2026 Department of War

Environmental Awards

Cultural Resources Management – Large Installation
Holloman Air Force Base, New Mexico

Introduction

Holloman Air Force Base (Holloman), known as the Friendliest Place on Earth, is located in northwest Otero County, New Mexico, approximately seven miles southwest of Alamogordo, a community of just over 32,000 residents.

Holloman is home to the 49th Wing, which supports national security objectives through worldwide deployments in both peacetime and wartime contingencies. The wing trains F-16 Fighting Falcon pilots, MQ-9 Reaper pilots, sensor operators, and delivers Air Transportable Clinics and Basic Expeditionary Airfield Resources. In addition, the 49th Wing provides installation support across more than 51,813 acres to over 21,000 Active Duty, Guard, Reserve, retired personnel, and Department of War (DoW) civilians and their families.

The installation and surrounding region are widely recognized for White Sands National Park (WSNP), the Trinity Test of 1945, and is home to the well-preserved 8,200-year-old Gomolak Overlook archaeological site. Holloman is also home to the world's longest (10 miles) and fastest test track, capable of reaching approximately 10,000 feet per second (Mach 9).

Geographically, Holloman lies at an average elevation of 4,093 feet above mean sea level within the northern Chihuahuan Desert. The Tularosa Basin is bounded by the San Andres Mountains approximately 30 miles to the west and the Sacramento Mountains about 10 miles to the east. These mountain ranges rise abruptly to elevations between 7,000 and 12,000 feet, providing expansive 360-degree views. The region's climate is arid, with low annual rainfall and humidity, temperatures ranging from 29°F to 93°F, and a mean annual precipitation of 7.9 inches

Background

The Cultural Resources Management (CRM) program was established at Holloman in the 1970s following the enactment of the National Historic Preservation Act (NHPA) of 1966, which requires federal agencies to identify, evaluate, and consider effects to historic properties on federally managed lands. In compliance with the NHPA, Holloman conducts systematic inventory, evaluation, and management of its cultural resources.

The CRM program balances mission execution with protecting cultural and historical heritage across 74,049 acres, including 51,813 acres of main base, 6,983 acres of the Boles Wells Water System Annex (BWWSA) in Otero County, 153 acres of the Bonito Pipeline and reservoir in Lincoln and Otero Counties, and approximately 15,100 acres of Weapons Impact Areas (WIA) in Socorro, Lincoln, and Otero Counties managed under Air Force (AF) use agreements.

The program preserves resources documenting human activity from the Paleoindian period (approximately 10,000–6,000 BC) through the Cold War period from 1945 to 1991. Managed resources include 14 historic structures, 425 archaeological sites on Holloman-managed lands, and 484 archaeological sites co-managed with the U.S. Army on White Sands Missile Range (WSMR) and Fort Bliss. Of these, 187 sites are eligible for listing on the National Register of Historic Places (NRHP), representing thousands of years of human occupation and military innovation. The historical sites found on Holloman are an irreplaceable part of the nation's heritage and tell the story of the people who inhabited the Tularosa Basin for thousands of years.

Stewardship activities follow the Secretary of the Interior's Standards for the Treatment of Historic Properties as required by the NHPA which ensures compliance with all applicable federal cultural resource laws and regulations. Program planning is guided by Holloman's Integrated Cultural Resources Management Plan (ICRMP), most recently updated in 2022, with the next five-year revision scheduled for 2027. The program is staffed by a CRM Program Manager with over 20 years of experience. The manager works in close collaboration with the Installation Tribal Liaison Officer (ITLO) to ensure effective government-to-government consultation, mission sustainment, and regulatory compliance.

Cold War Missile-Tracking Tower
Early Cold War cinetheodolite missile-tracking tower. These structures were built to track missiles during the early phases of the post WWII period.

Accomplishments

Unearthing Gomolak Overlook: An 8,200-year-old Discovery

In 2024, radiocarbon dating and Optically Stimulated Luminescence results confirmed that Archeologists on Holloman had made a remarkable discovery that has completely reshaped previous knowledge on the earliest inhabitants in New Mexico's Tularosa Basin. Desert environments of the American Southwest often lack deeply buried archaeological deposits due to the erosive nature of arid ecosystems. Prior to 2023, lands managed by Holloman were believed to reflect this pattern, with most prehistoric archaeological materials occurring on or near the surface. The discovery of Gomolak Overlook (LA 202921) has fundamentally altered this understanding of prehistoric occupation on the installation.

Radiocarbon dating indicates that Gomolak Overlook dates back to approximately 8,200 years ago, placing it within the poorly understood and sparsely documented Early

Holocene period of New Mexico prehistory. This Early Holocene occupation represents a critical phase in human history, marked by significant environmental change and corresponding shifts in available floral and faunal resources. Protected for 8,200 years under a blanket of gypsum soil, Gomolak Overlook is the best-preserved archaeological site of its time in southern New Mexico. Unlike two other comparable but heavily eroded sites located at WSNP and WSMR, Gomolak Overlook's deeply buried nature has preserved the integrity of the entire site, offering a unique and rare window into the past.

Archaeologists made the discovery after finding a prehistoric groundstone artifact in an eroding roadcut. After the initial discovery, subsequent investigation led to the identification of two prehistoric hearth features exposed along the margins of the same roadcut. Samples were collected from the intact hearth features and from the overlying soils. Radiocarbon dating of charcoal recovered from the hearths, combined with Optically Stimulated Luminescence (OSL) dating of the overlying sediments, confirmed an Early Holocene occupation and demonstrated that the soils burying the site were deposited approximately 2,500–6,000 years ago.

Because the archaeological deposits at Gomolak Overlook are deeply buried, a combination of non-invasive geophysical techniques, including Ground Penetrating Radar (GPR) and magnetometry, was employed to map subsurface features across the site. Traditional archaeological methods, including one-by-one-meter test units, were used to ground-truth the geophysical results. The integration of these approaches allowed CRM staff to effectively "see" beneath the gypsum soils and gain critical insight into the extent and integrity of buried archaeological deposits beneath the sunbaked surface.

Archaeologist in Action
Top: CRM, Matthew Cuba, exposing an 8,200-year-old hearth feature at Gomolak Overlook. Bottom: Natural Resources Manager, Spencer Robison (L), and CRM, Matthew Cuba (R), recording an archaeological site.

Geomorphological Work: Uncovering Gomolak Overlook

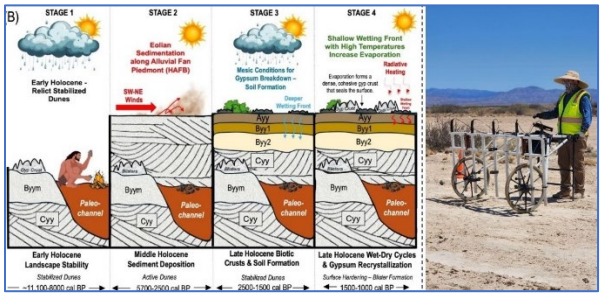
The discovery of Gomolak Overlook in a deeply buried setting required Holloman CRM program to rapidly adapt to the presence of a previously unknown archaeological deposit. The identification of a well-preserved site located approximately two meters beneath the modern ground surface was unexpected and necessitated the development of new approaches for inventorying and assessing archaeological resources across the installation. The initial step in this effort was securing funding for a geomorphological assessment to characterize the soils overlying the archaeological deposits and to map those soils throughout Holloman.

A timeline for the Gomolak Overlook site was established using multiple independent dating techniques, including radiocarbon dating of buried campfire remains and gypsum crusts, as well as optical dating of sediments.

Analyses of sediments, soils, and gypsum crusts revealed how natural processes, such as dune movement, soil development, and surface stabilization, buried and preserved archaeological materials over time, increasing confidence in site interpretation and guiding management decisions about where additional buried sites may occur nearby. The team also used chemical signatures in gypsum crusts to reconstruct long-term environmental changes. This analysis documented shifts in vegetation and moisture sources from the Late Ice Age to the present, providing critical environmental context for the archaeological record.

A comprehensive project was then undertaken to describe, date, and map the soils of northern Holloman. This geomorphological study was designed to provide the CRM program with a detailed map of the geographic extent of soils overlying the Early Holocene landscape, as well as to establish the timing and processes of soil formation and deposition. The results produced an exceptionally detailed depositional model for large portions of the installation. This model was then incorporated into a predictive model framework to support NHPA compliance in a manner that is both efficient and cost-effective. The predictive model allows for focused subsurface identification efforts during the NHPA process. It delineates "High Probability" zones, primarily areas near large drainages, which constitute about 30% of the installation. This targeted approach precludes the need for significant and expensive subsurface work across the remaining 70% of the base, leading to substantial cost and labor savings.

The geomorphological investigation also highlighted the unique geological setting upon which Holloman was constructed. The installation lies within a depositional environment influenced by sediments eroding from the Sacramento Mountains to the east and from the Pleistocene-age lake beds to the west. These combined processes have created a substantial, layered sequence of soils that effectively mask early archaeological occupations. Such depositional conditions are largely absent elsewhere in southern New Mexico and throughout the Tularosa Basin, making Holloman unique in its potential to preserve deeply buried archaeological sites.



Gomolak Overlook Formation Model and Investigation
Left: Holloman CRM's site formation model for Gomolak Overlook. Right: Matthew Evans with New South Associates performing a Magnetometer Scan.

Tribal Relations in Action

Effective Tribal relations extend well beyond statutorily required consultation and notification processes. Building and sustaining meaningful relationships is essential to protecting the long-term mission viability of a military installation, and Holloman takes this responsibility seriously.

New Mexico is home to 23 federally recognized tribes, and Holloman routinely engages with the Mescalero Apache Tribe due to its close geographic proximity and the direct intersection between tribal lands and installation operations. Mescalero Apache lands lie beneath significant portions of Special Use Airspace used daily by Holloman for F-16 pilot training. These operations inherently expose tribal communities to elevated levels of aircraft noise within an otherwise pristine alpine environment, underscoring the importance of proactive, respectful, and sustained engagement.

Recognizing this, Holloman has built and maintains a strong, enduring relationship with the Mescalero Apache Tribe. Relationship-building occurs at multiple levels across the Installation. At the senior leadership level, this engagement includes annually hosting tribal leaders for guided installation tours, mission briefings, and roundtable partnership

discussions. Equally important are the day-to-day interactions at the unit level, where meaningful collaboration is cultivated.

A notable example is the 29th Attack Squadron, an MQ-9 training unit, which has developed a reciprocal adoption relationship with the Mescalero Apache Tribe. This partnership is deeply rooted: the squadron's patch was designed by a tribal member and is worn proudly by every squadron member, and the unit's Honorary Squadron Commander is always a tribal member. These connections reflect a relationship built on trust, respect, and shared identity rather than formality alone.

The strength and value of this relationship became especially evident in June 2024, when a major forest fire swept across Mescalero Apache lands, followed by severe flooding. Drawing on over a decade of established trust, the tribe relied on support from Holloman personnel, who responded voluntarily without a formal Defense Support of Civil Authorities (DSCA) request. A team of 20 volunteers from the 29th Attack Squadron dedicated 129 man-hours of their personal time to provide emergency supplies and services for 8,000 displaced southern New Mexico residents, all while ensuring mission requirements remained unaffected. This voluntary effort earned praise from Governor Michelle Lujan Grisham, who acknowledged Holloman's significant support during the recovery.

In 2025, the 29th Attack Squadron led the large-scale volunteer operation for Ruidoso flood relief, coordinating 90 volunteers from Holloman and Fort Bliss to fill and distribute 1,500 sandbags, 70 bags of clothing, and rescue 500,000 fish for the local hatchery, restoring the region and earning praise from New Mexico State Representatives and press for the AF across four national news outlets.

Engagement with the Mescalero Apache Tribe extends beyond a single unit. Organizations across the installation actively seek opportunities to support the tribe. For example, when furnishings in an unaccompanied housing dormitory reached their mandated replacement age, yet remained in excellent condition, the Dorm Management team identified a legal pathway to donate the furniture to the Mescalero Apache Tribe rather than dispose of it. This effort further strengthened the relationship between the installation and its closest tribal neighbors.

29th Attack Squadron Support in Time of Need
Volunteer operation for Ruidoso flood relief, from Holloman and Fort Bliss for the Mescalero Apache Tribe.

While Holloman's primary tribal engagement is with the Mescalero Apache Tribe due to proximity, the installation also participates in broader regional initiatives. The 49th Wing Deputy Commander and the ITLO attended a meeting of the All Pueblos Council of Governors, where they provided critical communications information to leaders from 20 pueblos across New Mexico and Texas. During this meeting, the ITLO shared a key lesson: tribes should build relationships with installation ITLOs for consistent communication, as they provide continuity that frequently changing installation leadership cannot.

41,000 Acres of Discovery

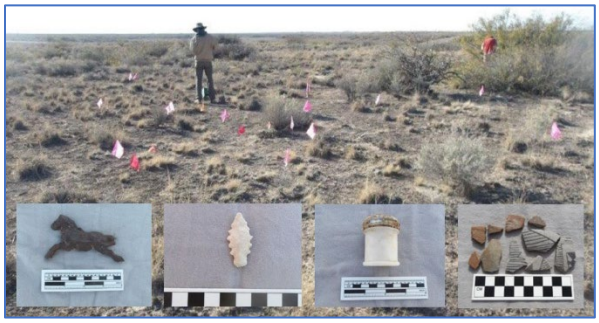
Holloman secured $2.8M in funding to conduct a large-scale pedestrian survey of approximately 41,000 acres across northern Holloman and adjacent lands managed by WSMR in advance of planned AF projects in early 2024. The effort consisted of a 100% surface survey and resulted in documentation of more than 250 archaeological sites and over 75 historic structures and features representing the historic built environment. This undertaking represents one of the largest

archaeological surveys conducted in the Tularosa Basin to date. The 41,000-acre survey accomplished goals highlighted in the installation's ICRMP by surveying areas that had not been surveyed since the 1980s and 1990s as well as reevaluating previously recorded sites to obtain New Mexico SHPO concurrence on eligibility determinations.

The team completed the survey well in advance of proposed AF projects on both Holloman and WSMR-managed lands. Successful execution required extensive interservice coordination between the installations to ensure site access and to facilitate collaborative review. Representatives from both agencies were provided opportunities to comment on survey findings and to participate in the evaluation of cultural resources identified on WSMR-managed lands.

Archaeological resources recorded during the survey span over 10,000 years of human occupation from the Paleoindian period to the Cold War. The archaeological sites encountered during the survey included artifacts from the earliest occupants of North America to artifacts and buildings associated with the earliest forays into space. Holloman retains a diverse assemblage of archaeological and historical sites including historic sites and buildings associated with the Holloman High Speed Test Track. The High-Speed Test Track was the location of many early tests for studying ejection seats and missile development, and it continues to test and evaluate new technologies today.

Beyond compliance, the 41,000-acre survey provided a significant opportunity to leverage archaeological data to support soil mapping and landscape-scale analysis. Surveying such a large area and by mapping the locations of artifacts from specific time periods enabled the identification of prehistoric occupations from multiple periods across the modern ground surface. By mapping the geographic extent of these ancient soils, the CRM program can continually refine its predictive models for finding other masked archaeological sites. These improvements support more precise and defensible determinations of the level of archaeological investigation required for future mission projects, thereby ensuring both effective cultural resource stewardship and continued mission success.



Artifacts and Archaeologists
The 41,000-acre survey found artifacts relating to early 1900s. Archaeologists recording a site can be seen in the background.

Outreach Beyond the Fence: Engaging Communities & Scholars

Public outreach presents unique challenges on military-controlled lands, where public access to archaeological sites and cultural resources is limited. Despite these constraints, Holloman CRM program have successfully established partnerships with a wide range of organizations and individuals, enabling meaningful public engagement with the stewardship work conducted by the AF at Holloman.

In the spring of 2024, the Holloman Public Affairs Office announced the discovery of Gomolak Overlook, which generated substantial public interest and became the most significant outreach effort, reaching an estimated global audience of 1.24B people. The news was covered in 30 states and 24 countries. As part of this effort, Holloman CRM staff participated in 12 television and radio interviews, and numerous articles featuring the discovery were published on websites such as Newsweek, MSN, and Fox News. This widespread international media coverage provided an unprecedented opportunity for the public to learn about the archaeological resources located on Holloman

and to better understand the care and management practices employed by the Air Force. This collaboration showcased the AF's commitment to responsible stewardship of the cultural resources entrusted to its care and demonstrated how Holloman successfully balances the stewardship of world-class archaeological resources with ongoing mission readiness.

In addition to public-facing media outreach, Holloman CRM has developed strong partnerships with academic institutions and researchers to support collaborative research and the dissemination of findings through peer-reviewed scientific journal articles and book chapters. Research topics have ranged from Paleoindian occupation in the American Southwest to gypsum dust composition and Early Holocene archaeological sites. These interdisciplinary collaborations have produced outcomes that directly support and enhance Holloman's mission. Partner institutions include the University of Arizona, the University of South Dakota, and researchers associated with the Mammoth Site near Hot Springs, South Dakota. The results of these collaborations and investigations were curated in accordance with 36 Code of Federal Regulations (CFR) 79, *Curation of Federally Owned or Administered Archeological Collections*, and will be available to future resource managers and archaeologists.

Outreach efforts have also been directed toward the broader Holloman and local community. The CRM program delivered presentations in Alamogordo, New Mexico, sharing findings from Gomolak Overlook in settings that ranged from formal lectures to civic group meetings. Staff also collaborated with local students on mural projects downtown. These murals, which depict both the earliest days of Holloman and the discovery of Gomolak Overlook, were unveiled in July 2025 and incorporated into a downtown revitalization effort, further strengthening community connections and public appreciation of the region's cultural heritage.

Magnificent Mural on Mainstreet
Mural depicting Gomolak Overlook and what life may have been like in the Tularosa Basin 8,200 years ago.

Mission-Ready Cultural Stewardship & Compliance

During the achievement period, Holloman's CRM completed a substantial volume of compliance and coordination activities in support of AF mission requirements. These efforts included cultural resource reviews for 137 AF Form 332s (project environmental reviews), 189 construction dig permits, 59 AF Form 813s (request for Environmental Impact Analysis), and 19 reviews of WSMR projects to prevent potential cross-boundary impacts to Holloman's mission.

Through close coordination with stakeholders across Holloman and neighboring Department of War installations, established cultural resource protocols were followed and NHPA compliance was achieved. This approach has allowed mission needs and overall mission readiness to proceed without delay.

Effective coordination with both internal and external stakeholders - including Holloman personnel, WSMR range staff, and SHPO representatives - has been essential to achieving these outcomes. The successful results realized by Holloman CRM reflect the cooperation, communication, and support provided by leadership and stakeholders at all levels.