



The U.S. Army Environmental History Project



An Army captain with the Army Center for Health Promotion and Preventative Medicine (CHPPM) reads gamma radiation levels near an overseas storage facility. She is a health physicist conducting an environmental health assessment at sites around Tbilisi, Georgia, used by the 10th Special Forces Group as part of an assistance program to the former Soviet republic.



This centralized vehicle washrack application (above), developed by a Corps of Engineers laboratory, sequesters contaminants to prevent them from entering the ecosystem. It is one example of how the Army has incorporated environmental protection and restoration into standing operating procedure.

The Army as Environmental Leader: Untold Stories

For more than 200 years soldiers and civilian personnel of the U.S. Army have been tasked to understand and manage the impacts of the Army's national defense and civil works missions on the natural environment. In facing complex challenges such as building and operating military installations, preventing shoreline erosion, and cleaning up the contaminant byproducts of defense industrial processes, the Army has often delivered technical and policy breakthroughs as an innovative environmental steward.

The history of Army problem-solving in the environmental and natural resources arena represents a little-known story of Army leadership that has had a continuing progressive impact on the nation. The Army Environmental History Project is the first comprehensive effort to document the untold stories of Army environmental discovery and stewardship. The project will operate as a collabora-

Cover Photo: *Virgin rain forest left untouched by development in the U.S.-administered Canal Zone served as an ideal training range for World War II "Bushmasters" preparing for combat in the Pacific Theater. The Canal Zone also hosted important Army medical research on tropical diseases through much of the 20th century.*

tion between interested Army organizations and the academic research community. The objective is to develop a body of military environmental history documentation of a quality level and scholarly rigor equivalent to any peer-reviewed historical journal.

The Army has been involved in natural resource conservation and stewardship since the earliest years of the republic. A huge volume of primary source material is available in various repositories, but no systematic attempt has ever been made to fill the many significant gaps in the published record and provide a unifying analysis of this under-reported chapter of Army history.

The Army Environmental History Project will administer and assemble a collection of original historical research ranging from post-revolutionary years through the end of the Cold War. Most of the research will be conducted by or in collaboration with the greater community of military and environmental historians, to include academia, independent researchers, and the historical press.

The following pages provide representative sketches of four historic themes that will be addressed and expanded in this project.

Army Environmental History Project Sustaining Organizations

Army Environmental Policy Institute (OASA(I&E))

U.S. Army Environmental Center

Headquarters, U.S. Army Corps of Engineers

U.S. Army Engineer Research and Development Center

U.S. Army Center for Health Promotion and Preventive Medicine

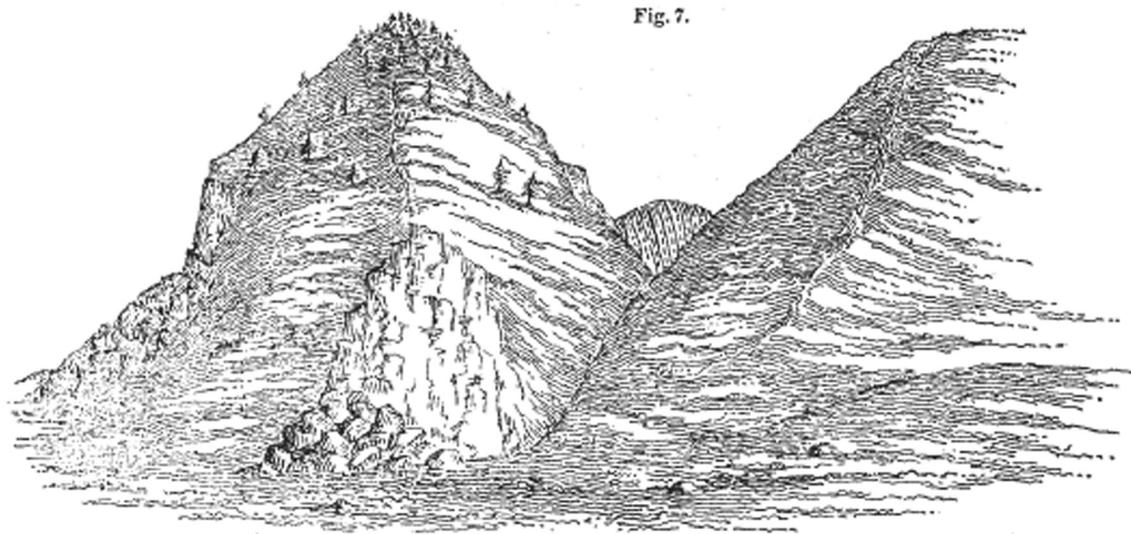


Fig. 7.

Cone Butte, nestled in the Judith Mountains of North Central Montana, was documented during Colonel William Ludlow's 1875 Yellowstone expedition.

Army Engineers: Naturalists of the U.S. Frontier

Ten years after Lewis and Clark first explored the vast interior lands annexed to the United States through the Louisiana Purchase, the mission of official discovery was assigned to the Corps of Engineers. In 1816 topographical officers were added to the ranks of the peacetime Army. These officers largely performed civil tasks as surveyors, explorers, and cartographers. During the 1840s, the Corps of Topographical Engineers supported rapid national expansion with ever-improving maps and natural resource surveys.

Not only did the Corps' 19th century explorations help to spur development of the nation's transportation infrastructure, it also led to preservation of some of the continent's most astonishing natural treasures. On an 1875 survey expedition to the newly established Yellowstone Park, Colonel William Ludlow was disgusted by "sacrilegious" plunder of buffalo herds and natural geological formations by opportunists and tourists. His resulting recommendations on preservation, security, and improvements were mostly adopted, and in 1883 the Congress assigned major administrative responsibility for Yellowstone to the Corps.



Who was this genial frontier gentleman and what was his role in Lieutenant G. K. Warren's 1857 expedition to Nebraska and Dakota for the Army Corps of Topographical Engineers?

The U.S Canal Zone: A Living Army Medical Lab

The monumental engineering of landforms that sculpted a trans-oceanic canal through the Isthmus of Panama provided an unexpected legacy: the preservation of large stretches of 'tropical paradise.' Little commercial development was permitted in the Canal Zone because virgin rain forests regulate the level of Gatun Lake, which provides the millions of gallons of fresh water needed for every ship transiting the locks. In the tropics, however, a pristine environment can be the engine of suffering and epidemics.

A survivor of yellow fever while serving in the Army Medical Corps at Fort Brown, Texas, Dr. William Gorgas took a strong personal interest in wiping out the fearsome disease. After successful eradication of yellow fever from Havana, Cuba, using the sanitation and epidemiology findings of Major Walter Reed and others, Gorgas was assigned in 1904 to do the same for the Isthmian Canal Commission. His efforts spared canal workers, U.S. security forces, and Panamanian citizens from the scourge of yellow fever.

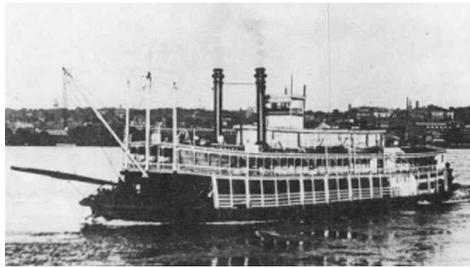
The huge troop influx during World War II brought major new health concerns to the Canal Zone, with malaria reaching epidemic proportions by mid-1942. Expansion of combat to the Southwest Pacific in 1943 created a sharp increase in the need for experts trained in tropical disease control and mitigation. The Army School of Malariology was established at Fort Clayton in 1944,

and its curriculum was instrumental in implementing the Army's successful malaria control program. As part of the Army Medical Research and Development Command, the school went on to be credited with the development of improved methods for diagnosing and treating tropical infectious and parasitic diseases.



A soldier might dream of serving in a virtual tropical paradise such as Fort Clayton (above), but malaria, dysentery, and respiratory infection contributed to a harsher reality. Thanks to the work of the Army Medical Corps, trainees such as these field artillery troops in the 1930s (below) did not have to worry about yellow fever.





Steamboats were powerful engines of 19th century U.S. economic growth, but an epidemic of dumping in rivers and harbors — especially on the Upper Mississippi — threatened commercial navigation.



Protecting U.S. Waterways from Dumpers and Polluters

In the 1870s, the Army's responsibility for U.S. waterways was expanded by Congress to include regulation of bridge construction over navigable waterways. With the concurrent explosion of urbanization and manufacturing, waterway dumping and contamination quickly rose to the attention of waterfront communities and the Corps of Engineers.

At the port of Pittsburgh in 1892 the Corps took a grand jury on a boat tour of the harbor and obtained some 50 indictments of firms dumping in the harbor. Engineers subsequently began night patrols in fast boats with searchlights to prevent illegal dumping.

In 1893 a citizen of an Ohio River city complained to the Corps that the city was dumping “household garbage, refuse of wholesale commission and slaughter houses, wagon loads of decaying melons, fruit and vegetables and carcasses of animals” into the river. The Corps worked to stop the dumping and forced the city to build a waste incinerator. Offenders were prosecuted for obstructing navigation, but to Corps personnel who lived near the waterways, water quality was an immediate, everyday concern.

After decades of debate and plugging legal loopholes, Congress passed the landmark Rivers and Harbors Act of 1899, which assigned the Corps authority to regulate navigation obstructions caused by industrial and municipal dumping.

In order to satisfy the ravenous demand for wood products during the 1870s urbanization boom, loggers sometimes floated loose timber down-river to mills, to the increasing peril of river traffic. Meanwhile, effluents from mills, slaughterhouses, and factories degraded the quality of life in waterfront communities.

By 1900, private-sector efforts to harness hydropower on the Upper Mississippi at Minneapolis had a ruinous effect on the scenic Falls of St. Anthony.



This American Robin is one of more than 300 different animal species observed at the Rocky Mountain Arsenal wildlife refuge. Bald eagles, mule deer, coyotes, and owls are just a few examples of the rich biodiversity located only 11 miles from Denver, Colorado. The reservation is managed in cooperation with the U.S. Fish and Wildlife Service.



Transforming Wasteland Into a Wildlife Refuge

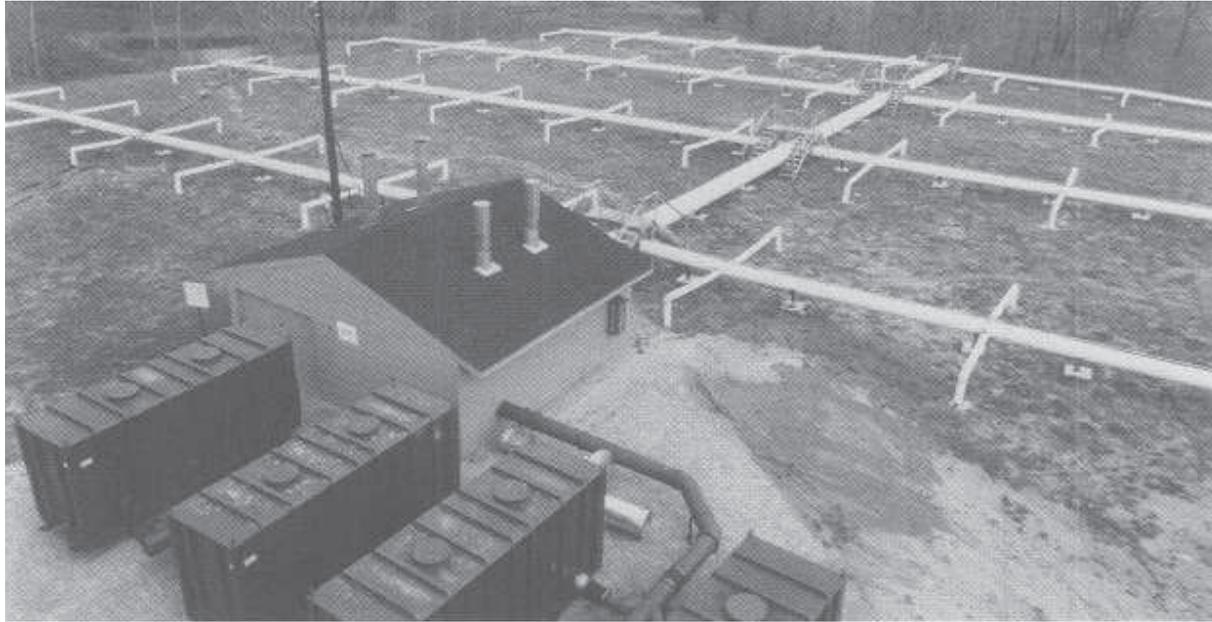
The Rocky Mountain Arsenal was established in 1942 to help the nation fight Axis aggression in World War II. While continuing to develop chemical weapons at the arsenal after the war to help meet the looming Soviet threat, the Army leased portions of the installation to private-sector partners for the production of agricultural pesticides in order to spur the Colorado economy and offset operational costs.

Production wastes generated at RMA were handled using widely accepted disposal practices. At the first indications in the mid-1950s that arsenal wastes might be polluting local groundwater, the arsenal commander asked the Omaha Engineer District to conduct a seminal groundwater contamination study. As contamination was confirmed, the Army developed the first known asphalt-lined waste evaporation pond. Subsequent contamination investigations by the Army and private-sector partners led to development of the Army's Installation Restoration Program.

Today the Rocky Mountain Arsenal no longer produces or stores chemicals. Its only mission is to finish effective site remediation and transition the property into one of the nation's largest urban wildlife refuges.



Rocky Mountain Arsenal workers crate mortars for shipment in 1946. Major arsenal activities over the years included the production of mustard gas, white phosphorus, and napalm.



This award-winning volatilization system in one year removed more than 100,000 pounds of dangerous organic compounds, such as the degreasing agent trichloroethylene, which contaminated groundwater around the Twin Cities Army Ammunition Plant, Minnesota.

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Information for Contributors

The products of the Army Environmental History Project will be articles, oral histories, and interpreted collections of images and other documents. These products will be disseminated primarily in the format of an online journal, but may also be published in academic journals or as government documents. Contributions to this body of work may be commissioned by the multi-agency project steering committee or submitted in response to a general open solicitation.

Project objectives, organization, and contributor guidelines are detailed in a project framework document. The project steering committee and editorial board will identify research priorities, but considerable flexibility will be exercised to accommodate the initiative of individual contributors where it enhances project objectives.

For more information about the Army Environmental History Project and a copy of the project framework, contact the managing editor, Dr. Susan I. Enscoe, at 217-352-6511 (ext. 7306), or email susan.i.enscoe@erdc.usace.army.mil.