DEPARTMENT OF DEFENSE
CULTURAL RESOURCE PROGRAM

# CULTURAL RESOURCES *UPDATE*

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## National Park Service to Propose Deaccessioning Regulation for Material Remains of Insufficient Archaeological Interest

*Article by David Gadsby, National Park Service*

An informal interagency working group, led by Terry Childs, Department of the Interior (DOI) Museum Program, and David Gadsby, National Park Service (NPS) Archaeology Program, has drafted an amendment to the archaeological collection management regulations at 36 C.F.R. 79 (*Curation of Federally-Owned and Administered Archaeological Collections*) to allow for the deaccessioning of certain items. Several of the Military Service subject matter experts, along with other Federal agencies, worked closely on the development of this proposed rule.

Items to be deaccessioned under the draft proposed rule must be archaeological material remains that are not human remains and have been determined not to be "cultural items" under the Native American Graves Protection and Repatriation Act. They must have been appropriately accessioned into United States Government collections, and must be determined by subject matter experts to be of "insufficient archaeological interest" to retain in a collection. The draft proposed rule identifies methods and procedures for making such a determination, for deaccessioning and disposing of those particular material remains, and for informing interested parties and the public of these actions.

The draft proposed rule includes a number of safeguards to ensure that deaccessions cannot be undertaken with undue ease. For instance, in order for a deaccession to go forward, the responsible Federal agency official must consult with a Collections Advisory Committee.

The Federal official must also publish detailed information about the proposed deaccession in the Federal Register, and must notify interested parties including SHPOs, THPOs, and interested universities. Members of the public may appeal deaccession decisions to DOI's Departmental Consulting Archaeologist; however, after considering all comments, it is the Federal agency that makes the final decision.

The draft proposed rule specifies that Federal employees must not appear to benefit personally in any way from an action to deaccession or dispose of archaeological material remains. Deaccessioned remains are not to be sold or traded as commercial goods.

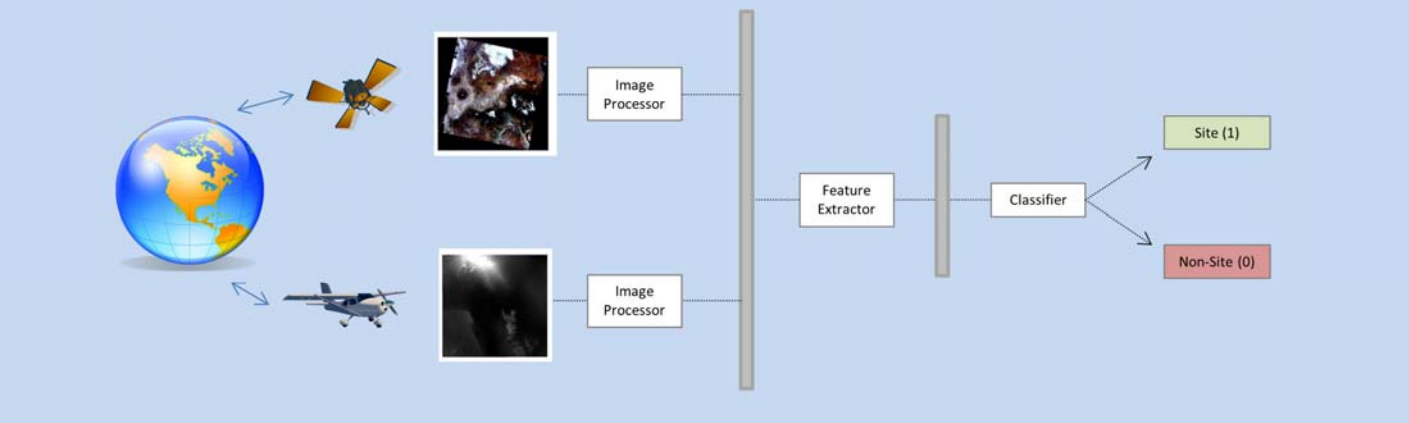
As of this writing, the proposed rule is going through an internal DOI review process. Once all DOI bureaus have approved it, NPS will submit the proposed rule to the OMB Office of Information and Regulatory Affairs (OIRA). After OIRA's review process is complete, the proposed rule will be published in the Federal Register. If you have questions, please contact David Gadsby in the Archaeology Program at the National Park Service at david_gadsby@nps.gov.

### INSIDE THIS ISSUE:

# Direct Detection Modeling: A Virtual Section 110 Decision Support Tool

*By Doug Comer, Principal, Cultural Site Research and Management, d.c.comer@gmail.com*

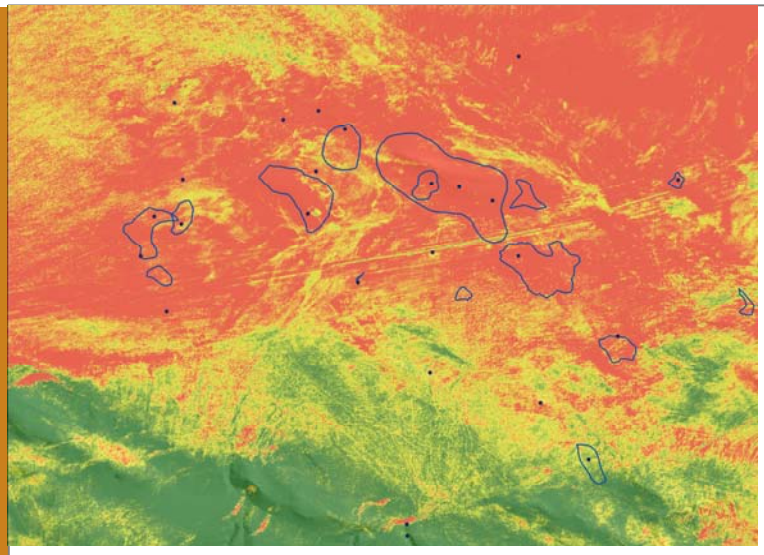
Direct Detection Modeling (DDM) is a new and exciting application of remote sensing technology to archaeological resource management and archaeological research developed by Cultural Site Research and Management (CSRM) in Baltimore, in collaboration with the Department of Applied Mathematics and Statistics at the Johns Hopkins University, the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center, and the NASA Jet Propulsion Laboratory at Caltech (JPL/NASA). DDM has been developed over several years with support from the Department of Defense (DoD) Strategic Environmental Research and Development Program (SERDP) and Legacy Resource Management Program, as well as from the NASA Space Archaeology Program and the National Center for Preservation Training and Technology. The most recent refinement and demonstration of DDM was sponsored by the Legacy Program, which included demonstration areas at Fort Irwin National Training Center and China Lake Naval Air Weapons Station in California.




*Schematic representation of the DDM process.*

High-resolution imaging sensors carried by aircraft and satellites are now producing "big data," capturing and recording the earth's surface in unprecedented detail. Sensors record electromagnetic radiation outside as well as inside the visible spectrum, which can be analyzed to provide information about environmental variables of many sorts, from soil and lithic composition, moisture content, geometric structure, and plant variety and health. DDM utilizes recent advances in statistical protocols (especially machine learning) to detect the often subtle changes in the environment that represent archaeological sites. DDM is highly flexible; it can utilize many types of data, including multispectral and hyperspectral, Lidar, and synthetic aperture radar (SAR).

Images generated by remotely sensed data are essentially data matrices, each pixel a cell of sensor returns. Using images as data matrices renders them suitable for statistical inference instead of more traditional visual identification approaches. Pixel values are selected from a number of securely identified archaeological and non-archaeological sites. These are classified through machine learning algorithms to form the threshold of probability that any given pixel in the entire image—images sometimes spanning hundreds of kilometers on the ground—also represents a given concentration of archaeological material. Signal returns are produced by environmental variables, such as subtle changes in soil chemistry, accumulation of humanly utilized surface materials, and differences in vegetative health. Statistical analysis of re-



DDM probability results with known sites and site boundaries from Fort Irwin superimposed. Red areas are high probability, yellow medium, green low.

turns produce reliable indicators of how significant and undisturbed archaeological materials are at various locations in the survey area. Those most significant and undisturbed are those most likely to be eligible for listing on the National Register of Historic Places.

In this way, DDM provides a virtual Section 110 survey. It classifies areas on the landscape into 1) those most likely to contain archaeological sites that are eligible for inclusion in the National Register of Historic Places; 2) those that contain archaeological sites that are much less likely to be eligible because of prior disturbance; and 3) those that are very unlikely to contain sites, or that contain sites that are largely obliterated. For planning purposes, the likelihood that any given area on an installation contains eligible archaeological sites can be calculated.

DDM differs fundamentally from Archaeological Predictive Models (APMs), which use theoretical assumptions and "best fit" tweaks to characterize ancient human settlement. APMs have been formulated for over fifty years, but consistently have been found to be unreliable planning and research tools. DDM is also not a way to produce visual enhancement of imagery that reveals the location of archaeological sites. Although there have been many notable successes with visual enhancement, it generally fails when dealing with nonstructural sites, by far the most common type in North America. In addition, visual enhancement is also problematic because it admits many false positives. In contrast to these approaches, DDM applies sophisticated statistical techniques to raw data taken directly from remote sensing instruments, preserving the full range of returned values for analysis.

Because DDM rapidly inventories large areas and provides evaluations based on concrete data, it supports decisions during planning in several ways. As a virtual Section 110, DDM can be used to identify areas where activities that might disturb the ground, from construction to certain types of military training, should be conducted. Standard 106 surveys in these areas can be carried out more quickly and inexpensively because very few archaeological sites are likely to be found, therefore there will be less need for the time consuming exercise of complete survey of sites, or the much more expensive subsurface testing that has traditionally accompanied evaluation of sites. By its nature, DDM requires no archaeological material collection to be a successful management planning tool and therefore saves curation time and expense. The cost of DDM varies depending on survey size, availability and suitability of data sets, and reliable sampling locations. DDM can also be used to establish true site boundaries, which are often very difficult to discern on the ground. As well, DDM can supplement the on-ground evaluation of site significance by corroborating observations made on the ground.

In summary, DDM provides a powerful decision support tool, a much more practical alternative to the very time-consuming and expensive Section 110 survey and evaluations. In fact, it places the objectives of Section 110, which have until now been unobtainable, within reach.

# Hawaiian Blessing Ceremony Inaugurates Fishpond Restoration Effort

*Article by Jeff Pantaleo, CRM, Archaeologist, NAVFAC Hawaii, EV2, jeff.pantaleo@navy.mil*

Members of local Hawaiian civic clubs, Aiea community members, and representatives from Naval Facilities Engineering Command, Hawaii, gathered at McGrew Point on September 29, for a ceremony to commence work on restoring the historic Pa`aiau fishpond. Fishponds were used to farm fish by the ancient Hawaiians using areas around the shoreline to enclose a feeding area for fish.

Navy Cultural Resources Manager, Jeff Pantaleo, spoke before the ceremony to describe the fishpond restoration project and its significance for the Navy. "The main focus is to educate keiki, kids, on how Hawaiians built these ponds and why. Basically, to see integration between the Navy and the community," Mr. Pantaleo explained.

Native Hawaiian cultural practitioner Shad Kane officiated the blessing and provided dozens of attendees with a lesson in the history of the native Hawaiians from the area of Aiea and McGrew Point. Several members of Hawaiian civic clubs presented traditional Hawaiian offerings called ho`okupu as part of the ceremony.

Commander Tom Lyons, Assistant Regional Engineer for Navy Region Hawaii, further emphasized the Navy's interest in restoring the fishpond, "This reinforces to me the importance this has, not only to the Navy, but to Hawaii. This is big for the military and our families. They get the chance to learn about Hawaii and pass that on."

Local Hawaiian contractor, Pono Pacific, will clear mangrove and other plant material from the area around the fishpond. Mr. Pantaleo elaborated, "It's going to take about three months to clear the area. Once the pond is exposed, we can assess the feasibility and level of work needed to restore it."

A picture showing the fishpond during the 1940s.

During the clearing process, archaeological and cultural monitors will be present to ensure that the pond walls are not impacted. Following clearing, the pond will be documented and a preservation plan will be prepared to ensure the pond will be preserved.

There were once 22 fishponds in Pearl Harbor, only three of which are still relatively intact. Of these three, the fishpond at McGrew Point is the most accessible.

## To Contribute to this Newsletter:

The DoD Cultural Resources Program welcomes information, news, briefs, announcements, photos, articles, suggestions, questions, etc. that relate to cultural resource activities on installations, within regions, or information that generally pertains to DoD and Military Service cultural resources endeavors.

**To contribute, email kelly.merrifield@colostate.edu**

# Evolution of Ceramics in Virginia

*Article by Catherine Roberts, Base Archaeologist, Quantico Marine Corps Base Quantico, catherine.roberts@usmc.mil*

Figure 1. Soapstone containers (Shaffer 2004).

One method that archaeologists use to distinguish between various cultural groups and the development of those groups is through diagnostic artifacts. The size, material, shape, and frequency of the artifacts can illustrate how technology was used to procure food and, in some cases, determine if there was ritual significance attached to the artifact. Ceramic sherds are one type of diagnostic artifact that can be used to distinguish cultural development patterns among prehistoric Native Americans. In Virginia, Marcey Creek was one early type of ceramic that was produced and used by Native Americans. These were vessels that were tempered with steatite (a type of soapstone rock) starting around 1000 BC (Early Woodland 1500-400 BC ) (Fidel 2004). These thick-walled, heavy containers with handle were used mainly for direct fire cooking.

By the early Woodland time period, there is an increase in the number of vessels found and a change of material used to make ceramics. Bushnell Ware was discovered along the Potomac River in Westmoreland County from the White Oak Point shell midden.

This change from using soapstone material to shell-tempered ceramics is an indicator that the native population may have been sharing ceramic technology with other Native American groups or they were looking to experiment with material that was more readily available and easier to mold into vessels.

Along the Chopawamsic Creek on Marine Corps Base Quantico, two sites were discovered during an archaeological survey to widen a main road through the base. The sites were seasonal campsites and carbon dates confirm that the area was in continuous use from 6000 BC until the mid-1300s.

The Chopawamsic Creek Site is the first prehistoric seasonal campsite where sherds of ceramic combine elements of Rappahannock Incised (a shell tempered ceramic) and Potomac Creek (crushed quartz tempered ceramic) pottery to form the Chopawamsic Incised ceramic type. This discovery supports the theory that Native Americans were sharing ceramic technology (Fidel 2004).

Figure 2. Early Woodland ceramic vessel (2004 Fidel).

Moreover, this new ceramic type suggests that the native population was growing and they were looking for production techniques that could utilize clay, shell, and quartz, materials that could be easily procured locally along the Potomac River. The quantity of artifacts discovered and the use of locally acquired material suggests that prehistoric Native Americans were transitioning from the small hunter/gatherer groups of the Archaic period (8000 -14000 BC) (Fidel 2004), to sedentary villages of the Woodland period.

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Ceramic technology can provide clues as to how a population changed over time. Native Americans were essentially hunter/gatherer groups during the Archaic period and would subside off of a meat diet with plants and fruit. The changing of ceramic type reflects a change in cooking methods, food type, and more permanent settlement patterns. The difference in ceramic material confirms the notion that changes in food procurement was due to population growth and the establishment of native American sedentary lifestyles that mark the transition from hunter/gather groups to more complex cultures.

**References**

Fidel, Stuart. 2004 *Phase I Cultural Resource Investigations Marine Corps Base Quantico.*
Shaffer, Gary D. 2003 *Antiquity* Vol 77 No 297.

## Information Request: Vietnam War Ground Combat Training Facilities

Susan Enscore works for the Corps of Engineers at the Engineer Research and Development Center, Construction Engineering Research Laboratory in Champaign, IL. She currently has a Legacy Resource Management Program project looking at the history of Ground Combat Training for the Vietnam War. Part of the effort is to identify and categorize the buildings, structures, and sites (including remnants on the surface or below ground) remaining on DoD installations that were constructed or adapted for ground combat training during the period 1962-1975 and directly related to this training mission. The project is only looking at what happened on stateside bases.

Do you have anything remaining of these facilities on your installation? Do you have an existing history of ground combat training on your installation? If you said yes to either of these questions, Susan would love to hear from you. Her contact information is as follows, e-mail address: susan.i.enscore@usace.army.mil and phone number: 217-373-4434. Thank you for contacting Susan if you have such resources or information that may be of assistance for the project.

## Seminars, Courses, And more

DoD Intro to Cultural Resource Mgmt Laws & Regulations Via Naval CECOS) San Diego, CA, January 13-15, 2015 and Norfolk, VA, May 5-7, 2015.
https://www.netc.navy.mil/centers/csfe/cecos/CourseDetail.aspx?CID=25

Department of Defense American Indian Cultural Communication and consultation Course
San Diego, CA,
December 9-11, 2014.
contact Chris Allen at
William.c.allen240.ctr@mail.mil.

ACHP Section 106 Training
For the Schedule , please see
www.achp.gov/106select.html

National Register of Historic Place's Webinars at
http://www.nps.gov/nr/publications/guidance/webinars.htm

National Preservation Institute's seminar listing at
www.npi.org/seminars

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# The Replacement of Windows in Historic Family Housing, Fort Belvoir, Virginia

*Article by Christopher Daniel, former Fort Belvoir CRM*

In June of 2014, U.S. Army Garrison Fort Belvoir executed a Memorandum of Agreement (MOA) that addressed the treatment of windows in its privatized historic housing. This MOA was the result of a four-year consultation process in which Fort Belvoir and its privatized housing partner, Fort Belvoir Residential Communities (FBRC), evaluated the replacement and/or rehabilitation of windows in Fort Belvoir's historic housing.

In 2012, FBRC and Fort Belvoir implemented a pilot study to rehabilitate the historic windows in one historic family housing unit to compare rehabilitation versus replacement using the following metrics: cost, construction time, energy conservation, sound attenuation, and lead-based paint. Fort Belvoir invited the Virginia State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) to participate in the review of the pilot study results as part of the windows treatment Section 106 consultation process.

The study found that window rehabilitation, including the installation of a storm window, and wood window replacement are equally energy efficient, aesthetically pleasing, safe, mechanically functional, and create an improved quality of life for Soldiers and their families residing in historic units. However, wood window replacements were found to be faster to install, easier to operate for the everyday user, and more economical with regard to estimated long-term maintenance after factoring in storm window maintenance for the rehabilitated windows. The findings were documented in a report produced jointly by Fort Belvoir and FBRC, with SHPO and ACHP input.

The study's duration was the time it took to replace or rehabilitate the pilot house windows. The long-term maintenance costs were not noted in the original report, and this was noted as a deficiency during the review process. FBRC and Belvoir, in consultation with its stakeholders, developed maintenance projections for both the replacement and rehabilitated windows to answer that critique. As part of the MOA, FBRC and Belvoir will revise the existing report to incorporate the new data and documentation of the maintenance projections.

After additional consultation meetings, Fort Belvoir elected to replace the historic wood windows in the majority of its housing units and to rehabilitate windows in a select portion of units. The rehabilitated units will showcase the different design types and styles indicative of each historic village, and create a meaningful and intact representation of the original windows.

The final MOA identified the units to be rehabilitated and mitigation projects for both the Fort Belvoir Historic District and for individual historic family housing units. These mitigation projects included an educational pamphlet for residents in historic units, historic markers, district street signage, a community center educational display, historic building plaques, and repairs to the National Register listed Belvoir Ruins Site.

The MOA also stipulated that Fort Belvoir will establish a Garrison Policy Memorandum for the treatment of historic wood windows in administrative buildings within the Fort Belvoir Historic District. The policy memo will help foster continued protection of existing historic windows and develop a culture of preservation in administrative spaces.

Fort Belvoir and FBRC have begun to implement the mitigations stipulated in the MOA. The first of these was a newspaper article published on July 3, 2014 in the *Belvoir Eagle* to provide awareness to the general public on the agreement and completion of the Section 106 process. Fort Belvoir and the FBRC plan to complete the replacement and rehabilitation process over the next 15 years, with implementation being completed in the next five years.

# The American Cultural Resources Association Quantifies the Cultural Resource Management Industry

*Article by Ian Burrows, RPA, Vice President, Government Relations, American Cultural Resources Association*

In the fall of 2012 the American Cultural Resource Association's (ACRA) Government Relations Committee quantified the number of cultural resource management (CRM) companies operating in the United States. About 1,300 CRM firms nationwide were invited to participate in a simple seven-question survey designed to establish the size of the industry and the number of people employed in it. Responses were received from 235 firms: an 18% response rate.

The results of the survey indicated that while a small number of CRM companies had revenues in excess of $10 million, almost a third of those responding reported revenues of $100,000 or less, and over half of the total had revenues of under $300,000. This remains an industry of small consulting firms.

Additional questions established the number of full-time employees working in CRM, and the proportion of those with higher degrees. Statistical analysis of the data by Michael Heilen of Statistical Research, Inc., enabled information to be extrapolated for the whole population of 1,300 companies. His analysis concluded that, as of early 2013, these 1,300 firms employed some 10,000 CRM professionals: archaeologists, architectural historians, historians, and architects. These firms generate work for an increasingly diverse group of other specialists and support staff, including engineers, planners, environmental scientists, cartographers and geographic information systems (GIS) specialists, information technology professionals, graphic artists, writers/editors, word processors/layout specialists, human resource professionals, accountants, and other administrative staff. Additionally, he concluded that these firms generated over $1 billion in revenue in calendar year 2012.

*Information on ACRA and the survey results can be found at www.acra-crm.org or by contacting Ian Burrows at iburrow@hunterresearch.com*

# Newly Available: Regional Analysis of Historic Farmstead Archaeological Site Characteristics on DoD Installations

*Abstract from Legacy project 12-508, Regional Analysis of Historic Farmstead Archaeological Site Characteristics on DoD Installations, by Susan I. Enscore, Carey L. Baxter, George W. Calfas, and Megan W. Tooker*

DoD is tasked with managing the cultural resources on its lands. For installations that contain large numbers of historic farmsteads, meeting these requirements through traditional archaeological approaches entails large investments of personnel time and organization capital. During a previous project, Fort Leonard Wood and Engineering Research and Development Center, Construction Engineering Research Laboratory (ERDC-CERL) cultural resource management personnel developed a methodology for efficiently identifying the best examples of historic farmstead sites, and also those sites that are least likely to be deemed eligible for listing on the National Register of Historic Places. The report, *Regional Analysis of Historic Farmstead Archaeological Site Characteristics on DoD Installations*, details testing the applicability of the Fort Leonard Wood methodology to another region of the country. The Southeastern United States provided a temporal depth different from the earlier Ozark regional application. A historic context and determination of the "typical" farmsteads of the Southeast were developed. The Eligibility Prescreening Form created by ERDC-CERL researchers was modified to reflect the archaeological patterns of the Southeast and then applied to test sites at Fort Bragg. The results of the fieldwork show this approach is applicable to the Southeastern region, and it can be used to quickly identify basic information about historic farmstead sites that can expedite determinations of eligibility to the National Register.

For the full context, please go to https://www.denix.osd.mil/cr/upload/Regional-Analysis-of-Historic-Farmstead-Archeological-Site-Characteristics-on-DoD-Installations-Report-Legacy-12-508.pdf

## Office of the Deputy Under Secretary of Defense for Installations and Environment
## Environment, Safety, and Occupational Health Directorate
## Cultural Resources Program

The Department of Defense maintains thousands of historic and cultural resources, which form an integral part of mission support and readiness. The Department's cultural resources are the Nation's heritage and the Department holds these assets in trust for all Americans. As stewards of the nation's largest inventory of Federally owned historic properties, DoD strives to maintain, promote, and interpret the resources it manages, both to support the mission and to preserve military heritage for future generations. Cultural resources are mission enhancing assets, connecting our fighting men and women with their proud history and traditions. The Department continues to use and maintain some of the nation's most prized cultural resources as an integral part of mission support and readiness.

The DoD historic property portfolio includes over 70 National Historic Landmarks, nearly 700 entries on the National Register of Historic Places, and over 19,000 individual historic properties, including over 16,700 known archaeological sites and 3,200 historic buildings. The majority of these resources are managed at the installation level by the Military Services, working closely with various stakeholders, including Indian tribes, State Historic Preservation Officers, and the Advisory Council on Historic Preservation. This ensures DoD's compliance with applicable Federal laws, Executive Orders, and regulations, while simultaneously supporting the Department's national defense mission.
Visit www.denix.osd.mil/cr/for more information.

## Office of the Deputy Under Secretary of Defense for Installations and Environment
## Environment, Safety, and Occupational Health Directorate
## Legacy Resource Management Program

The Legacy program was established by Congress in 1990 to provide financial assistance to DoD to preserve our natural and cultural heritage. The program assists the Department in protecting and enhancing resources while supporting military readiness. A Legacy project may involve regional ecosystem management initiatives, habitat restoration and enhancement efforts, invasive species control, economics of historic preservation, cultural resources data management, historic and prehistoric context development, archaeological resource detection and assessment models, asset stewardship, resource management solutions, or tools to improve consultation with American Indian and Alaska Native tribes.
Visit www.DoDLegacy.org for more information.

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