. Forest Service, to Gen. Henry H. Arnold, May 14, 1947, AFHSO microfilm collection, reel 28064, no frame nos.; Col. Minton W. Kaye, interview by Murray Green, March 13, 1970, AFHSO microfilm collection, reel 43796, no frame nos. Kaye, who helped Arnold inspect CCC camps, stated that "Arnold was pretty close to these guys in the Forest Service. He used to write letters to them all the time." DeWitt "Swede" Nelson served nineteen years with the U.S. Forest Service, nine as state forester for California and thirteen as director of the Departments of Conservation and Natural Resources. During the last five years of his active career, he was professor of forestry and outdoor recreation at Iowa State University, Oregon State University, and the University of California, Berkeley. Forest History Society, "Inventory of the DeWitt Nelson Papers, 1940–1976," http://www.foresthistory.org/ead/Nelson_DeWitt.html. Fred P. Cronemiller served as a U.S. Forest Service forest supervisor for seventeen years and for twenty-three years as the chief of the division of range and wildlife management in Region 5, which included California. M. W. Talbot and F. P. Cronemiller, "Some of the Beginnings of Range Management," *Journal of Range Management* 14 (March 1961): 95–102.

39. "Arnold's Philosophy: Re CCC Experience, Juvenile Delinquency, and the Great Outdoors," Murray Green notes for book on Arnold, AFHSO microfilm collection, reel 43796, no frame nos.

40. Cemack, *Fire in the Forest*, 106–8; Maurer, *Aviation in the U.S. Army*, 138.

41. Maurer, *Aviation in the U.S. Army*, 349; "March Field to be Virtually Decommissioned in Order to Accommodate CCC from the Riverdale Press, May 20, 1933," Murray Green notes for book on Arnold, AFHSO microfilm collection, reel 43796, no frame nos.; Col. Duncan K. Major Jr., Acting Assistant Chief of Staff, to the War Department General Staff, Memorandum for the Adjutant General (Through the Secretary, General Staff), "Subject: Curtail of West Coast Air Corps Maneuvers due to work in connection with Civilian Conservation Corps," May 20, 1933, record group 407, box 402, General Admin Files (CCC), National Archives and Records Administration.

42. DeWitt S. Copp, *A Few Great Captains: The Men and Events That Shaped the Development of U.S. Air Power* (Garden City, NY: Doubleday, 1980), 117.

43. Murray Green notes for book on Arnold. Green cited a letter from Arnold to Robert Beatty, director, Izaak Walton League, May 14, 1948, and a letter from Arnold to California governor Earl Warren, February 12, 1948, AFHSO microfilm collection, reel 43814, no frame nos.

44. Henry H. Arnold to C. Ray Knight, March 12, 1947; Arnold to L. Aldo Leopold, March 10, 1947; Leopold to Arnold, March 14, 1947; AFHSO microfilm collection, reel 28072, no frame nos.

45. Copp, *A Few Great Captains*, 117. Marshall commanded two different CCC districts of roughly thirty camps, from July to October 1933 in the Florida and Georgia swamp

areas and from August 1936 to July 1938 in the Oregon and Washington mountains. Marshall valued his time working on CCC projects, once calling it "the most instructive service I have ever had, and the most interesting." Forrest Pogue, *George C. Marshall: Education of a General, 1880–1939* (New York: Viking Press, 1963), 274–80, 303, 308–11 (quote), 348; George C. Marshall Foundation, "Detailed Marshall Chronology," http://www.marshallfoundation.org/about/chronology.html. In 1936, Clark served for a year as deputy chief of staff for CCC VII Corps Area at Omaha, Nebraska. Charles E. Heller, "The U.S. Army, the Civilian Conservation Corps, and Leadership for World War II, 1933–1942," *Armed Forces and Society* 36 (August 2010): 445, http://intl-afs.sagepub.com/content/36/3/439.refs?patientinform-links=yes&legid=spafs;36/3/439; The Citadel Archives and Museum, "Mark W. Clark Collection: Biography," http://www3.citadel.edu/museum/Clark_Inventory.pdf. Schriever was a CCC camp commander in New Mexico from June 1935 to October 1936. Jacob Neufeld, *Bernard A. Schriever: Challenging the Unknown* (Washington, DC: Office of Air Force History, 2005), 3–6, 24, http://www.afhso.af.mil/shared/media/document/AFD-100929-007.pdf.

46. Neil M. Maher, *Nature's New Deal: The Civilian Conservation Corps and the Roots of the American Environmental Movement* (New York: Oxford University Press, 2008), 212–14.

47. Historical Section, A–2, Fourth Air Force, "Army Air Corps Alaskan Flight, Historical Document No. 440103–4, 25 June 34–20 August 34," Miscellaneous Historical Papers, Fourth Air Force, 27 October 1943, 11–12, AFHSO microfilm collection, reel 28236, no frame nos; U.S. Fish and Wildlife Service, "Alastair MacBain Joins FWS Staff," press release, August 3, 1950, http://fws.gov/news/historic/1950/19500803a.pdf; William A. MacBain, son of Alastair MacBain, interview by author, May 14, 2013, AFHSO. The bomber flights to and from Alaska took place in July and August 1934.

48. Michael W. Giese, "A Federal Foundation for Conservation: The Evolution of the National Wildlife Refuge System, 1920–1968" (PhD dissertation, American University, 2008), 124–28; Trefethen, *American Crusade for Wildlife*, 219–20; Thomas Beck, Jay Darling, and Aldo Leopold, *Report of the President's Committee on Wild-Life Restoration* (Washington, DC: U.S. Government Printing Office, 1934), 20.

49. "Wallace Appoints 3 to Aid Wild Life Plan," *New York Times*, January 3, 1934, 8.

50. Beck, Darling, and Leopold, *Report of the President's Committee on Wild-Life Restoration*, 15.

51. "Seth Gordon, 93, Wildlife Conservationist," *Chicago Tribune*, June 30, 1983, A15; Rich Becker, "Chicago Loses Gordon, Expert on Conservation," *Chicago Daily Tribune*, December 15, 1930, 28; Ellen Zazzarino, "Finding aid to Ira N. Gabrielson, Wildlife Management Institute Papers, 1974," Denver Public Library Conservation Collection, http://eadsrv.denverlibrary.org/sdx/pl/toc.xsp?id=CONS37&qid=sdx%5Fq5&fmt=tab&idtoc=CONS37-pleadetoc&base=fa&n=14&ss=true&as=true&ai=Advanced; Beck, Darling, and Leopold, *Report of the President's Committee on Wild-Life Restoration*, 20.

52. Corey Ford and Alastair MacBain, "No Hunting or Fishing," *Saturday Evening Post*, December 7, 1935, 8–9, 31–33, 35; Ford and MacBain, "Unhappy Hunting Grounds," *Saturday Evening Post*, January 25, 1936, 12–13, 58, 60, 62; Ford and MacBain, "Chasing Rainbows: The Trout Streams take a Beating," *Collier's*, June 6, 1936, 20, 60–62; Ford and MacBain, "Feathered Dynamite: Quail on the Wing," *Collier's*, January 30, 1937, 15, 38; Ford and MacBain, "Fuss and Feathers: No Home on the Range," *Collier's*, March 26, 1938, 12, 74–75; Ford and MacBain, "Hell and High Timber: Money to Burn," *Collier's*, June 25, 1938, 12–13, 66–69; Ford and MacBain, "Hot Fur: Protecting Alaska's Wild Life is a Big Job," *Collier's*, December 2, 1939, 22, 28–31; Ford and MacBain, "Happier Hunting Grounds:

What Conservation Can Do—and, Incidentally, Some Fine Game-bird Drawings," *Collier's*, September 28, 1940, 14–19, 70, 72. See also Ford and MacBain to J. N. Darling, October 7, 1935; Ford and MacBain to Darling, October 18, 1935; Darling to Ford, December 3, 1935; Darling to Ford, December 10, 1935, Ford Papers, box 29, folder 18; Seth Gordon to Ford, November 5, 1935, Ford Papers, box 28, folder 3.

53. Ford and MacBain coauthored more than fifty magazine articles about men serving in U.S. Army Air Forces during World War II that appeared in popular periodicals of the time, primarily in *Collier's*. These articles encompassed a wide range of Army Air Force topics. They included Ford and MacBain, "High into the Sun: How A.A.F. fliers Win their Wings," *Collier's*, October 3, 1942, 61, 65–66; Ford and MacBain, "Take It, Mister!: The Unsung Heroes of the A.A.F.," *Collier's*, October 10, 1942, 46–47, 49; Ford and MacBain, "Nine Young Men: Get Acquainted with the Crew of a Bomber," *Collier's*, November 7, 1942, 16, 57; Ford and MacBain, "They Shoot for Keeps: A.A.F. Gunnery Schools turn out Annie Oakleys," *Collier's*, December 19, 1942, 21; Ford and MacBain, "The Sky's the Limit: General Hap Arnold doesn't Believe in the Impossible," *Collier's*, January 9, 1943, 18–20, 63; Ford and MacBain, "Mission Over Kiska: Take a Bomber Trip over Japanese-held Kiska," *Collier's*, February 13, 1943, 20, 30; Ford and MacBain, "One Foot on the Ground: The Grease Monkeys—Anonymous Heroes of our Air Force," *Collier's*, February 27, 1943, 52, 55–65; Ford and MacBain, "Remember Dutch Harbor: The Complete Account of the Japanese Invasion of the Aleutians," *Collier's*, May 1, 1943, 13, 66, 70, and May 8, 1943, 16–17, 40; Ford and MacBain, "Gunners' Green Pastures: A Manor on the Thames is G.I. Heaven for U.S. Fortress Crews in England," *Collier's*, November 20, 1943, 16–17; Ford and MacBain, "They Also Serve: 'Sweating It Out'—What the Boys Call Waiting for the Bombers' Return from a Raid," *Collier's*, December 11, 1943, 21, 64–65; Ford and MacBain, "Cochran's Commandos: Col. Cochran and His Gang Invented a New Kind of Jungle Warfare," *Collier's*, August 26, 1944, 20, 69; Ford and MacBain, "The Last Time I Saw Them: A Message to the Folks Back Home from the Crew of a B–29," *Collier's*, August 18, 1945, 28–29, 46; Ford and MacBain, "I'll See You Soon: How Things are with the Wounded Flying Back via Air Transport Command," *Collier's*, August 25, 1945, 17–19; Ford and MacBain, "Somewhere We'll Find You: Fliers Downed in the Remote Himalayas are Saved by ATS Rescue Squads," *Collier's*, February 17, 1945, 22–24, 84. Ford also published several books on World War II topics, including *Short Cut to Tokyo: the Battle for the Aleutians* (1943); *War Below Zero: the Battle for Greenland* (1944), coauthored with Bernt Balchen and Oliver LaFarge; and *The Last Time I Saw Them* (1946), coauthored with MacBain.

54. Ford and MacBain to Arnold, April 10, 1942, Ford Papers, box 2, folder 10; Arnold to Ford, April 14, 1942, Ford Papers, box 2, folder 10; U.S. War Department, "Military Record and Report of Separation, Certificate of Service," for Corey Ford, November 16, 1945, Ford Papers, box 2, folder 104.

55. The Hump route was a high-altitude military aerial supply route over the Himalayan mountains between the Assam Valley in northeastern India, across northern Burma, to Yunnan province in southwestern China, flown during World War II.

56. Gen. Henry H. Arnold to Maj. Gen. William O. Butler, Commanding General, 11th Air Force, Alaska, November 30, 1942, Ford Papers, box 3, folder 12; William J. Donovan, Director, Office of Strategic Services, "Memorandum to Maj. Corey Ford and Capt. Alastair MacBain, Subject: Orders," March 12, 1944, Ford Papers, box 3, folder 21; Maj. Gen. George E. Stratemeyer, Commanding General, Headquarters, Army Air Forces, India-Burma Sector, China-India-Burma Theater, "Memorandum To: Army Air Force Commanders, Army Air Forces, India-Burma Sector, China-Burma-India Theater" regarding "courtesy to be extended" to Maj. Corey Ford and Capt. Alastair MacBain, May 11, 1944, Ford Papers,

box 3, folder 21; Arnold to Ford, January 25, 1940, Ford Papers, box 2, folder 10; Ford to Arnold, January 16, 1942, Ford Papers, box 2, folder 10; Arnold to Ford, April 14, 1942, Ford Papers, box 2, folder 15; Ford to Arnold, May 20, 1946, Ford Papers, box 2, folder 15; Ford to Arnold, November 27, 1947, Ford Papers, box 2, folder 10; Arnold to Ford, December 2, 1947, Ford Papers, box 2, folder 10; Eleanor P. "Bee" Arnold to Ford, February 8, 1950, Ford Papers, box 2, folder 10; Gen. Carl Spaatz to Ford, November 20, 1946, Ford Papers, box 5, folder 21; Spaatz to Ford, July 16, 1948, Ford Papers, box 3, folder 8; Ford to Spaatz, January 13, 1958, AFHSO microfilm collection, reel 23150, frame 410; Spaatz to Ford, January 17, 1958, AFHSO microfilm collection, reel 23150, frame 409; Ford to Spaatz, February 2, 1958, AFHSO microfilm collection, reel 23153, frame 476; Spaatz to Ford, February 5, 1958, Ford Papers, box 4, folder 58; Maj. Gen. William J. Donovan, Director, Office of Strategic Services, to the Adjutant General, "Memorandum re: FORD, Corey," September 21, 1945, Ford Papers, box 3, folder 21; Lt. Gen. Ira C. Eaker to Ford, September 29, 1949, Ford Papers, box 3, folder 8.

57. MacBain to Spaatz, February 18, 1952, AFHSO microfilm collection, reel 43824, no frame nos.; Spaatz to Ford, no date, Ford Papers, box 48, folder 67; Eaker to Glenn L. Jackson, California Oregon Power Company, July 12, 1957, Papers of Carl Spaatz, part II, box 7, folder "Eaker, Ira C., 1953–1963," Library of Congress.

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1. William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (Port Washington, NY: Kennikat Press, 1925), 6.

2. Ibid., vii.

3. Terrence E. Deal and Allen A. Kennedy, *Corporate Cultures: The Rites and Rituals of Corporate Life* (Reading, MA: Addison-Wesley, 1982), 13–18; J. Steven Ott, *The Organizational Culture Perspective* (Chicago, IL: Dorsey Press, 1989), 50, 192; Edgar H. Shein, *Organizational Culture and Leadership: A Dynamic* View (San Francisco, CA: Jossey-Bass, 1985), 210; Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force* (New Brunswick, NJ: Transaction Publishers, 1994), 53–56, 62–65, 98–105.

4. DeWitt S. Copp, *A Few Great Captains: The Men and Events That Shaped the Development of U.S. Air Power* (Garden City, NY: Doubleday, 1980), 43–53; Henry H. Arnold, *Global Mission* (1949; repr., Blue Ridge Summit, PA: Tab Books, 1989), 121–22; Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, DC: Center for Air Force History, 1993), 20–21, 23.

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6. Morris Janowitz, *The Professional Soldier: A Social and Political Portrait* (Glencoe, IL: Free Press, 1960), 63–64.

7. Ibid., 59, 86–89. Because the predecessor organizations to the U.S. Air Force were part of the U.S. Army, Air Force officers in the 1950s with academy educations had attended the U.S. Military Academy. The U.S. Air Force Academy was established in 1954 and graduated its first class in 1959.

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10. Mitchell, *Winged Defense*, 6–7.

11. David T. Hanson, introduction to *Waste Land: Meditations on a Ravaged Landscape* (New York: Aperture, 1997), discussed in William L. Fox, *Aereality: Essays on the World From Above* (Berkeley, CA: Counterpoint: 2009), 78.

12. Charles A. Lindbergh, *Charles A. Lindbergh: Autobiography of Values* (New York: First Harvest/HBJ edition, 1992), 266.

13. Ibid., 32.

14. Lindbergh speech to group of conservationists, quoted in "Conservation is Lindbergh Interest Now," *Chicago Tribune*, November 3, 1968, A4.

15. Lindbergh, *Autobiography of Values*, 32.

16. Gen. Henry H. Arnold was born in Gladwyne, PA, in 1886; Gen. Carl A. Spaatz in Boyertown, PA, in 1891; Gen. Nathan F. Twining in Monroe, WI, in 1897; and Gen. Thomas D. White in Walker, MN, in 1901. Puryear, *Stars in Flight*, 3, 47, 139, 165; George M. Watson, *Secretaries and Chiefs of Staff of the United States Air Force: Biographical Sketches and Portraits* (Washington, DC: Air Force History and Museums Program, 2001), 107, 119, 125.

17. Aldo Leopold, *A Sand County Almanac and Sketches Here and There* (1949; repr., New York: Oxford University Press, 1987), 214, 223.

18. Puryear, *Stars in Flight*, 139, 152; John Frisbee, *Makers of the United States Air Force* (Washington, DC: Office of Air Force History, 1987), 260, 263–64; J. Britt McCarley, "General Nathan Farragut Twining: The Making of a Disciple of American Strategic Air Power, 1897–1953" (PhD dissertation, Temple University, 1989), 6, 259, 279, 294. Atkinson's successors included Maj. Gen. Frank A. Armstrong, Maj. Gen. William D. Old, and Maj. Gen. George R. Acheson. Twining served as commander in chief, Alaskan Command (CINCAL), October 1947–July 1950. His successors continued the overarching conservation program, including Lt. Gen. William E. Kepner (CINCAL, July 1950–March 1953) and Lt. Gen. Joseph H. Atkinson (CINCAL, March 1953–September 1956). U.S. Air Force, Alaskan Command, "Why the Alaskan Command Maintains a Wildlife Conservation Program" (n.d., ca. 1953), introduction (no page nos.), 9, Papers of Corey Ford, box 7, folder 17, Rauner Special Collections, Dartmouth College (hereafter Ford Papers); Lola M. Homsher, Alaskan Command Historian, "Alaskan Command, Oral History Program, 1947–1969," 3–5, U.S. Air Force Historical Studies Office (AFHSO) microfilm collection, reel 30046, no frame nos.

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20. "Why the Alaskan Command Maintains a Wildlife Conservation Program," introduction, no page nos. (both quotes; emphasis in original).

21. Blair Joselyn, "Wildlife Management on Military Installations: A Critique of Army Policy," *Journal of Wildlife Management* 29 (January 1965): 216–17.

22. James R. Arnold and Roberta Wiener, *The U.S. Army Corps of Engineers and Natural Resource Management on Army Installations, 1941–1987* (Fort Belvoir, VA: Office of History, U.S. Army Corps of Engineers, 1989), vii–xi, 4–8, 31–34; Joselyn, "Wildlife Management on Military Installations," 217, 221–24.

23. "Navy Moves on Natural Resources Program," *Outdoors News Bulletin* 16, no. 24 (1962), 2; Joselyn, "Wildlife Management on Military Installations," 217.

24. "Message from the President," October 13, 1949, 81st Cong., 1st sess., *Congressional Record—House*, 14429.

25. *U.S. Code, Congressional Service*, 81st Cong., 1st sess., 1949, 1:775–76; *U.S. Code, Congressional Service*, 81st Cong., 1st sess., 1949, 2:2076–77.

26. Brig. Gen. Carl A. Brandt to Chief of Staff, U.S. Air Force, memo, "Request for Exemption of Forestry Fund, Eglin Field Military Reservation," October 6, 1947 (quote); Robert L. F. Sikes to Frank Pace, Jr., Director, Bureau of the Budget, June 8, 1949, Papers of Robert L. F. Sikes, box 2, University Archives and West Florida History Center, University of West Florida (hereafter Sikes Papers).

27. Sikes to Merrill Y. Winslett, October 15, 1947 (quote); Sikes to Winslett, telegram, October 21, 1947, Sikes Papers, box 2.

28. W. Stuart Symington to Sikes, telegram, October 23, 1947; Headquarters, U.S. Air Force to Sikes, telegram, October 27, 1947, Sikes Papers, box 2.

29. Sikes to Winslett, October 15, 1947; Sikes to Winslett, telegram, October 23, 1947; Brig. Gen. John K. Gerhart, Director, [Air Force] Legislative and Liaison Division, to Sikes, December 3, 1947; Brandt to Sikes, January 23, 1948; Lindsay G. Warren to Sikes, April 10, 1948, Sikes Papers, box 2.

30. "Robert Lee Fulton Sikes," Congressional Record, September 30, 1994, vol. 140, no. 140, http://www.gpo.gov/fdsys/pkg/CREC-1994-09-30/html/CREC-1994-09-30-pt1-PgS25.htm; "Robert L. F. Sikes Obituary," *The News* (Boca Raton, FL), September 29, 1994, 2B, at http://news.google.com/newspapers?id=tCFUAAAAIBAJ&sjid=PY0DAAAAIBAJ&pg=6556,7273655&dq=flaming+liberals+sikes+dies&hl=en; Robert Sikes, *He Coon: The Bob Sikes Story* (Pensacola, FL: Perdido Bay Press, 1984), 161, 264, 293–94, 301, 342, 354–55, 365–66, 445, 463.

31. Sikes, *He Coon*, 213, 228, 311–12, 360, 448, 479–81, 515–16, 536–37, 548, 564–65, 603; Jerrell H. Shofner, "Roosevelt's Tree Army: The Civilian Conservation Corps in Florida," *Florida Historical Quarterly* 65 (April 1987): 433–56.

32. Sikes, *He Coon*, 10, 12, 15–17, 54–56, 91, 180–81, 213, 256, 259 (quote), 304, 370, 430, 622–23, 716. Sikes served as a liaison officer for the Offfice of Strategic Services (OSS) and at William Donovan's request helped plan for creation of free-press newspapers run by civilians in German towns after they were recaptured from the Nazis. Sikes, *He Coon*, 180–81.

33. Lindsay G. Warren, Comptroller General of the U.S., to Sikes, April 10, 1948; U.S. Congress, *U.S. Code, Congressional Service*, 80th Cong., 2nd sess., 1948, H.R. 5506, loose-leaf copy of original bill, Sikes Papers, box 2; "A Bill to authorize restocking, propagation, and conservation of game in the Eglin Field Reservation," H.R. 2418, 81st Cong., 1st sess., *Congressional Record*, February 7, 1949, 931.

34. Warren to Edwin C. Johnson, chairman, Committee on Interstate and Foreign Commerce, U.S. Senate, June 13, 1949, Sikes Papers, box 2.

35. Sikes to Warren, July 16, 1949; Johnson to Sikes, July 26, 1949; Frank L. Yates, Acting Comptroller of the United States, to Sikes, July 29, 1949, Sikes Papers, box 2; *U.S. Code, Congressional Service*, 81st Cong., 1st sess., 1949, 1:775–76; *U.S. Code, Congressional Service*, 81st Cong., 1st sess., 1949, 2:2076–77; "Message from the President," October 13, 1949, 81st Cong., 1st sess., *Congressional Record—House*, 14429.

36. Symington to Carl Vinson, Chairman, House Committee on Armed Services, May 4, 1949, Sikes Papers, box 2.

37. Gerhardt to Sikes, December 3, 1947; Sikes to Maj. Gen. William E. Kepner, Commanding General, Eglin Field, February 9, 1949, Sikes Papers, box 2. Maj. Gen. Thomas D. White served as director of Air Force Office of Legislative and Liaison Division, Office of the Secretary of the Air Force, from September 1948 through April 1950. U.S. Air Force, Office of Information Services, Public Information Division, "Statement of Military Service of General Thomas D. White," January 1959, AFHSO.

38. Catherine Conry, sister of Thomas D. White, interview by Murray Green, October 23, 1978, transcript, AFHSO microfilm collection, reel 37227, p. 11.

39. Harvey Meyerson, *Nature's Army: When Soldiers Fought for Yosemite* (Lawrence: University Press of Kansas, 2001), 17–22. Meyerson wrote that a West Point education in the 1800s made army officers "skilled and knowledgeable scientific observers of nature . . . [because they] had already studied their country's geography, meteorology, and geological composition . . . learned to identify and sketch its flora and fauna . . . and trained to write about the natural environment with scientific clarity and precision" (quote, 21). White began his West Point career at age sixteen in the summer of 1918. His class of 1920 was a "war" class, which was promoted early to fill the ranks of the classes of 1918 and 1919 that graduated early to serve in World War I.

40. Gen. Thomas D. White, "Personal Recollections," AFHSO microfilm collection, reel 30131, frame 1142; George S. Myers to White, June 30, 1941, November 6, 1941, March 26, 1942, George Sprague Myers Papers, box 42, folder 5, Smithsonian Institution Archives, Washington, DC (hereafter Myers Papers); George S. Myers and Stanley H. Weitzman, "Two New Fishes Collected by General Thomas D. White in Eastern Columbia," *Stanford Ichtyhological Bulletin* 7, no. 4 (1960), 98–109.

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2. Donald Worster, *Nature's Economy: The Roots of Ecology* (Cambridge, UK: Cambridge University Press, 1995), 351–53, 361–63. Worster discusses influential popular books that presented an interdisciplinary approach of the new field of human ecology and informed the American public about the increasing impact humans were having on the environment, including Aldo Leopold, *A Sand County Almanac* (1949), Fairfield Osborn, *Our Plundered Planet* (1948), and William Vogt, *Road to Survival* (1948). He also examines the academic textbook by Eugene and Howard Odum, *Fundamentals of Ecology*, originally published in 1953 with second and third editions in 1959 and 1971, that were translated into twenty languages and described as having "done more to influence development in both teaching and research than any other single factor in the last thirty years" (quote, 362).

3. Worster, *Nature's Economy*, 387.

4. Rothman, *Greening of a Nation*, 15–20 (quote, 15).

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7. Trefethen, *American Crusade for Wildlife*, 256–66 (quote, 256).

8. Special Collection and University Archives, University of Oregon Libraries, "Guide to Douglas McKay Papers, 1925–1958," http://nwda.orbiscascade.org/ark:/80444/xv03770#historicalID; Trefethen, *American Crusade for Wildlife*, 257–58; John B. Oakes, "Conservation: Federal Program," *New York Times*," October 2, 1955, 29; Warren Unna, "Disposal of Part of Land is Assailed by Conservationists," *Washington Post and Times Herald*, January 13, 1956, 18; Drew Pearson, "Ike's Note Cited in Giveaway Charge," *Washington Post and Times Herald*, January 26, 1956, 59; Unna, "Republican 'Giveaways'; The Charges and the Facts," *Harpers*, May 1956, 29–35.

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17. Ibid., 88.

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21. Ibid., 148.

22. Ibid., 473 (1st quote), 475 (2d quote).

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27. Neil Loomis, *Combat Zoning: Military Land-Use Planning in Nevada* (Reno: University of Nevada Press, 1993), 16–17; House Committee, "Withdrawal of Public Lands," 1st Round, 171; Neil Murbarger, "Navy Landgrab in Nevada's Black Rock Country," *Desert Magazine*, October 1956, 4–10, http://mydesertmagazine.com/files/195610-DesertMagazine-1956-October.pdf.

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29. Murbarger, "Navy Landgrab in Nevada's Black Rock Country," 8.

30. Malone, "Withdrawals of Public Domain Lands for Public Purposes in the 11 Western States," 3917–18; Lee, "Getting and Using Land in Time of War," 90, 92–93.

31. Loomis, *Combat Zoning*, 16, 18–19, 20–23, 35.

32. "Armed Services Draw Brisk Volley for Advancing on Wild Life Areas," *Washington Post and Times Herald*, September 22, 1955, 1 (quote); "Wildlife Unit Acts to Save 28 Cranes," *New York Times*," September 22, 1955, 19; "AF Yields to Whoopers After Sally by Bird Lovers," *Washington Post and Times Herald*, October 15, 1955, 3. The exact number of Whooping Cranes listed in a year can differ depending on whether the census was taken in the Canadian summering or Texas wintering location. Further, the birds' nesting ground in Wood Buffalo Park, Alberta, Canada, was not discovered until June 1955.

33. In 1905, a loose organization of state-level Audubon groups joined to form the National Association of Audubon Societies, which initially focused on protecting waterbird populations and later expanded its efforts to conserve and restore habitat for all birds. National Audubon Society, "History of Audubon and Waterbird Conservation," http://birds.audubon.org/history-audubon-and-waterbird-conservation.

The National Wildlife Federation, originally the General Wildlife Federation, came into being as a result of the 1936 first North American Wildlife Conference in Washington, DC—a program conceived of by former head of the Bureau of Biological Survey, Jay N. "Ding" Darling, and promoted by President Franklin D. Roosevelt. After the conference, representatives of 36,000 organizations from across the country united to form what was first known as the General Wildlife Federation. National Wildlife Federation, "Creation of the National Wildlife Federation," http://www.nwf.org/Who-We-Are/History-and-Heritage/Creation-of-NWF.aspx.

Established in 1919, the National Parks Association was an independent advocate for the National Park System that operated outside the political system. In 1970, it became the National Parks and Conservation Association and in 2000 the National Parks Conservation Association. "The History of the National Parks Conservation Association," http://www.npca.org/about-us/history-and-values/npca-timeline.html; John C. Miles, *Guardians of the Parks: A History of the National Parks and Conservation Association* (Washington, DC: Taylor & Francis, 1995), 1–2, 237–41.

The American Nature Association, led by respected naturalist and storied nature photographer Arthur N. Pack and his father, Charles Lathrop Pack, a wealthy timber man turned conservation philanthropist in the early twentieth century (Charles Lathrop Pack Forestry Foundation), published *Nature Magazine* from 1923 to 1959 (absorbed by *Natural History* magazine in 1960), created documentary nature films, and educated small communities about local conservation issues. Arizona Sonora Desert Museum, "Arthur Pack," http://www.desertmuseum.org/books/scrapbook_p5.html.

The Natural Resources Council of America was founded in 1947, in part by C. R. Gutermuth, who also served as its secretary (1946–57) and chairman (1959–61), and other conservationists who acknowledged the need for a centralized organization for information sharing among conservation groups. As of 2010, it no longer had an active website or telephone at its Washington, DC, headquarters. Forest History Society, "Inventory of the Natural Resources of America Records, 1946–1981," http://www.foresthistory.org/ead/Natural_Resources_Council_of_America.html; Center for Media and Democracy, "SourceWatch: Natural Resources Council of America," http://www.sourcewatch.org/index.php?title=Natural_Resources_Council_of_America.

34. House Committee, "Withdrawal of Public Lands," 1st Round, 377–78; Unna, "Wildlife Service Critics Allege Lack of Results," 40; "Armed Services Draw Brisk Volley for Advancing on Wild Life Areas," 1; "Canada Protests U.S. Range Near Whooping Cranes," *Washington Post and Times Herald*, September 21, 1955, 1; "Wildlife Unit Acts to Save 28 Cranes," 19; "AF Yields to Whoopers after Sally by Bird Lovers," 3 (quote).

35. U.S. House of Representatives, Committee on Interior and Insular Affairs, "Military Public Land Withdrawals," 85th Cong., 1st sess., March 21, 1957, H. Rep. 215, 36 (hereafter House Committee Report 215).

36. House Committee, "Withdrawal of Public Lands," 1st Round, 50; House Committee Report 215, 13, 24–25 (quote, 25).

During the same time, pending military requests for additional land, including that in Alaska, totaled almost 8.7 million acres in June 1956. If the Department of the Interior had approved the new requests as customary, without issue, DOD landholdings would have amounted to more than 39 million acres, 25.6 of which would have been from the public domain, leaving the net acquisition of DOD land from January 1, 1954, to June 30, 1956, to total 4.2 million acres, or "7,622 acres per day, 317 acres per hour, or—more than 5 acres per minute every minute of the night and day for 547 days!" House Committee Report 215, 25–26 (quote, 26). The data presented to Congress did not detail any military land holdings in Hawaii or other U.S. territories other than Alaska.

37. House Committee, "Withdrawal of Public Lands," 1st Round, 2–4.

38. Stewart R. Cox, Chairman, Inyo Associates (a nonprofit organization created for developing California east of the Sierra Nevada) to Clair Engle, October 22, 1951; Alan H. Jacobs, Big Pine Civic Club, to Engle, October 19, 1951; Engle to Rear Adm. Joseph F. Jelley, Chief, Bureau of Yards and Docks, Department of the Navy, November 16, 1951; J. P. Hall, editor and owner, *California Mining Journal*, to Engle, March 25, 1952; Jelley to Engle, December 7, 1951; Rear Adm. W. L. Rees to Engle, August 9, 1954; Charles L. Gilmore, attorney for the National Parks Association, to Engle March 14, 1955; Robert Loundagin, district attorney for Inyo County, CA, to Engle, June 8, 1955, Papers of Clair Engle, manuscript 177, box 39, folder 9, Meriam Library Special Collections, California State University, Chico (hereafter Engle Papers); Harold J. Powers, California Lieutenant Governor, to Engle, February 9, 1956, with attached list of land owners protesting Navy land withdrawal, Engle Papers, box 39, folder 8.

39. House Committee, "Withdrawal of Public Lands," 1st Round, 1 (quote); Senate Committee on Interior and Insular Affairs, Report, "Military Public Land Withdrawals," 85th Cong., 1st sess., August 13, 1957, S. Rep. 857, 2 (hereafter Senate Committee Report 857); U.S. House of Representatives, Committee on Interior and Insular Affairs, "Providing that Withdrawals or Reservations of More Than 5,000 Acres of Public Lands of the United States for Certain Purposes Shall Not become Effective Until Approved by Act of Congress," 84th Cong., 2d sess., July 21, 1956, Report No. 2856, 6 (hereafter House Committee Report 2856).

40. House Committee Report 2856, 2, 36.

41. Stephen P. Sayles, "Clair Engle and the Politics of California Reclamation, 1943–1960" (PhD dissertation, University of New Mexico, 1978), 62 (quote), 301–7; Sayles, *Clair Engle: The Forging of a Public Servant: A Study of Sacramento Valley Politics, 1933–1944* (Chico, CA: Association for Northern California Records and Research, 1976), 1–20; Paul F. Healy, "Wildcat in Washington," *Saturday Evening Post*, March 12, 1955, 22, 23, 53, 55, 58, 60, 62; Special Collections, Merriam Library, California State University, Chico, "Collection Summary, Clair Engle Collection, MSS 177," http://opac.csuchico.edu/record=b1801963~S5.

42. Sayles, *Engle*, 2 (quote); Healy, "Wildcat in Washington," 22.

43. Healy, "Wildcat in Washington," 62 (quote); "Collection Summary, Clair Engle Collection," http://opac.csuchico.edu/record=b1801963~S5.

44. "Nod of Engle's Head Meant 'Aye,'" *Red Bluff Daily News*, June 11, 1964, Vertical Files, Clair Engle folder, Tehama County Free Library, Red Bluff, CA; Nick K. Kotz, *Judgment Days: Lyndon Baines Johnson, Martin Luther King, Jr., and the Laws that Changed America* (New York: Houghton Mifflin, 2005), 151.

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47. Kathleen Brosnan, "Politics, Personality, and Western Water," H-Environment, *H-Net Reviews*, April 2004, http://www.h-net.org/reviews/showrev.php?id=9235.

48. "Pioneer of the Conservation Movement," *Great Falls Tribune*, December 2, 2010, M1, http://www.greatfallstribune.com/multimedia/125newsmakers5/metcalf.html (quote); "Metcalf, Lee Warren," *Biographical Directory of the United States Congress*, http://bioguide.congress.gov/scripts/biodisplay.pl?index=m000671.

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50. House Committee, "Withdrawal of Public Lands," 1st Round; House Committee, "Withdrawal of Public Lands," 2d Round; House of Representatives, Committee on Interior and Insular Affairs, "Withdrawal and Utilization of the Public Lands of the United States," 85th Cong., 1st sess., January 23, 28, 29, 30, February 5, 6, 1956, 163–64 (hereafter House Committee, "Withdrawal of Public Lands," 3d Round).

51. House Committee Report 215, 30–31.

52. House Committee, "Withdrawal of Public Lands," 1st Round, 23–32, 39–42; House Committee Report 215, 30–31.

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63. "House Group Would Curb Military," *Washington Post and Times Herald*, July 11, 1956, 18 (1st quote); "Armed Forces Blasted for 'Illegal Hunting,'" *Washington Post and Times Herald*, July 3, 1956, 24 (2d quote); "Services to Punish Hunting Violators," *New York Times*, July 3, 1956, 27.

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67. House Committee, "Withdrawal of Public Lands," 2d Round, 83 (1st quote), 166 (2d quote).

68. Ibid., 167.

69. House Committee, "Withdrawal of Public Lands," 1st Round, 380.

70. House Committee, "Withdrawal of Public Lands," 2d Round, 275.

71. House Committee, "Withdrawal of Public Lands," 3d Round, 163–64.

72. Ibid., 89 (quote), 98, 164–85.

73. House Committee, "Withdrawal of Public Lands," 2d Round, 1–7. These bills included: H.R. 10362 by Wayne N. Aspinall (D-CO); H.R. 10384 by Walter E. Rogers (D-TX); H.R. 11001 by Lester R. Johnson (D-WI); 10380 by Gracie B. Pfost (D-ID); H.R. 10377 by Lee W. Metcalf (D-MT); H.R. 10366 by Edward L. "Bob" Bartlett (D-Territory of Alaska); H.R. 10372 by Antonio M. Fernández (D-NM); H.R. 10394 by John P. Saylor (R-PA); H.R. 10396 by Stewart L. Udall (D-AZ); H.R. 10548 by Clarence C. Young (R-NV); H.R. 10367 by Hamer H. Budge (R-ID); and H.R. 10725 by Samuel H. Coon (R-ID).

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8. Call, *Selling Air Power*, 143. Call expands on this idea: "But the emergence during the early fifties of the image of strategic nuclear bombing and SAC [Strategic Air Command] as the ultimate expression of air power wed the air power revolution to nuclear weapons to such an extent that support for air power meant support for nuclear warfare, while opposition to nuclear warfare increasingly meant opposition to air power" (p. 132).

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25. James N. Perkins to author, email, November 15, 2010, with attachment, "Relationship between Corey Ford and Jim Perkins, including bios, and Their Collaboration on the USAF Wildlife Conservation Project, Plus various anecdotes and asides" (quote) (hereafter Perkins email).

26. Corey Ford, "Is Alaska's Wildlife Doomed?" *Field and Stream*, February 1953, 32–33, 128–31, 141; Ford, "Is Alaska's Wildlife Doomed?" *Field and Stream*, March 1953, 40–42, 136–41; Ford, "Is Alaska's Wildlife Doomed?" *Field and Stream*, April 1953, 63–65, 143–47, 155–56. In developing this series, Ford formed a lasting friendship with Clarence Rhode, Alaskan regional director of the U.S. Fish and Wildlife Service, the man who had worked with General Twining to establish the Air Force's conservation program in Alaska in 1948.

27. Perkins email; James N. Perkins, interview by author, November 17, 2010, AFHSO (hereafter Perkins interview).

28. Perkins email.

29. Ibid.

30. Perkins interview.

31. "USAF JOINT MESSAGEFORM, DOD Form 173," December 27, 1956, approved

by Col. James Sherrill, executive officer to Gen. Thomas White, Ford Papers, box 4, folder 71; Perkins email.

32. Corey Ford and James N. Perkins, "Air Force Fish and Wildlife Conservation Program," memo, n.d. (ca. January 15, 1957), Ford Papers, box 4, folder 71.

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34. Joseph Mathewson, *Dartmouth Class of 1955 Newsletter*, March 2011; Perkins to author, email, March 11, 2011.

35. Perkins email. Although the exact timing of the Ford and Perkins meeting with the general is uncertain, White wrote Ford on January 3, 1957, thanking him for a book and expressing his appreciation for his work with the conservation program. It is possible that Ford met with White privately prior to the meeting Perkins references in the text. White to Ford, January 3, 1957 (quote), White Papers-Syracuse, box 6, folder: Corres., 1957 Jan.

36. Perkins email; *History of the Office of the Inspector General of the United States Air Force, 1 July–31 December 1957*, 29, AFHSO.

37. General White spoke on March 6. Ford memo for White, "Subject: Annual North American Wildlife Conference at Hotel Statler, Washington, DC, March 4, 5, 6, 1957," February 25, 1957, White Papers-Syracuse, box 10, folder: T. D. White Memoranda, 1957, Jan.–May.

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39. "Remarks by General Thomas D. White, Vice Chief of Staff, United States Air Force, Before the State Directors' Luncheon, North American Wildlife Conference, South American Room, Hotel Statler, Washington, Wednesday, March 6, 1957, 12:15 P.M.," Manuscript Collection 68–2086, box 54, folder: Gen. White's Statements, Jan–Dec 1957, Library of Congress (hereafter White Papers-LC). Perkins stated that he and Ford drafted White's speech and hoped to silence critics of military conservation programs. Perkins interview.

40. Ford to White, March 11, 1957, White Papers-Syracuse, box 6, folder: Corres.: 1957 March; White to Ford, March 13, 1957, White Papers-Syracuse, box 6, folder: Corres.: 1957 March.

41. "You Can Hunt on AF Bases," *Washington Post*, January 6, 1957, C7.

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2. *History of the Office of the Inspector General of the United States Air Force, 1 January–30 June 1957*, 36–40; *History of the Office of the Inspector General of the United States Air Force, 1 July–31 December 1957*, 29–33, AFHSO.

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6. *History of the Office of the Inspector General of the United States Air Force, 1 July–31 December 1956*, 4; *History of the Office of the Inspector General of the United States Air Force, 1 July–31 December 1957*, 30, 32, AFHSO.

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8. Seaman, *Silent Letters Released*, 109, 112–14 (quotes, 113); Seaman and VanDerSluys interview.

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13. *History of the Office of the Inspector General of the United States Air Force 1 July–31 December 1957*, 32; *History of the Office of the Inspector General of the United States Air Force 1 January–30 June 1958*, 41; *History of the Office of the Inspector General of the United States Air Force 1 January–30 June 1959*, 23–24, AFHSO.

14. *History of the Office of the Inspector General of the United States Air Force 1 January–30 June 1959*, 23; *History of the Office of the Inspector General of the United States Air Force 1 January–30 June 1960*, 32; *History of the Office of the Inspector General of the United States Air Force, 1 July–31 December 1960*, 24, AFHSO; U.S. Air Force, Air Force Regulation 125–5A, "Fish and Wildlife Conservation Program," August 16, 1960.

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18. *History of the Office of the Inspector General of the United States Air Force, 1 July–31 December 1959*, 19, AFHSO.

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42. Ibid., 141–45; Dan Ashe, U.S. Fish and Wildlife Service, "Testimony before the House Natural Resources Subcommittee on Insular Affairs, Oceans, and Wildlife Hearings on H.R. 5284, Sikes Act Amendments of 2010," May 25, 2010, http://www.doi.gov/ocl/hearings/111/HR5284_052510.cfm?renderforprint=1&.

Conclusion and Epilogue

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