U.S. Department of the Interior
Bureau of Land Management

Preserve America Report

Historic Preservation Activities for Fiscal Years 2020–2022

October 2023



By the Division of Education, Cultural, and Paleontological Resources (HQ-420)



Mission statement

The Bureau of Land Management sustains the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Cover Photo
Yaquina Head Lighthouse and Work Room,
Yaquina Head Outstanding Natural Area, Oregon

Suggested citation:
BLM. 2023. Preserve America Report: Historic Preservation Activities for Fiscal Years 2020–2022. U.S. Department of the Interior, Bureau of Land Management, Division of Education, Cultural, and Paleontological Resources, Grand Junction, Colorado.

Disclaimer:
The mention of company names, trade names, or commercial products does not constitute endorsement or recommendation for use by the Federal Government.

Production services provided by:
Bureau of Land Management
National Operations Center Information and Publishing Services Section
P.O. Box 25047
Denver, CO 80225

Table of Contents

List of Figures ii
List of Tables iii
Executive Summary 1
Introduction 2
The BLM Organization 2
Cultural Heritage Program Overview 2
Staffing Resources 3
The BLM Cultural Heritage Program Budget 4
Budget Accountability 4
Reporting on Management Activities 5
Data Management 6
Cultural Resources Data Coordination and Sharing 6
Historic Structures and the Federal Real Property Profile 7
Museum Collections 8
Identifying Historic Properties: Inventory and Survey 9
  Examples of Identification Efforts 10
Protecting Historic Properties 16
  Examples of Protecting Historic Properties 16
Using Historic Properties 26
Examples of Using Historic Properties 26
Final Thoughts 33

List of Figures

Figure 1. The National Cultural Resources Information Management System web interface. 7
Figure 2. View of the west portal of the Buck Rock Tunnel. 11
Figure 3. A sample of the stylistically diverse panels visited during Phase I of the Canyon Pintado archaeological assessment study. 12
Figure 4. Completed excavation of a Chinese Railroad worker structure in the town of Terrace, uncovered during the May 2021 Passport in Time project. The structure is thought to have been a dugout house. The structure showed signs of burning on the floorboards. 13
Figure 5. Trail segment along the El Camino Real de Tierra Adentro National Historic Trail, facing southeast. This portion of the trail is obvious due to the break in vegetation of mesquite and creosote. 13
Figure 6. Fort Yuma Quechan Indian Tribal members work as field survey crew on a cultural site. . . . 14
Figure 7. BLM employees ready their inflatable kayaks before floating down the Atigun River in the Brooks Range to monitor known archaeological sites. 16

Figure 8. A wildlife biologist looks at an indigenous hunting blind that would have been used to hunt caribou in the Atigun River Valley. 16
Figure 9. 3D models of trapezoidal anthropomorphs at Calpet. (Top) High accuracy 3D photogrammetric model from 2021. (Bottom) Low accuracy 3D photogrammetric model from photos taken during 1987 recordation of the site. 18
Figure 10. A 3D photogrammetric model of Hĕ'-kōn. 19
Figure 11. Members of the Zuni Tribe help preserve a Great Kiva constructed in the 11th century by their ancestors within what is now Canyons of the Ancients National Monument. 19
Figure 12. Punta Gorda oil house and light station after treatment. 20
Figure 13. Before (top) and after (bottom) photos of application of adobe to the walls at Terrenate. 21
Figure 14. Drill hole grouping #1 before (left) and after (right) restoration. 22
Figure 15. Work Room walls after the lead paint removal. 22
Figure 16. Work Room ceiling after lead paint removal and sanding, during painting. 23
Figure 17. Before photo illustrating dilapidated condition of Watson Cabin in 2009. 23
Figure 18. Volunteers work on restoring the roofing and chinking of Watson Cabin. 24
Figure 19. Removal of original sheet metal roof of the School House by personnel from Cornerstones. 24
Figure 20. Volunteers from Cornerstones Community Partnerships reconstruct the northern most corner of the Kiel House while others reapply exterior stucco. 25
Figure 21. West side of the Mercantile (building front) before (top) and after (bottom) the project. Bottom photo courtesy of Ron Stewart, Friends of the San Pedro River. 26
Figure 22. An aerial view of the Mule Canyon site with vehicles in the loop. 28
Figure 23. A snapshot of the Pony Express Story Map. 28
Figure 24. Over 21,000 petroglyphs have been recorded at Three Rivers. This photo faces north along the petroglyph trail, which follows a basalt ridge in the Tularosa Basin. 29
Figure 25. A Yuma Field Office archaeologist talks about the Yellow Dog Mine structure in one of the videos. 29
Figure 26. Interpretive panel for néewe (Lolo Creek). 30
Figure 27. Crews shovel and sift dirt at the remains of the Engages quarters of Fort Benton. 31
Figure 28. Mount Garfield Middle School students listen to Tribal representatives discuss Ute ties to the land and cultural sensitivity. 32
Figure 29. A still image excerpted from the Lovelock Cave educational video. 33
Figure 30. New Agents of Discovery missions available at Las Cienegas National Conservation Area and San Pedro Riparian National Conservation Area. 33

List of Tables

Table 1. Summary of Activities 1
Table 2. Summary of Appropriated Funding for Cultural Resources Management 4
Table 3. Cultural Heritage Program Performance Metrics for FY 2020–2022 5
Table 4. Cultural Heritage Program Workload Measures (Performance Elements) 5
Table 5. Program Accomplishments Funded by the Cultural Heritage Program 5
Table 6. Program Accomplishments Funded by the National Monuments Program 5
Table 7. BLM Historic Structures and Properties Reported 8
Table 8. Summary of Literature Reviews, Undertakings Requiring Inventory, Acres Inventoried, Sites Discovered, and Permits in Effect 9
Table 9. List of BLM Historic Properties Placed on the National Register of Historic Places During the Reporting Period 26

Executive Summary

Section 3(c) of Executive Order 13287—Preserve America (2003), requires federal agencies to complete reports every three years that document progress in identifying, protecting, and using historic properties in its ownership. The Bureau of Land Management (BLM) prepares these reports for the Secretary of the Interior and the Advisory Council on Historic Preservation (ACHP). This report represents the BLM's eighth submission and covers fiscal years (FY) 2020, 2021, and 2022.

The BLM manages more than 245 million acres of public land—more than any federal agency—most of which is located in 11 western states and Alaska. The BLM also administers 700 million acres of subsurface mineral estate throughout the nation. The mission of the BLM is to sustain the health, diversity, and productivity of public lands for the use and enjoyment of future generations. The BLM is responsible for managing public lands for a variety of uses such as energy development, livestock grazing, recreation, and timber harvesting while ensuring natural, cultural, and historic resources are maintained for present and future use. The BLM's cultural resource management program addresses identification, protection, and use of historic properties in a manner consistent with the BLM's multiple-use mission.

The 2023 Preserve America Report provides updated information on BLM activities (Table 1) that fall under Sections 106 (54 U.S.C. § 306108) and 110 (54 U.S.C. § 306101–306114) of the National Historic Preservation Act (NHPA), as well as other related statutes. Highlights of this report include the extension and implementation of the 2012 national Programmatic Agreement between the BLM, the ACHP, and the National Conference of State Historic Preservation Offices (NCSHPO). Eleven BLM state offices also completed and utilized protocol agreements with their respective State Historic Preservation Offices in Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Wyoming.

Table 1. Summary of Activities

Activity	FY 2020	FY 2021	FY 2022	Average
Number of NHPA Section 106 Undertakings	8,440	8,506	7,580	8,175
Acres Surveyed for Historic Properties	659,234	680,173	656,621	665,343
Total Number of Inventory Projects (Class I, II, or III)	2,850	1,717	1,696	2,088
For Section 106 Undertakings	2,439/86%	1,432/83%	1,500/88%	1,790/86%
For Section 110 Comprehensive Program Work	411/14%	285/17%	196/12%	297/14%
Cultural Resources Recorded	7,842	8,703	7,256	7,934
Properties Listed in the National Register of Historic Properties (NRHP)	50	11	12	24
Properties Determined NRHP Eligible	2,191	3,062	2,604	2,619
Properties determined not NRHP Eligible	5,005	6,112	7,198	6,105
Properties Protected	6,047	4,323	4,268	4,879
Properties Monitored	4,712	4,177	3,600	4,163
Properties Where Potential Adverse Effects Were Avoided	1,934	1,753	2,809	2,165

Moreover, the BLM continues to build partnerships with other federal, state, and Tribal agencies and nongovernmental organizations to protect resources, engage youth, and provide economic development opportunities, especially by way of heritage tourism and co-stewardship. Through site stewardship and Respect and Protect programs, the BLM provides opportunities for the public to be a part of the protection of cultural resources on public lands. The BLM appreciates the opportunity to provide this update on its Cultural Heritage Program through the Preserve America report.

Introduction

The 2023 Preserve America Report presents the status of the BLM's efforts to identify, protect, and use historic properties on public lands. The report responds to questions and prompts in the 2023 ACHP Guidelines for Section 3 reports.

This report provides a general overview about the BLM and its Cultural Heritage Program, characterizes cultural resources under BLM management, and summarizes bureau staffing and budget. The main body of the report is organized into three sections: Identifying Historic Properties, Protecting Historic Properties, and Using Historic Properties. Each section includes relevant statistics and case studies from the field that illustrate the successes, opportunities, and challenges associated with work accomplished on BLM-administered lands.

The BLM Organization

The BLM is a multiple-use land management agency with the mission to sustain the health, diversity, and productivity of public lands for the use and enjoyment of present and future generations. The BLM is an agency within the U.S. Department of the Interior that was established in 1946 with the merging of the U.S. Grazing Service with the General Land Office. The Federal Land Policy and Management Act of 1976 (FLPMA) mandates the BLM manage resources on these public lands for a variety of uses, such as energy development, livestock grazing, recreation, and timber harvesting, while protecting a wide array of natural, cultural, and historical resources.

Today, the BLM manages over 245 million acres, most of which are in the 11 western states and Alaska, and over 700 million acres of subsurface mineral estate throughout the nation. The BLM is a tiered organization with 12 state offices, under which there are district and field offices. In 2020, BLM Headquarters (HQ) program leadership moved from Washington D.C., primarily to BLM state offices, bringing them closer to the resources that they manage and encouraging delegation of decision-making authority to the field, and the HQ Division of Education, Cultural, and Paleontological Resources (HQ-420) was formed. It currently includes specialists overseeing cultural and paleontological resources, as well as education, youth, and volunteer programs. The HQ-420 Cultural Heritage Program staff were initially located at the BLM New Mexico State Office. In 2022, a second reorganization recalled much of the BLM leadership back to Washington, D.C., however, a "Western Headquarters" office was maintained in Grand Junction, Colorado. The HQ-420 division is now stationed at this location in Colorado.

Cultural Heritage Program Overview

Cultural resources managed by the BLM represent all major periods, events, and communities in the broad extent of human activity in the western United States over many millennia. The BLM manages these resources consistent with federal laws and regulations, ensuring cultural, educational, aesthetic, inspirational, and scientific values are preserved, and that recreational and economic benefits are realized for today's communities as well as future generations.

The BLM is responsible for the largest, most diverse, and scientifically important aggregation of cultural and historical resources on public lands, as well as the museum collections and data associated with these heritage resources. The Cultural Heritage Program coordinates compliance with the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act, and FLPMA, among other statutes addressing management of the nation's cultural heritage. FLPMA provides, "the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, will preserve and protect certain public lands in the natural condition…" This includes the identification and management of cultural resources. The BLM 8100 manual series is the primary source for policy and procedure guiding compliance with federal laws, regulations, and orders pertinent to cultural resources.

The Cultural Heritage Program provides expertise and capabilities to facilitate compliance with Section 106 of the NHPA, which requires the BLM to consider the effects of its actions on historic properties, and avoid, minimize, or mitigate adverse effects. Annually, the BLM reviews an estimated 8,250 land use proposals for energy development, mining, recreation, vegetation restoration, grazing, and other activities for potential effects on properties listed, or eligible for listing on, the National Register of Historic Places.

The BLM's national Programmatic Agreement with the ACHP and the NCSHPO is a critical mechanism for achieving efficiencies in the NHPA Section 106 review process. The tools and processes developed by the Cultural Heritage Program also streamline compliance processes, providing flexibility and cost savings for the BLM and its users.

Staffing Resources

BLM state directors, district managers, and field managers are responsible for primary operational compliance with the NHPA, advised by professional staff. Each BLM state office employs a Cultural Program Lead, or Deputy Preservation Officer, with one or more archaeologists in district and field offices. The BLM has 209 permanent, professional series archaeology positions within the organization. At the end of FY 2022, 54 of these positions were vacant. This small number of employees tasked with managing cultural resources across the BLM's vast acreage results in an average responsibility of 1.2 million acres of public land per cultural specialist. The focus of the BLM's management of cultural resources is directed toward NHPA Section 106 compliance review, on-the-ground inventory, monitoring, and stabilization of archaeological sites and historic properties. Most cultural resource work that occurs outside the statuary requirements of NHPA Section 106 is

accomplished through cost-share partnerships with state, local, Tribal, educational, and nonprofit organizations. NHPA Section 106 compliance work includes reviewing reports for federal undertakings related to various industry applications (e.g., oil, gas, coal, or bentonite extraction, or wind or solar development). The BLM also conducts work for in-house projects such as water guzzlers for the wildlife program, range improvements for grazing leases, gathers of wild horses, and maintenance of recreation sites and campgrounds. Cultural resource management reports are produced primarily by archaeological consultants. Over the reporting period, the BLM received and processed 1,275 applications for permits for archaeological investigation; most of these are for compliance activities, though some are for research work. BLM permits in effect averaged 693 for the FY 2020–2022 period, while permits under which work was conducted averaged 420. These statistics are consistent with the FY 2017–2019 reporting period.

The BLM Cultural Resources Management Budget

The BLM employs a benefitting subactivity model to fund all aspects of Cultural Heritage Program work. Bureau actions implemented for the purpose of monitoring or stabilizing the condition of cultural sites, conducting NAGRPA compliance, performing ARPA investigations, or managing museum collections are supported with funds from the Cultural Resources Management subactivity. Bureau authorizations initiated by other program areas such as oil and gas leasing, infrastructure projects, and grazing permit renewals fund identification, evaluation, and resolution of adverse effects on historic properties necessary for completion of the NHPA Section 106 process with funds specifically assigned to those functions. The BLM's accounting system does not enable reliable calculation of the cost for completing NHPA Section 106 work where program areas outside the Cultural Heritage Program initiate the action.

Appropriations for management actions initiated by the Cultural Heritage Program are available and are apportioned to the BLM through the Land Resources Activity, under Cultural Resources Management.

Table 2. Summary of Appropriated Funding for the Cultural Heritage Program

Fiscal Year	2020	2021	2022
Enacted Budget	$18,631,000	$19,631,000	$20,053,000

The BLM Cultural Heritage Program implements multiple streamlining mechanisms that introduce time and cost savings into the NHPA Section 106 compliance process for BLM programs and land use proponents. These innovative tools and alternative processes support NHPA Section 106 compliance and overall BLM objectives. Program support includes implementation of the national Programmatic Agreement for compliance with the NHPA. This national agreement establishes a framework for developing protocols between the BLM and State Historic Preservation Offices. Protocols establish expedited consultation procedures for grazing permits renewals, timber harvest, fuels reduction, and other types of land use authorizations. Collectively, protocols also identify dozens of authorizations that do not require the BLM to conduct case-by-case, NHPA Section 106 consultation.

Budget Accountability

Through the distribution of funds for Cultural Heritage Program activities, including NHPA Section 110 actions, the BLM identifies and reviews budget accomplishments to ensure compliance with program directives and appropriate funding usage.

The Department of the Interior Strategic Plan for Fiscal Years 2018–2022 tracked protection of cultural and heritage resources under Mission Area 1: Conserving Our Land and Water. The BLM reported on three performance goals: tracking the condition of archaeological sites, historic structures, and museum collections (Table 3).

Table 3. Cultural Heritage Program Performance Metrics for FY 2020–2022

Performance Measure	FY 2020	FY 2021	FY 2022
Percentage of Archaeological Sites in Good Condition	95%	95%	88%
Percentage of Historic Structures in Good Condition	48%	48%	48%
Percentage of Museum Collections in Good Condition	82%	81%	81%

The BLM uses an activity-based system for collecting data on labor and operation costs, through a combination of the Federal Business Management System, which manages financial data, and the Performance Data Management System, which manages units of accomplishment. Activities conducted by the BLM are assigned a program code and workload measure to record the cost of work activities and outputs, and to connect costs to strategic goals and performance goals. Workload measures are summarized in Tables 4, 5, and 6. The COVID-19 pandemic had an impact on all priority workload performance in FY 2020 and 2021 but was particularly significant on the education and outreach workload during this reporting cycle.

Table 4. Cultural Heritage Program Workload Measures (Performance Elements)

Workload Measure	Metric
Heritage Resources Education and Outreach	Number of Presentations or Educational Products
Acres Inventoried for Heritage Resources	Number of Acres
Heritage Resources Intensively Recorded, Evaluated, and Studied	Number of Sites
Heritage Resources Stabilized, Managed, and Protected	Number of Sites
Historic Structures Managed	Number of Structures
Heritage Resources Monitored	Number of Sites

Table 5. Program Accomplishments Funded by the Cultural Heritage Program

Workload Measure	FY 2020	FY 2021	FY 2022
Heritage Education & Outreach	711	563	2,718
Acres Inventoried for Heritage Resources	68,353	115,380	106,193
Heritage Resources Intensively Recorded, Evaluated, and Studied	1,902	581	2,623
Heritage Resources Stabilized, Managed, and Protected	5,161	7,401	183
Historic Structures Managed	93	100	98
Heritage Resources Monitored	3,150	3,436	3,301

Table 6. Program Accomplishments Funded by the National Monuments Program

Workload Measure	FY 2020	FY 2021	FY 2022
Heritage Education & Outreach	6,948	10,574	5,375
Acres Inventoried for Heritage Resources	13,619	4,195	2,627
Heritage Resources Intensively Recorded, Evaluated, and Studied	153	127	74
Heritage Resources Stabilized, Managed, and Protected	63	79	48
Historic Structures Managed	35	22	18
Heritage Resources Monitored	434	577	676

Reporting on Management Activities

The Cultural Heritage Program shares information on activities annually through reports, including reports to Congress on the federal archaeology program (collated by the National Park Service); reports to State Historic Preservation Officers produced under state protocols; reports delivered to the ACHP to fulfill the terms of the BLM's national Programmatic Agreement; annual BLM public lands statistics reports; the Department of the Interior Performance and Accountability reports; annual interagency reports on the National Trails System; and the collectible and non-collectible heritage assets portion of the BLM financial statement. These reports typically contain statistics about inventory, evaluation, data recovery, permits, law enforcement activities, education and outreach, and Tribal consultation. In addition, other reports discuss the BLM's museum collections, the status of trails (e.g., changes in length, protection, and monitoring of sites and segments), budget information, and changes in the BLM's land base. The information in these reports typically goes to BLM management, to the Department of the Interior, and often to Congress or other entities interested in how the government uses its funding.

Data Management

Cultural Resources Data Coordination and Sharing

The BLM's 25-year data sharing partnership with western State Historic Preservation Offices, known as the Cultural Resource Data Partnership (CRDP) has been on hiatus since spring 2022 due to the vacancy of the coordinator's position. All CRDP data representatives volunteer at the request of their state's deputy preservation officer, in addition to their normal duties.

Over its 25-year history, the CRDP has made data available to scholars, consultants, agencies, and Tribes, by supporting the development of State Historic Preservation Office (SHPO) databases and online systems. Through the partnership, the BLM has provided over $8,000,000 in financial support to SHPOs. The BLM data representatives in each state work with SHPO staff to manage the exchange system and consistently share Geographic Information System (GIS) shapefiles, geodatabases, and other cultural resource information among offices.

Since 2018, the BLM has been using the National Cultural Resource Management Data Standard. This schema, known as the National Cultural Resources Information Management System (NCRIMS), establishes standardized data fields that BLM states are required to populate. NCRIMS constitutes a significant step forward in BLM data management. The goals of the NCRIMS data standard are to introduce efficiencies into the BLM's project review process and land use planning. The availability of more broadly accessible cultural resources data includes the ability to, (1) aid large-scale landscape level analyses, (2) enable predictive modeling, (3) enhance the BLM's response to emergency situations, (4) improve the accuracy of project budgets, and (5) enable national level access to key program metrics.

NCRIMS is populated from a variety of data sources. In some cases, data are uploaded directly from BLM maintained geodatabases and in others, data are derived from SHPOs or other state-managed geodatabases.

NCRIMS data are currently only accessible to BLM Cultural Heritage Program employees but can be exported for use by contractors and partners as appropriate. In its current state, The NCRIMS Data Standard is accessible via an online web application maintained by the BLM National Operations Center (Figure 1).

In addition to the NCRIMS geodatabase, individual BLM offices maintain a variety of databases for tracking information about the NHPA Section 106 process, site conditions, museum collections, and other data pertinent to cultural site management. Offices also maintain hard copy site records, photographs, maps, and reports, many of which are being digitized and added to the NCRIMS database to improve accessibility.

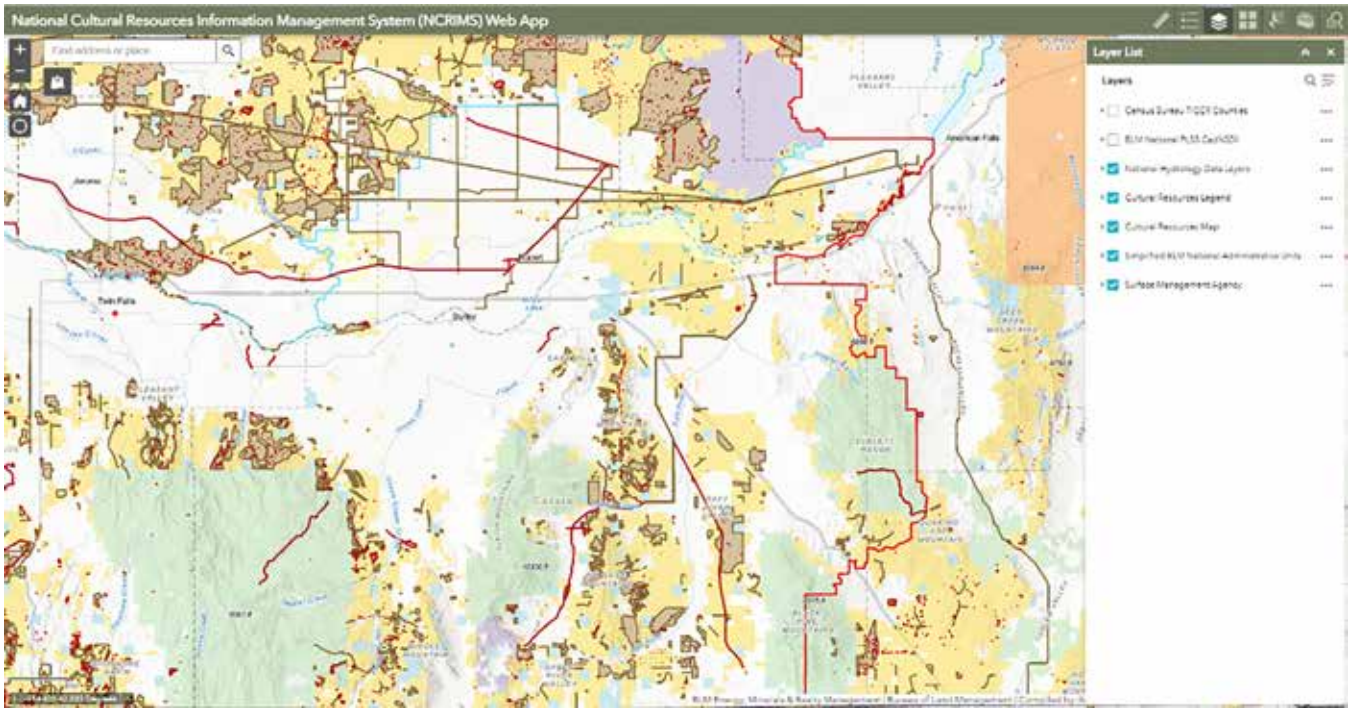


Figure 1. The National Cultural Resources Information Management System web interface.

In the last several years, the BLM has made significant strides with implementing, refining, and populating NCRIMS. In FY 2022, Arizona, Wyoming, and Oregon successfully implemented new enterprise geodatabases based on the National Cultural Resource Management Data Standard, cleaning up legacy data along the way. The Montana SHPO's office constructed a tool to crosswalk and export data from their geospatial system into the NCRIMS schema; this project was completed with contracting and financial assistance from the BLM. Multiple states have been digitizing and rectifying data to incorporate into NCRIMS, through contracts and by utilizing partnerships such as the Ancestral Lands Conservation Corps and Conservation Legacy. Moving forward, the BLM will continue to assess the standard, fine-tune the schema, and update the data in concert with our SHPO partners.

Historic Structures and the Federal Real Property Profile

BLM reporting for historic structures on public lands is based on combined data from the Federal Real Property Profile (FRPP) and records maintained by the Cultural Heritage Program. Real property managed by the BLM is reported in the FRPP Asset Management System (database), consistent with Executive Order 13327 "Federal Real Property Asset Management". Data reported to the FRPP Asset Management System is determined by the BLM engineering program, which establishes criteria for inclusion in the database. Because not all historic structures maintained by the BLM meet these criteria, not all 409 structures managed by the BLM as of the end of the FY 2022 reporting period are listed in the FRPP Asset Management System.

To supplement FRPP data, the BLM Cultural Heritage Program maintains a list of historic structures that can be cross referenced with the FRPP. The list includes historic period structures on which maintenance dollars have been spent, and maintains fields such as site name, site type (structure and district), condition (good, fair, poor, unknown), determination of National Register of Historic Places eligibility, jurisdictional location, and locational information (latitude and longitude).

Table 7 shows the number of historic structures reported by BLM for the years FY 2020–2022. A structure may be removed from the list for a variety of reasons that include: a determination that the structure is not historic or that the structure was destroyed by wildfire, for example. Historic structures are added to the list, as appropriate, when they are newly identified.

Table 7. BLM Historic Structures and Properties Reported

State Office	FY 2020	FY 2021	FY 2022
Alaska	22	20	20
Arizona	47	47	47
California	52	49	49
Colorado	61	60	62
Eastern States	3	3	3
Idaho	64	63	64
Montana (including South Dakota and North Dakota)	37	37	37
Nevada	31	31	31
New Mexico (including Oklahoma, Texas, and Kansas)	4	4	4
Oregon/Washington	39	40	40
Utah	12	11	11
Wyoming	40	41	41

Museum Collections

The BLM oversees collections of more than 12 million culturally and historically significant artifacts recovered from public lands. These collections are primarily derived from research projects and regulatory compliance work for proposed land-use activities, and are managed in three BLM repositories, two National Park Service repositories, and about 165 non-federal museum and university repositories. The BLM's goals for these collections are to preserve artifacts for the benefit of future generations, to document them to provide access and inventory accountability, and to provide opportunities for researchers and the public to enjoy and use the collections.

The BLM repositories are each unique and were developed to accommodate a specific regional need. The focus of Canyons of the Ancients Visitor Center and Museum in Dolores, Colorado is Ancestral Puebloan, Native American, and historic cultures in the Four Corners region. The Billings Curation Center, located within the BLM Montana/Dakotas State Office in Billings, Montana, curates collections

from Montana and the Dakotas. The National Historic Oregon Trail Interpretive Center in Baker City, Oregon houses collections related to the Oregon Trail migration story, preservation of the National Historic Trail, topics of early settlement and mining, and the Native American interface with emigrants and early settlers along the trail route.

Many artifacts from public lands are housed in non-federal repositories because of the permitting requirements under the Antiquities Act and ARPA. The BLM typically does not maintain internal facilities for managing collections; nonfederal museums and universities with the requisite expertise and capacity typically manage collections. These partnerships have the added benefit of facilitating public access to collections. As of FY 2022, about 7.5 million objects recovered from BLM lands are housed in nonfederal repositories. Over 3 million objects within BLM collections have been inventoried. Progress to improve inventory levels is continually made by repository staff through use of grants, agreements, and contracts.

Identifying Historic Properties: Inventory and Survey

As of FY 2022, the BLM has surveyed approximately 29 million acres (12 percent of BLM surface lands) for historic properties, with an average of 99,163 acres surveyed annually from FY 2020 through FY 2022. As in previous years, most inventory work was funded by land use applicants and performed by one of the more than 698 consultants permitted by the BLM (Table 8). The BLM has recorded more than 24,084 cultural sites on BLM-administered surface lands during the past three reporting years.

Table 8. Summary of Literature Reviews, Undertakings Requiring Inventory, Acres Inventoried, Sites Discovered, and Permits in Effect

	FY 2020	FY 2021	FY 2022
Literature Reviews	6,645	6,154	5,622
Undertakings with Inventories	3,588	3,047	3,033
Acres Inventoried (BLM Lands)	557,363	592,330	589,144
Acres Inventoried (Non-BLM Lands)	101,871	87,843	107,774
New Sites Recorded (BLM Lands)	7,842	8,703	7,539
New Sites Recorded (Non-BLM Lands)	1,249	1,091	1,593
Total Cultural Resource Use Permits in Effect	698	683	698

The BLM recorded and designated 7,358 historic properties during the reporting period, bringing the total number of historic properties on BLM lands to approximately 63,822. This figure represents roughly 14 percent of the total number of cultural resources documented on BLM lands to date[1]. During the reporting period, the BLM added six historic properties to the National Register of Historic Places, representing eleven individual properties and contributing properties (i.e., sites, buildings, and structures) within National Register districts. Most historic cultural resources are recorded during NHPA Section 106 compliance field work. These activities include applicant-sponsored oil and gas wells and associated infrastructure such as pipelines and roads, wind turbines, mining activities for coal, bentonite, gravel and other extractive industries, transmission lines, and telecommunications facilities and arrays. Other work is associated with in-house projects, such as recreation developments like campgrounds, projects associated with grazing and range management, and wildland fire and vegetation management efforts.

BLM states typically require all cultural resources within an area of potential effect to be evaluated under the National Register of Historic Places criteria for evaluation at 36 CFR part 60; however, sometimes sites are left unevaluated. During the reporting timeframe, approximately 5,559 sites were left unevaluated.

[1] As of FY 2022, slightly more than 456,000 cultural resource sites have been documented on BLM lands. Of these, 63,822 sites are listed on the National Register of Historic Places as individual properties or contributing elements within districts, have been determined eligible for the National Register through consensus determinations between the BLM and a SHPO, or have been determined eligible by the Keeper of the National Register.

Examples of Identification Efforts

Examples of cultural resource identification efforts that occurred during the reporting period follow. These projects were promoted by the BLM field office that sought funding to complete the project, either through BLM funds or through partnerships with federal, state, Tribal, educational, or nonprofit entities.

New Technology Helps Us Understand the History of Chinese Oregonian Miners (Oregon)



Figure 2. View of the west portal of the Buck Rock Tunnel.

Chinese immigrants played an essential role in the settlement of eastern Oregon, but their stories were rarely documented in written form. Their history is often hidden in abandoned mine shafts and lost gold mining camps scattered across public and private lands. The BLM Vale District National Historic Oregon Trail Interpretive Center is working hard to preserve and share their history, with help from partner organizations.

The Southern Oregon University archaeology program worked closely with Vale and Medford District staff to collect and share information about the history of mining and settlement in eastern Oregon. Archaeologists with the Oregon Chinese Diaspora Project are working alongside the BLM, the U.S. Forest Service, and other agencies to proactively collect and inventory data from culturally significant mine sites. Work between 2020 and 2022 included a pedestrian survey and use of handheld LiDAR to map historic features at the Buck Rock Tunnel, Kwang Tuang Terrace, and Wolf Creek Tunnel sites.

The Buck Rock Tunnel Project, as part of the Oregon Chinese Diaspora Project and Southern Oregon Chinese Archaeology Project, won the 2020 Oregon Heritage Excellence Award and the 2021 BLM Heritage Hero Award. With other recipients, the project also received the 2022 Award of Excellence from the American Association for State and Local History.

Archaeological Reassessment of Rock Images in Canyon Pintado National Historic District: Phase 1 (Colorado)

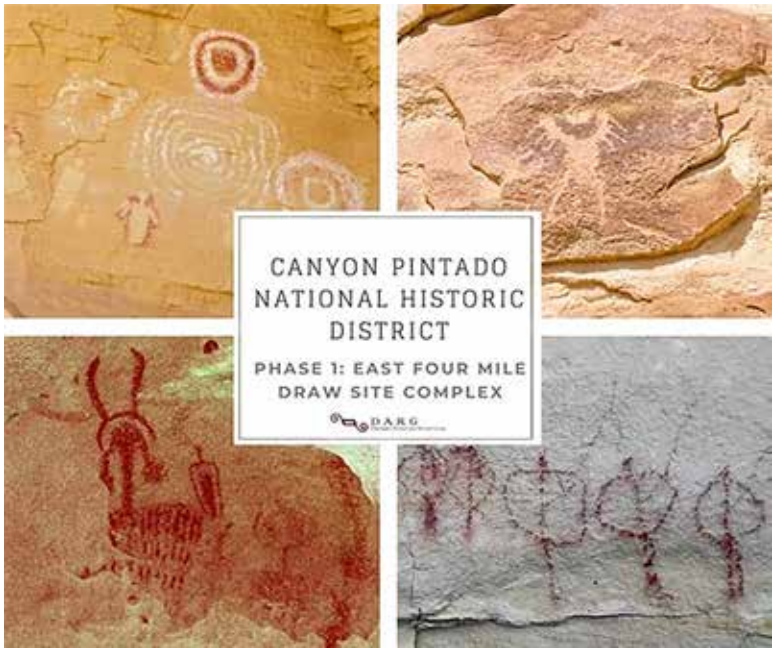


Figure 3. A sample of the stylistically diverse panels visited during Phase I of the Canyon Pintado archaeological assessment study.

Archaeologists and technical specialists organized by the Dominquez Archaeological Research Group partnered with the BLM to revisit 12 high-value pictograph and petroglyph sites. These sites are in Colorado's Bridge-Cow Canyon area of the Canyon Pintado National Historic District, managed by the White River Field Office. The team used advanced, high-resolution digital imaging and computational image processing techniques to intensively document the sites. Project data is currently being organized for review, assessment, and curation by Tribal, BLM, and professional research partners. This work aims to establish new baseline recording protocols and photographic documentation standards. Selected digital products will be shared with education partners. The project leverages collaborative relationships among professional, Tribal, and cultural preservation partners. It also encourages coalitions to promote public archaeology, site stewardship, historic preservation, and heritage tourism in an area of the state seeing increasing public visitation.

This is Phase I of an anticipated multiphase research and public archaeology project that will ultimately document all 71 known pictograph and petroglyph sites in the Canyon Pintado Historic District.

Archaeology of Terrace Town Site, Part II (Utah)



Figure 4. Completed excavation of a Chinese Railroad worker structure in the town of Terrace, uncovered during the May 2021 Passport in Time project. The structure is thought to have been a dugout house. The structure showed signs of burning on the floorboards.

Scholars have noted that the construction of the first Transcontinental Railroad across the United States was a magnificent undertaking, taking years of planning and execution as it reached west from Omaha to Sacramento, across the Great Plains, the Rocky Mountains, and through the high Sierras. The Transcontinental Railroad cut an impressive swath through Utah, north of the Great Salt Lake. Beginning in 1869 and continuing through the early years of the 1900s, it was the main corridor of socioeconomic growth and development in the western United States.

To improve the efficiency of the railroad in Utah, the Lucin Cutoff was constructed. Completed in 1904, it traversed the Great Salt Lake between Ogden and Lakeside. Use of this cutoff bypassed approximately 90 miles of the Transcontinental Railroad north of the Great Salt Lake. The northern section became known as the Promontory Segment and it is the longest continuous portion of the original Transcontinental Railroad that remains intact today. The Promontory Segment was home to numerous maintenance sidings and the large town sites of Kelton and Terrace.

Terrace exists today as a very large archaeological site and a vast repository of information pertaining to 19th-century ethnic relations, economic systems, technological innovations, and frontier urban development and collapse. The Terrace town site was surveyed as part of the 2021 Passport in Time project.

The primary goals of this project were to collect additional data related to spatial relationships among the various groups that occupied Terrace in the late 19th century, learn more about the economics of life at Terrace, and to evaluate the potential for buried deposits. The field methods used to obtain these data included surface inventory, excavation, and use of ground penetrating radar.

The fieldwork revealed compelling patterns that shed light on previously unevaluated ethnic relationships at the 19th-century frontier railroad town. The archaeology showed that Euro-American residents at Terrace interacted with Chinese residents in several different socioeconomic spheres. Chinese residents of Terrace provided essential labor for the operation and maintenance of the railroad. They also appear to have supported the local economy by establishing at least one local business, likely a restaurant of some kind (this will be a subject of future research).

This project has the full support of the Chinese Railroad Workers Descendant Association. Several members of the association actively participated in field work.

Section 110 Cultural Resources Survey on the El Camino Real (New Mexico)



Figure 5. Trail segment along the El Camino Real de Tierra Adentro National Historic Trail, facing southeast. This portion of the trail is obvious due to the break in vegetation of mesquite and creosote.

The BLM, in partnership with New Mexico State University, completed a research-focused archaeological survey and site recording of the Paraje San Diego campsite and several sections of the El Camino Real de Tierra Adentro National Historic Trail, located in Dona Ana County, New Mexico. The El Camino Real de Tierra Adentro is the Spanish Royal Road that connected Mexico City with Santa Fe, New Mexico. The Paraje San Diego was the last campsite before the dry Jornada del Muerto trail section and a large campsite for the Camino Real used throughout the trail's use from 1598 to 1881. During this reporting period, the university completed historic research, resurveyed the site, and collected all historic period artifacts. The survey of trail segments north from the Paraje San Diego resulted in the rerecording of seven previously recorded sites and six new discoveries. The survey clarified some trail segments, which will aid current and future work in the area, including NHPA Section 106 compliance work associated with the development of Spaceport America.

Archaeology Southwest Petroglyph Study (Arizona)



Figure 6. Fort Yuma Quechan Indian Tribal members work as field survey crew on a cultural site.

During 2020, Archaeology Southwest led a field crew along Arizona's Lower Gila River for a second season of research associated with the Lower Sonoran Field Office. This project focused on the documentation of petroglyph, trail, geoglyph, and ancestral habitation sites along the terraces of the Gila River. The project benefitted from the participation of five members of the Fort Yuma Quechan Indian Tribe, who assisted in documentation efforts on cultural sites which have not been evaluated since their initial reporting in the 1960s.

The field crew intensively inventoried approximately 20,000 petroglyphs, roughly 10,000 ceramic artifacts, and many diagnostic artifacts. Field data was gathered using digital cameras, field sketches, sub-meter accuracy GPS units, and data analysis sheets. Petroglyph data was recorded in a comprehensive database. Ultimately, the plan is to synthesize this data and integrate it with findings from other sites in southern Arizona. The documentation and analysis of a sample of ceramic and diagnostic artifacts will assist in explaining the cultural patterns of use and occupation in this region. Ceramic artifacts from Hohokam, Patayan, and protohistoric Pi Posh habitation sites were carefully documented during this work. This project is a multi-year endeavor funded by a collaborative research grant from the National Endowment for the Humanities.

Sublette Cutoff National Historic Trail Gravesites Inventory and Updated Geophysical Investigation (Wyoming)

The Alfred Corum Gravesite complex and Nancy Hill Gravesite are historic properties managed by the Kemmerer Field Office. They represent two discrete locations of four known, and possibly eleven additional unknown, mid-19th-century emigrant burials. Some of these burials are historically attested in the diaries of Euro-American settlers travelling the nearby Sublette Cutoff National Historic Trail during its period of significance. The graves are located on either side of the trail atop the east

sloping Hams Fork Plateau. A wood jack leg fence at the Alfred Corum Gravesite complex protects the physical vestiges (mounded earth and limestone cobbles) of three known graves: the Alfred Corum gravesite, the inferred gravesite of Margaret Campbell, and one unknown burial. Ambiguity in the historical record has made it difficult to identify the actual burial locations of Margaret Campbell and Nancy J. Hill, as well as who is buried in the third marked gravesite.

A 2003 cultural resources investigation of the Alfred Corum and Margaret Campbell gravesites incorporated a ground penetrating radar survey of the area inside the fence, immediately to the south, and in the vicinity of two cairns. The survey yielded equivocal results for the cairns and suggested the potential for 11 additional burials near the Alfred Corum and Margaret Campbell gravesites. Many of these potential sites are situated outside of the fenced area.

Based on this 2003 survey, the Kemmerer Field Office determined that proper management and protection of these heritage resources required additional research to define any unmarked graves. The research results were also needed to enhance management guidelines for these resources and develop interpretive signs to promote public education. The BLM hired a consultant to conduct a tiered geophysical investigation incorporating ground penetrating radar, soil resistivity, and magnetometer techniques at four areas along the Sublette Cutoff National Historic Trail. The team's results corroborated the 2003 findings of 11 additional unmarked burials. This fieldwork, analysis, and documentation provided the Kemmerer Field Office information to enhance site-specific management planning, resource protection, and interpretive planning over the long term, ensuring these poignant vestiges of history of the Trans-Mississippi West are preserved for generations to come.

Heritage Preservation and Tribal Values Meet Public Enrichment in the Carrizo Plain National Monument (California)

The Carrizo Plain National Monument comprises over 250,000 acres of BLM land with significant endangered species habitat, unique geology, and outstanding cultural resource values. This area also contains the Carrizo Plain Archaeological District National Historic Landmark. This landmark consists of 100 Native American heritage sites, including villages, quarries, camps, and pictograph sites. These sensitive resources are managed to preserve important scientific and cultural landscape values.

Due to the notable beauty of the landscape and its significant natural and historic resources, the public has a strong interest in effective management of this area. During FY 2022, over 56,000 vehicles traversed the monument and over 66,000 people visited the area. An important component of the monument's cultural program is developing management strategies to protect heritage sites, while providing the public with educational and recreational opportunities.

Archaeological resource identification efforts at the monument are ongoing. In 2022, two archaeological technicians conducted proactive surveys throughout the monument. This work is critical to identifying resources at risk for impacts, in addition to expanding the understanding of the archaeological record. This data is also crucial to the continued refinement of a GIS-based predictive model developed for cultural resource identification at the monument.

The monument is also associated with pronounced Native American traditional cultural and spiritual values. The Bakersfield Field Office has made efforts to conduct meaningful consultation with affiliated Tribes to ensure that management is compatible with these values. Public visitation of the pictograph site of Painted Rock continues to be successfully managed according to the strategy developed with Tribal partners, as part of the 2010 Carrizo Plain National Monument Resource Management Plan.

Atigun River Section 110 Monitoring (Alaska)

In July 2022, Central Yukon Field Office archaeologists floated 25 miles of the Atigun River in the Brooks Range to monitor known Indigenous sites along the river, gather updated spatial information and photos, and to assess site condition.



Figure 7. BLM employees ready their inflatable kayaks before floating down the Atigun River in the Brooks Range to monitor known archaeological sites.

A total of 400 acres were inventoried to Class III levels, eight Indigenous sites were identified and recorded, and ten previously documented sites were revisited. Revisiting one of the sites was especially informative, as the 1980s site record provided only a vague description of a boulder cache pit located somewhere in the vicinity. The resurvey found that there are at least seven boulder cache pits at the site, which would have been used to store caribou meat during communal hunts in the fall. The site may have functioned as a lookout, and caribou would have been intercepted and killed during fall migrations along the Atigun River Valley. There is likely a large butchering area near the cache pits, and a living area where tents and cooking fires would have been, although these activity areas have not been identified yet. There may also be a caribou driveline associated with the site. Several large white boulders located in a line were identified, but more research is needed to confirm this theory. A radiocarbon date collected from a spruce pole wedged into the rock wall of one of cache pits returned a date of 1624–1680 A.D. The presence of spruce wood at the site is significant because the site is above tree line, and the nearest spruce trees would have been located on the other side of the Atigun Pass, at least 25 miles away.



Figure 8. A wildlife biologist looks at a hunting blind that would have been used to hunt caribou in the Atigun River Valley.

Historic Wagon Roads and Later Roads in the Upper Valleys (Idaho)

The Salmon Field Office archaeologist initiated an intensive NHPA Section 110 field examination of surviving remnants of early wagon roads and later automobile routes still found on BLM-managed lands. Historic wheeled transportation and early roads in the area were pioneered by Church of Jesus Christ of Latter Day Saint missionaries, who also established Fort Limhi in the Lemhi Valley in spring of 1855. From the late-1860s until the end of the century, the road they created became a principal transportation link between burgeoning mines and boomtowns in mountainous East-Central Idaho, and railroad towns on the Upper Snake River Plain. The route played a crucial role in the Euro-American frontier settlement of Lemhi County and adjoining regions. Later, 19th-century roads branched from this initial travel way, fostering the growth of historic mines and communities as Lemhi County grew into the early decades of the 20th century. Vestiges of the earliest wagon road and later historic road segments have been documented, mapped, and photographed in anticipation of a possible future National Register listing. The information gleaned in this NHPA Section 110 study would also provide information for future on-site interpretation and other potential public education and appreciation.

Protecting Historic Properties

The BLM's Cultural Heritage Program strives to protect heritage resources from natural or human-caused impacts or deterioration so their values can be fully realized over time. The program assesses potential vulnerabilities of heritage resources and develops strategies to avoid, minimize, and mitigate potential adverse impacts from various sources. This includes monitoring heritage resources to assess trends in condition related to natural and human caused impacts. Once identified, the BLM implements the appropriate physical or administrative conservation measures.

In FY 2020, the BLM implemented protection measures at 6,071 cultural properties. This number dropped slightly to 4,323 in FY 2021 and remained stable at 4,395 in FY 2022. From FY 2020 through FY 2022, the BLM installed 707 new signs, 187 new gates or fences, completed 414 stabilization actions, and implemented 786 maintenance actions. The BLM assigned an additional 3,341 properties some form of administrative protection, such as closure, withdrawal from mineral leasing, or designation as an Area of Critical Environmental Concern. These numbers show an upward trend from the last report.

Eleven of the BLM's 12 state offices have some kind of volunteer site stewardship program. Some states like Arizona, California, and Utah have been working with volunteer stewards for decades, while others are building base programs. Steward volunteers are trained in field and recording techniques, such as pedestrian inventory strategies and intensive site documentation. They record sites and monitor previously documented sites, providing important support to the BLM NHPA Section 110 compliance program as well as information about changes in the physical condition of sites used in prosecuting ARPA violations.

Examples of Protecting Historic Properties

The following examples illustrate the BLM's accomplishments in actively protecting historic properties from FY 2020 through FY 2022. These projects were promoted by the applicable field office that sought funding for the project, either through BLM funds or through partnerships.

Vanishing Petroglyph Panels near Pinedale, Wyoming: Preserving 3D Records for Posterity

The BLM Pinedale Field Office and Wyoming State Office staff used 3D photogrammetry models to document rare petroglyph panels, preserving them for posterity and science. Bedrock outcrops of soft sandstone are common in the Pinedale, Wyoming area. Some of these outcrops were visited in the past by Native Americans who incised archaeologically and tribally significant petroglyphs into the rock. These sites include Calpet Rock Shelter (listed in the National Register of Historic Places), Hĕ'-kōn Petroglyph, Big Chief Petroglyphs, and Birch Creek Petroglyphs.

Photogrammetry is a method of combining overlapping photographs taken from different heights and view angles to create scaled, three-dimensional models. These models preserve a permanent record of the subject being photographed. The four petroglyph sites near Pinedale were targeted

for this project because they are etched into sandstone outcrops that are naturally eroding at a rapid rate.

High resolution data and 3D models can also be used to answer scientific research questions. Calpet contains trapezoidal anthropomorphs originally thought to represent the northernmost occurrence of the Fremont archaeological culture in Wyoming. A trapezoidal anthropomorph is a trapezoid-bodied figure with human-like attributes. The Fremont core area was south of Pinedale, in Utah and on the Colorado Plateau. Rock images from the Fremont core area dates from approximately 2,500 until 500 years ago. Understanding the Fremont presence in southwest Wyoming is a very important archaeological research question, partially because Fremont peoples relied heavily on maize horticulture, while early cultures in Wyoming practiced a very different hunting and gathering lifestyle. Beginning in 2005, some experts started challenging the interpretation of Calpet Rock Shelter petroglyphs as Fremont and suggested that the trapezoidal anthropomorphs may instead date to the historic period from the 1800s. So, are the images at Calpet historic-aged or Fremont-aged?

Archaeologists tested both possibilities by calculating the weathering rate of the trapezoidal anthropomorph panel. Using photogrammetric models and hand measurements, they compared data collected in 1987 to data collected in 2021 to see how deep the incisions would have been when they were initially created and if they dated to historic versus Fremont times. They found that the weathering rate seems too rapid to be consistent with Fremont ages. Instead, data support the hypothesis that the trapezoidal anthropomorphs are more likely to date to historic times. This testing, along with other

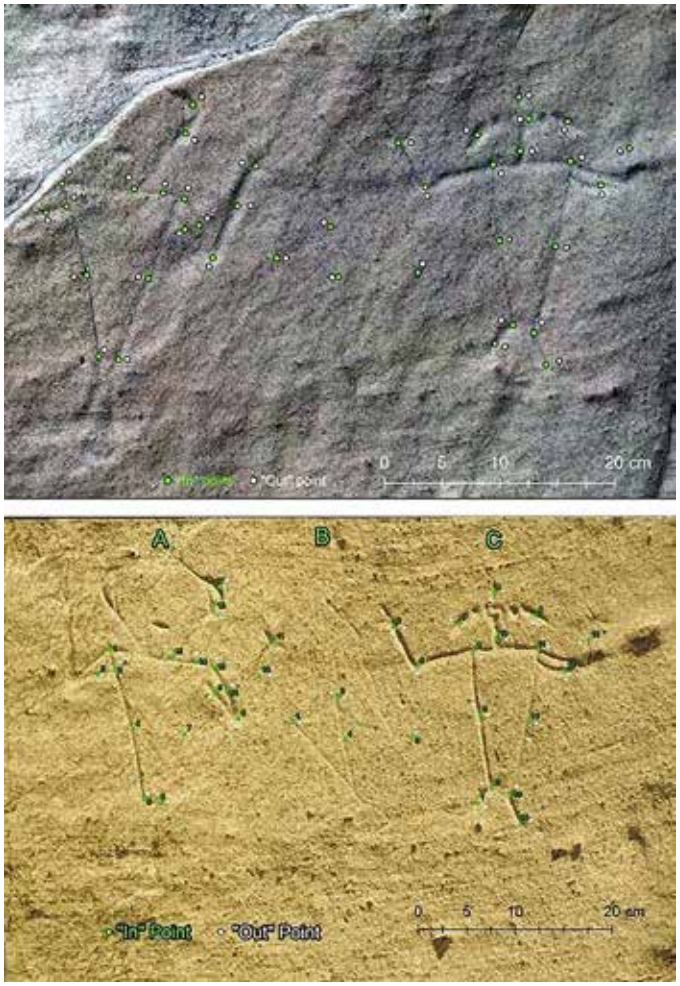


Figure 9. 3D models of trapezoidal anthropomorphs at Calpet. (Top) High accuracy 3D photogrammetric model from 2021. (Bottom) Low accuracy 3D photogrammetric model from photos taken during 1987 recordation of the site.



Figure 10. A 3D photogrammetric model of Hĕ'-kōn.

observations about the style and method of creating the petroglyphs, indicates that these petroglyphs may not be associated with the Fremont culture period.

Natural processes impact every archaeological site—some more rapidly than others. Based on the weathering rate at Calpet, the trapezoidal anthropomorph panel may disappear completely by 2060. Because 3D photogrammetric models provide a full and permanent record of these resources, sites like these can be studied and appreciated long after the original panels turn to dust.

Lowry Pueblo National Historic Landmark Stabilization and Tribal Collaboration (Colorado)



Figure 11. Members of the Zuni Tribe help preserve a Great Kiva constructed in the 11th century by their ancestors within what is now Canyons of the Ancients National Monument.

In FY 2020, Canyons of the Ancients National Monument conducted stabilization on the 12th-century Ancestral Puebloan Lowry Pueblo National Historic Landmark, in collaboration with both the National Park Service and members of the Zuni Tribe's Ancestral Lands Youth Conservation Corps. Experienced professionals from all three organizations spent five weeks at the site, repointing centuries-old sandstone masonry in one of the monument's key education and interpretation facilities. The partnership leveraged funds from multiple entities to help preserve the structure, while at the same time providing a unique opportunity for Tribal members to develop a direct relationship with the globally significant resources of their ancestors.

Garrison Mill Historic American Building Survey (Montana)

The Garrison Mill is an excellent example of a Depression-era gold mill that retains a high degree of integrity. Despite efforts by the BLM to preserve the mill, including an analysis by a structural engineer in 2008 along with structural reinforcement of the ore bin in 2009, collapse of the 85-year-old mill appears imminent. The precarious state of the mill created urgency to document the structure before it fails, as there does not appear to be a viable solution to preserve the building.

BLM Oregon-Washington Abandoned Mine Lands Unit archaeologists collected plans, 3D laser scans, photographs, and completed historical/descriptive reports in accordance with Historic American Building Survey standards. These documents will be filed with the Montana SHPO and Library of Congress for permanent storage and preservation. There are also plans to use these materials to develop a "story map" that can be used for interpretation.

Historic Structure Preservation: Punta Gorda Light Station (California)



Figure 12. Punta Gorda oil house and light station after treatment.

BLM Arcata Field Office staff worked with BLM California State Office engineers to stabilize and rehabilitate the historic Punta Gorda Light Station along the Lost Coast of the King Range National Conservation Area. This National Register-listed property was actively used from 1912 through 1951. Originally, the light station complex included the light station, oil house, employee housing, fuels and storage sheds, fog-signal building, blacksmith and carpenter shop, and a barn. Today, the light station and oil house are all that remain of an important marine navigational installation.

These facilities are located along the popular Lost Coast Trail and are visited daily by recreationists. Recent condition assessments have noted deterioration at the light station, with more extensive deterioration noted at the oil house. The structures pose a potential safety hazard to the thousands of annual visitors.

Deferred Maintenance funding was used to award a contract to complete architectural and engineering design work. Structural and geomorphological testing was accomplished in January 2021, and by spring 2021 a proposed rehabilitation plan was in place. The project was awarded funding under the Great American Outdoors Act, and the treatment work was completed in FY 2022.

Santa Cruz de Terrenate Mud Plaster Work (Arizona)

The Presidio Santa Cruz de Terrenate is a cultural gem of southern Arizona, managed by the Tucson Field Office. The remnants of this fortress represent the vast sprawl of the former Spanish Empire in the late 18th century and the Native American resistance to colonial expansion. The fortress was quickly abandoned for many reasons, however, what remains has turned into a major attraction for recreationists in southern Arizona.



Figure 13. Before (top) and after (bottom) photos of application of adobe to the walls at Terrenate.

During the reporting period, a former BLM historic preservationist led a continued preservation effort supported by 20 collaborators from the Coronado National Forest, the National Park Service, and volunteer groups that included various cultural resource management firms and concerned citizens. Each February, the BLM project lead coordinated with rangers and conservation experts from Tumacácori National Historic Park to obtain appropriate mud plaster for Terrenate. Phoenix District Office archaeologists assisted the Tucson Field Office group by helping apply the protective mud plaster to the remnants of the presidio chapel walls. Each year, the walls of the entire site are covered within a span of a couple hours; this task would typically take days without a significant showing of volunteers. The sacrificial plaster slowly erodes and is reapplied annually.

This collaborative work shows the time, coordination, and effort it takes to conserve one of the BLM's prized cultural resources. Additionally, there are few conservation efforts that represent three federal agencies and local volunteers on such a high profile cultural resource.

Palmetto Wash Petroglyph ARPA Restoration Project (Nevada)



Figure 14. Drill hole grouping #1 before (left) and after (right) restoration.

In June 2016, the BLM discovered 27 holes had been drilled into rock faces using what appeared to be a pneumatic drill at the Palmetto Wash petroglyph site. This site is located in Esmeralda County, Nevada, in the Battle Mountain District, and is managed by the Tonopah Field Office. The BLM determined the holes were drilled as part of a paleomagnetic study conducted by the University of Texas at Dallas Department of Geosciences. Because the university did not seek permission or obtain an authorization from the Tonopah Field Office to conduct this study, a civil ARPA case was brought against them. The ARPA case was settled in August 2018 for the total cost of restoration and repair of the damage to the site. In June 2021, the field office contracted Dean and Associates Conservation Services to perform the restoration. The Palmetto Wash petroglyph site is considered a sacred place to the Timbisha Shoshone Tribe and members of the Tribe were invited to witness the restoration work. The completion of this restoration work not only brought to close a successful ARPA case but also served to strengthen BLM's relationship with our Tribal partners.

Restoration Work for the Yaquina Head Lighthouse Work Room (Oregon)

Between 2021 and 2022, the Northwest Oregon District Office conducted restoration work on the Yaquina Head Lighthouse Work Room. In late 2021, the BLM sanded and painted the work room ceiling, door, and windows. Workers carefully removed the Portland cement coating covering the fireplace chimney stack and the grey tile covering the hearth stone.

Historically accurate mortar was obtained for the parge coating on the brick walls and for additional masonry work on the fireplace. Prep work for the wall coating was completed, cutting Coast Guard Era masonry patches on the walls to match the surrounding mortar joints. The abandoned electrical conduit in the work room was removed with assistance from the Coast Guard.

The BLM removed the mortared-in brick found in the firebox and successfully opened the firebox. The BLM partnered with Coastal Masonry to reconstruct the fireplace front arch and mantle shelf per historical records. Large holes in the wall created by the Coast Guard for cable pass throughs and other legacy attachment points were also filled in.

Lastly, the parge coating was applied to the rough face of the historical brick, using historical mortar compound to smooth the surface, fill cracks, and repoint the masonry. The goal was to apply the coating in a manner that achieved the same look as the rest of the lighthouse, where the brick outline was still showing. Finally, the work room walls were treated with a breathable mineral multi-coat system. The BLM installed a fireplace insert to provide heat for the work room and to simulate the original wood fires, as well as a new fireplace mantle designed like the Pigeon Point Lighthouse mantle and a hearth stone.



Figure 15. Work Room walls after the lead paint removal.



Figure 16. Work Room ceiling after lead paint removal, light sanding, and during painting.

Historic Watson Cabin Stabilization (Utah)

In 2021, a dedicated crew of Paria River District staff and Southern Utah Wilderness Alliance volunteers spent three days completing a decade-long historic structure stabilization project that began in 2012. BLM staff sought to conclude the stabilization efforts and create a story map documenting the project.

Paria River District staff transported restoration supplies to the cabin via pack horses. The group tightened the cattle exclosure fence surrounding the cabin site, secured the cabin's roof beams, installed a protective liner/fabric on the roof so dirt could be applied, sealed gaps between cabin wall logs and prepared them for chinking, and removed accumulated debris at the prior years' work/camp area.

Eight enthusiastic and hard-working Southern Utah Wilderness Alliance volunteers completed additional efforts by shoveling a new layer of dirt onto the roof and applying chinking to the cabin walls to seal gaps between the logs. This dirt was sprayed down with water to create a soil crust and prevent erosion. Prickly pear cactus cuttings were applied to the roof to recreate its historical character. Finally, the crew chinked the cabin walls using local dirt, water from a nearby creek, and a minimal amount of binder to prepare the mud mixture. Crew members placed filler materials into large gaps between cabin logs to prepare the walls to receive the chinking mud, then applied the chinking between the logs.



Figure 17. Before photo illustrating dilapidated condition of Watson Cabin in 2009.



Figure 18. Volunteers work on restoring the roofing and chinking of Watson Cabin.

Lake Valley Historical Town Site Preservation Project (New Mexico)

Between 2020 and 2022, the Las Cruces District Office worked on a restoration, stabilization, and rehabilitation project at Lake Valley Historic Town Site. Lake Valley was a boom town for silver mining in the latter half of the 19th century, at one time having the highest producing silver mines in the world. The three structures the BLM currently manages are the Keil House, the Church, and the School House. The project included roof replacement and/or ceiling repair at the Church and the School House, as well as bat guano removal at both locations. The School House ceiling was restored by repairing and replacing beadboards as well as repairing the cupola. The soffits and fascia were also prepared and repainted. The BLM repaired and restored windows and window frames at all three locations.



Figure 19. Removal of original sheet metal roof of the School House by personnel from Cornerstones Community Partnerships.



Figure 20. Volunteers reconstruct the northernmost corner of the Kiel House and reapply exterior stucco.

The Keil House, although smaller, required considerably more work than the other two structures, as it had not been in use and was allowed to deteriorate to a greater degree. Repairs to the Keil House included buttressing the joists on the northern room of the two-room structure. This involved lifting existing floorboards, compacting and filling the ground underneath, and installing new joists to augment the existing joists. New adobe bricks were grafted into the existing adobe walls. Also, the northernmost corner of the structure was completely reconstructed, as it was sinking visibly into the house. This involved removing deteriorating and destroyed brick and splicing in new adobe brick. The lintel on the southeast door was also reinforced with a small layer of sheet metal (not visible after repair) and the adobe brick was replaced above the lintel. Finally, almost the entirety of the exterior of the house was restuccoed using traditional methods and materials.

Calamity Camp Historic Preservation and Stabilization (Colorado)

The BLM Grand Junction Field Office continued stabilization work on Calamity Camp, a historic uranium mine and camp site listed on the National Register of Historic Places. Partnering with HistoriCorps, a nonprofit organization with expertise in historic preservation, the BLM stabilized the two main residences at Calamity Camp and assessed an additional building for future stabilization and restoration. Additionally, the BLM partnered with the Western Colorado Conservation Corps to

repair an existing fence put into place to keep off-road vehicles from traveling throughout the site. The corps also helped HistoriCorps in stabilization work.

Calamity Camp is a well-known site within the local area, as some people have relatives who worked and lived at the site. The site's association with World War II-era uranium exploration and extraction make it an important part of U.S. history.

Fairbank Mercantile Stabilization Project (Arizona)

The BLM contracted Statistical Research, Inc. to provide historic preservation services at the historic Fairbank Townsite. The Fairbank Townsite is one of several interpretive sites managed by the Tucson Field Office. The townsite is a ghost town located within the San Pedro Riparian National Conservation Area, along the San Pedro River. Its life as a town began with the construction of a railroad in 1881. It soon became an important depot and the closest railroad stop to Tombstone, Arizona, then one of the largest western cities. The townsite includes a visitor parking lot, self-guided interpretive trail and signage, mercantile building, schoolhouse, cemetery, and other standing buildings. The BLM manages this site with valuable assistance from Friends of the San Pedro River.

The project scope consisted of stabilization and restoration work on collapsed and deteriorating sections of the adobe mercantile building. In addition, contractors performed architectural documentation of the affected portion of the mercantile and an adjacent board-and-batten building. Both buildings contribute to the historical significance of the Fairbank Townsite, which has been determined eligible for National Register listing under all four criteria. Plans were developed in consultation among the BLM and Arizona SHPO, with the primary purpose of stabilizing the mercantile building for its continued preservation and use as a "historic shell."

Contract work was completed between October 2019 and April 2020. Work included adding reinforced-concrete underpinning to stabilize the original foundation; replumbing or removing the affected adobe walls; rebuilding collapsed walls with new, stabilized adobe bricks; reattaching the roof structure to the walls; repairing cracks; removing adjacent, encroaching vegetation; and recontouring the adjacent landscape to improve drainage. Once work was completed, the BLM removed long-term safety fencing so the public may again approach the buildings and peer inside.



Figure 21. West side of the Mercantile building front before project (left) in October 2019. West side of the Mercantile building front after project (right) in April 2020. Photo courtesy of Ron Stewart, Friends of the San Pedro River.

National Register Listings

During the reporting period, six historic properties on BLM lands were listed in the National Register of Historic Places (Table 9). These new listings enhance the BLM historic preservation program, ensuring significant properties are preserved and available for use by future generations.

Table 9. List of BLM Historic Properties Placed on the National Register of Historic Places During the Reporting Period

Fiscal Year	State	Property Name
2020	Wyoming	Gateway Site
2021	California	Guapiabit-Serrano Homeland Archaeological District
2022	Montana	Everson Creek Archaeological District
2022	Montana	McMaster Ranch Historic District
2021	Montana	Spokane Hill Airway Beacon
2021	Wyoming	Alcova Redoubt Site

Using Historic Properties

The BLM experienced a significant increase in visitation to cultural sites during this reporting period, likely due to the COVID-19 pandemic. This increased trend in visitation at cultural sites on public lands is consistent with overall recreation data for the BLM. Notably, visitation increased about 172 percent from the BLM's 2020 Preserve America report. In FY 2021, visitation nearly doubled from previous years, with 4,424,522 visits recorded. For comparison, the average number of visitors from FYs 2017–2019 was just under two million. In FY 2020, 2,121,003 visits were recorded, and in FY 2022, there were 3,728,381 visits to cultural sites.

While precise figures on how visits to cultural sites contribute to local economies are difficult to calculate, local economies are certainly affected through recreation-related employment and taxes collected by state and local governments. As cultural resources are not typically found within town or city centers, BLM offices often serve as gateways to public land venues. Local communities are also part of all resource management and planning efforts and economic development is assessed in BLM Resource Management Plans. Stakeholders are invited to scoping meetings for environmental documents, as well as for planning efforts affecting field offices and districts.

As demonstrated in the examples below, the COVID-19 pandemic catalyzed opportunities to use and experience historic properties digitally. Because in-person tours and outreach events could not be conducted, the BLM found ways to bring historic properties to people. This transition to digital tours also expanded BLM's capacity to offer heritage tourism to underserved communities, increasing equitable access to historic properties in BLM's control.

Examples of Using Historic Properties

The BLM promotes appropriate use of historic properties for public education, research, interpretation, and recreational experiences. A few examples illustrating these uses follow. Development of cultural heritage sites for use by the public is promoted by the field office that sought funding to complete the project, either through BLM funds or through partnerships.

Explore Bears Ears National Monument with 3D Guided Tours (Utah)

In an ongoing partnership with the BLM Monticello Field Office and Bears Ears National Monument, the nonprofit CyArk produced 3D guided tours of two prominent locations in Bears Ears National Monument: Mule Canyon Village and House on Fire sites. These virtual tours can be accessed on the CyArk website.



Figure 22. An aerial view of the Mule Canyon site with vehicles in the loop.

In 2022, CyArk digitally documented three additional sites on Comb Ridge and is developing a virtual-reality-guided tour of the Comb Ridge landscape. The BLM and CyArk worked with Tribal nations to provide the story about these sites, Comb Ridge, and the greater Bears Ears landscape from their perspective. As part of the project, the Hopi Cultural Resource Advisory Task Team travelled to Comb Ridge and visited the Butler Wash Developed Site, which CyArk had previously documented. CyArk conducted an initial interview with a member of the task team, and the BLM and CyArk continue to work with the task team to craft additional material for the guided tour.

This three-year project with CyArk will result in detailed, three-dimensional models of the three sites, additional landscape documentation of Comb Ridge, and guided tours of each of the sites from the perspectives of three to five Tribal Nations. So far, the BLM and CyArk have interest from the Hopi Tribe, the Pueblo of Zuni, and the Ute Mountain Ute Tribe. This project will help promote proper visitor etiquette in Bears Ears National Monument, by leveraging voices from Tribal Nations to provide messages about etiquette and the importance of Bears Ears to descendant communities. The project has the potential to reach a broad audience as it will be hosted on CyArk's website and embedded on BLM's and other partner websites as well. This project also helps BLM build and maintain relationships with Tribal Nations and the priority Nations for this project are the five tribes that make up the Bears Ears Commission.

A Pony Express Story Map: Documenting Historic Pony Express Stations and Related Sites using Photogrammetry (Nevada)



Figure 23. A snapshot of the Pony Express Story Map.

In the spring of 2020, Stillwater Field Office archaeologists released *A Pony Express Story Map: Documenting Historic Pony Express Stations and Related Sites using Photogrammetry in Central Nevada* to the public via ArcGIS Online, Facebook, Twitter, and Instagram. The story map was included for National Public Lands Day as one of the National Environmental Education Foundation's first virtual events to include the public, in lieu of an in-person event, in the wake of COVID-19. The story map highlights the history of the Pony Express and cross-country communication from the east to western United States in the 1860s. It includes interactive 3D tours of four historic structures, made possible by photogrammetry and unmanned aircraft systems (i.e., drones).

Video Tour of Three Rivers Petroglyph Site (New Mexico)



Figure 24. Over 21,000 petroglyphs have been recorded at Three Rivers. This photo faces north along the petroglyph trail, which follows a basalt ridge in the Tularosa Basin.

In an effort to continue outreach, interpretation, and education during the COVID-19 pandemic, the Las Cruces District Office produced a video tour of the Three Rivers Petroglyph Site for the public. This informative video tour was posted on the BLM New Mexico YouTube channel and the BLM Las Cruces District Office Facebook page. It followed an interpretive hike led by a BLM archaeologist and outdoor recreation planner through this incredible archaeological site. The video also showcases the excellent recreation opportunities and amenities at Three Rivers and describes how visitors can protect cultural resources while they enjoy the site. Since its posting in August 2021, the YouTube video has received over 1,000 views.

Arizona Project Archaeology Wins Prestigious Governors Award (Arizona)



Figure 25. A Yuma Field Office archaeologist talks about the Yellow Dog Mine structure in one of the videos.

Working with a videographer from Arizona State Parks and Trails, BLM Arizona produced a video series highlighting two Yuma Field Office cultural heritage sites: Yellow Dog Mine and Joseph Cone Cabin. The videos described methods of scientific inquiry and how and why archaeologists study shelters, artifacts, photos, and oral stories to understand how people lived in the past. The Yellow Dog Mine video examines the miner's shelter, nails, and pottery shards to highlight the importance of classification and context as archaeological tools to understand the environment and resources available to the miners living in the area. The videos also serve to dispel the misconception that an archaeologist must excavate a site to collect data. The Arizona Project Archaeology educational video series will be used in classrooms across Arizona as part of the BLM's efforts to provide materials and resources to educators to teach archaeological education in the classroom.

Cooper's Ferry and Nez Perce Trail Interpretive Panels (Idaho)



Figure 26. Interpretive panel for néewe (Lolo Creek).

The BLM installed interpretive panels for the Cooper's Ferry archaeological site and the National Conservation Land's Nez Perce National Scenic and Historic Trail, in coordination with the Nez Perce Tribe. The Nez Perce Tribe and the BLM developed interpretive themes for several sections of the trail. Eight panels were developed for six sites: the mouth of Graves Creek, Hammer Creek, Skookumchuck Creek, Slate Creek, French Cemetery, and Lolo Creek. Hammer, Slate, and Skookumchuck Creeks are developed recreation sites. Graves Creek, French Cemetery, and Lolo Creek are dispersed recreation sites. Nez Perce Tribal resources in the nearby area were interpreted, as well as the Nez Perce War of 1877 in which is commemorated as part of the Nez Perce National Historic Trail. The Nez Perce Tribe provided photos and language information for each area.

Fort Benton Excavation (Montana)

Like similar forts along the Missouri River, Fort Benton was built in a quadrangle. The fort was more than 150-feet square and included two block houses on opposite corners that provided lookout posts and defensive firing positions. Fort Benton is considered the first permanent settlement in Montana and is also referred to as the "birthplace of Montana." Remains of the old fort were honored as some of the oldest, if not the oldest, buildings in Montana. The fort's early preservation effort is credited to the Daughters of the American Revolution, who reportedly received $1,500 in 1908 from the Montana Legislature to conserve the last remaining structure, the northeast bastion.

Throughout the years, the River and Plains Society has diligently re-created and reconstructed what the historic Fort would have looked like during the fur trade era. Providing locals and tourists alike a glimpse into the past with period correct construction and interpretation, several key elements of the fort have been re-created.

In 2020 and 2022, BLM employees, Montana Conservation Corp interns, volunteers, and the River and Plains Society of Fort Benton excavated a quarters and a historic kitchen at Fort Benton. Constructed

in 1854, the kitchen at the original fort provided employees of the American Fur Company a place to butcher game and prepare meals for hungry traders, trappers, and Native Americans until 1869. The U.S. Army acquired the Fort later that year and shuttered its doors in 1881, when the command moved to Fort Shaw near present-day Great Falls, Montana. Following a period of disrepair and neglect, the kitchen was removed and salvaged sometime before 1895.



Figure 27. Crews shovel and sift dirt at the remains of the Engages quarters of Fort Benton.

BLM staff were asked to lend expertise related to excavation, determine where the kitchen was originally located, and determine if anything remained. Utilizing a U.S. Army engineering drawing from 1869, the edges of the building were staked and multiple subsurface probes were emplaced. These shovel tests yielded artifacts typical of a kitchen; they pointed to a concentration of intense usage at one corner where the building was believed to be. Larger excavation units located a band of soil indicative of the presence of adobe bricks that were used to construct the building in 1854.

Rifle shell casings, gun flints, hundreds of hand-pounded nails, butchered bone fragments, and a slew of other artifacts are currently being cataloged and sorted to plot the exact footprint of the building. This information will aid in the reconstruction of the kitchen and provide valuable insight into a brief period during which Montana was born. A video about the project is available on YouTube.

Rough Canyon Service Day (Colorado)

Rough Canyon Service Day is a project that started at the Grand Junction Field Office in 2017. The project takes place in Rough and Ladder Canyons within the Bangs Canyon Special Recreation Management Area. In its fourth iteration in 2022, the event brought 30 eighth-grade students from Mount Garfield Middle School to BLM-administered land to learn about natural resources, cultural heritage, and cultural sensitivity. The students also participated in service projects benefiting public lands. During the morning, students rotated through three educational stations. One station focused on the web of life, while another focused on archaeology and included a mock archaeology site exercise modeled after activities in Project Archaeology curricula. A third education station focused on how to practice cultural sensitivity. Two members of the Ute Indian Tribe of the Uintah and Ouray

Reservation discussed Ute ties to the land, past and present. In the afternoon, students participated in one of three separate service activities. One group worked with recreation staff and hiked to the historic Ladder Canyon Mica Mine and dispersed small burn piles left behind from a previous vegetation treatment. Dispersing the burn piles removed charcoal that people could use to graffiti the walls of the mine, an unfortunately common occurrence. A second group worked with BLM archaeologists to remove charcoal graffiti from canyons walls where no archaeological sites are present. The final group of students worked with BLM staff to install new trail signage and work on obscuring unwanted social trails to a petroglyph site, by cooperatively moving and strategically placing large branches and rocks over the social trails.



Figure 28. Mount Garfield Middle School students listen to Tribal representatives discuss Ute ties to the land and cultural sensitivity.

The project connects local youth to public lands right in their backyards, while they learn about the natural and cultural history of those lands in a place-based educational setting. The students also benefit from the remarkable opportunity to learn firsthand from Ute Tribal representatives, while at a petroglyph site, why the land is still important to Tribal members today, fostering mindfulness that translates into heightened cultural empathy and good stewardship of cultural resources. Ultimately, projects like Rough Canyon Service Day foster the protection of cultural resources by teaching awareness, appreciation, and good site etiquette. The project also provides Tribal representatives the opportunity to connect with their ancestral lands and share their stories in their own words.

Lovelock Cave Days (Nevada)

Lovelock Cave Days is a multi-day, multi-partner event that has occurred during Nevada Archaeology Month since 2006. The event typically brings over 300 fourth-grade students from Humboldt and Pershing County schools. Some students travel over 100 miles each way to have a hands-on learning experience at the Marzen House Museum, operated by Pershing County, and at Lovelock Cave, one of the most important archaeological sites in the Great Basin. The fifteenth annual event scheduled for May 2020 was cancelled due to statewide school closures. BLM staff and partners were

disappointed, as were teachers and students who consistently say that Lovelock Cave Days is their best field trip of the school year. To make up for the lost opportunity, BLM Winnemucca District's archaeologist created a "Digital Lovelock Cave Days" for students who were now using distance learning. The archaeologist filmed and edited videos that covered many of the topics covered at the in-person event. Students took a virtual hike of the scenic nature trail to Lovelock Cave, seeing native plants and hearing stories of their traditional uses. Students learned stories of the Native peoples who lived in the area, learned of the geologic processes that formed the cave, and went inside the cave to see and hear about some of Nevada's most important archaeological resources. While likely not as exciting as the real public lands experience, the videos provided students with approximately one hour of cultural and natural resources educational content. The videos were viewed by about 250 students.



Figure 29. A still image excerpted from the Lovelock Cave educational video.

Las Cienegas National Conservation Area and San Pedro Riparian National Conservation Area Agents of Discovery Missions (Arizona)

In FY 2021, the Tucson Field Office developed and launched three new Agents of Discovery missions with assistance from the Friends of the San Pedro River and Empire Ranch Foundation. Agents of Discovery is an educational, GPS-based mobile phone game that engages kids of all ages to



Figure 30. New Agents of Discovery missions available at Las Cienegas National Conservation Area and San Pedro Riparian National Conservation Area.

explore the natural and cultural environment. By using the app at select locations, app-users can find quizzes, challenges, and even win prizes.

Tucson Field Office was initially licensed to use the app in FY 2020, after the first “test” mission was designed and launched at the San Pedro House and Visitor Center on the San Pedro Riparian National Conservation Area. Friends of the San Pedro River has since taken a more active role in the project, subsequently developing and launching new missions at the historic Fairbank Townsite and Murray Springs Clovis Site.

Field office Cultural Heritage Program staff and interns assisted the Empire Ranch Foundation in mission development for the historic Empire Ranch Headquarters at Las Cienegas National Conservation Area. The foundation also took an active role in providing background data, historical images, and preparing the mission script. Partner and user feedback has been incredibly positive.

Final Thoughts

As the largest land management agency in the United States, the BLM strives to improve management practices and develops creative solutions to manage new challenges. The BLM made great progress standardizing digital geospatial data through implementation of the National Cultural Resource Information Management System in 2018. This geodatabase provides a uniform data set for cultural sites on BLM lands across the western states, improving access to information, enhancing the bureau's ability to engage in large scale planning efforts, and making information available for emergency response. System refinements over the last three years have continued to improve the BLM's ability to conduct predictive modeling for project planning, thus reducing timeframes for completing the NHPA Section 106 process.

BLM states continued implementing state protocol agreements executed under the authority of the BLM's national Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers. State protocol agreements and other alternatives to the NHPA Section 106 process continued to offer expedited procedures for completing project reviews, for travel management, energy and infrastructure projects, and other land management actions.

The BLM delivered exceptional educational, recreational, and interpretive opportunities to communities and members of the public through valuable partnerships with volunteer groups, Native American Tribes, educational institutions, and state and federal agencies. These collective efforts have the added benefit of increasing the BLM's inventory and documentation for cultural sites, and restoring historic structures, petroglyph and pictograph sites, and other types of historic properties. BLM partnerships proved invaluable during the COVID-19 pandemic and the bureau was able to easily pivot to virtual education and outreach events. Due to the outdoor nature of historic documentation and preservation work on BLM-administered lands, BLM experienced no decrease in historic property identification and preservation activities during these unprecedented times. In some cases, there was an increase in identification and preservation efforts. The BLM continues to be a leader in historic property identification, preservation, and use, and appreciates the ability to share these highlights.