NATIONAL CONSERVATION LANDS

Arizona

Agua Fria

National Monument

Annual Manager's Report—Fiscal Year 2014

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1 Agua Fria Profile

Designating Authority

Designating Authority: Antiquities Act of 1906, Presidential Proclamation 7263

Date of Designation: January 11, 2000

Acreage

Total Acres in Unit	72,344
BLM Acres	70,900
Other Federal Acres	0
State and Private Acres*	1,444

*State and Private acres are not part of the designation's federally managed acres.

Contact Information

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Field Office Name	Hassayampa
District Office Name	Phoenix
State Office Name	Arizona

Budget

Total Fiscal Year 2014 Budget	$682,633.70
Subactivity 1711	$522,884
Other Subactivities' Contributions	$159,750
Other Funding	$

Map of Agua Fria National Monument

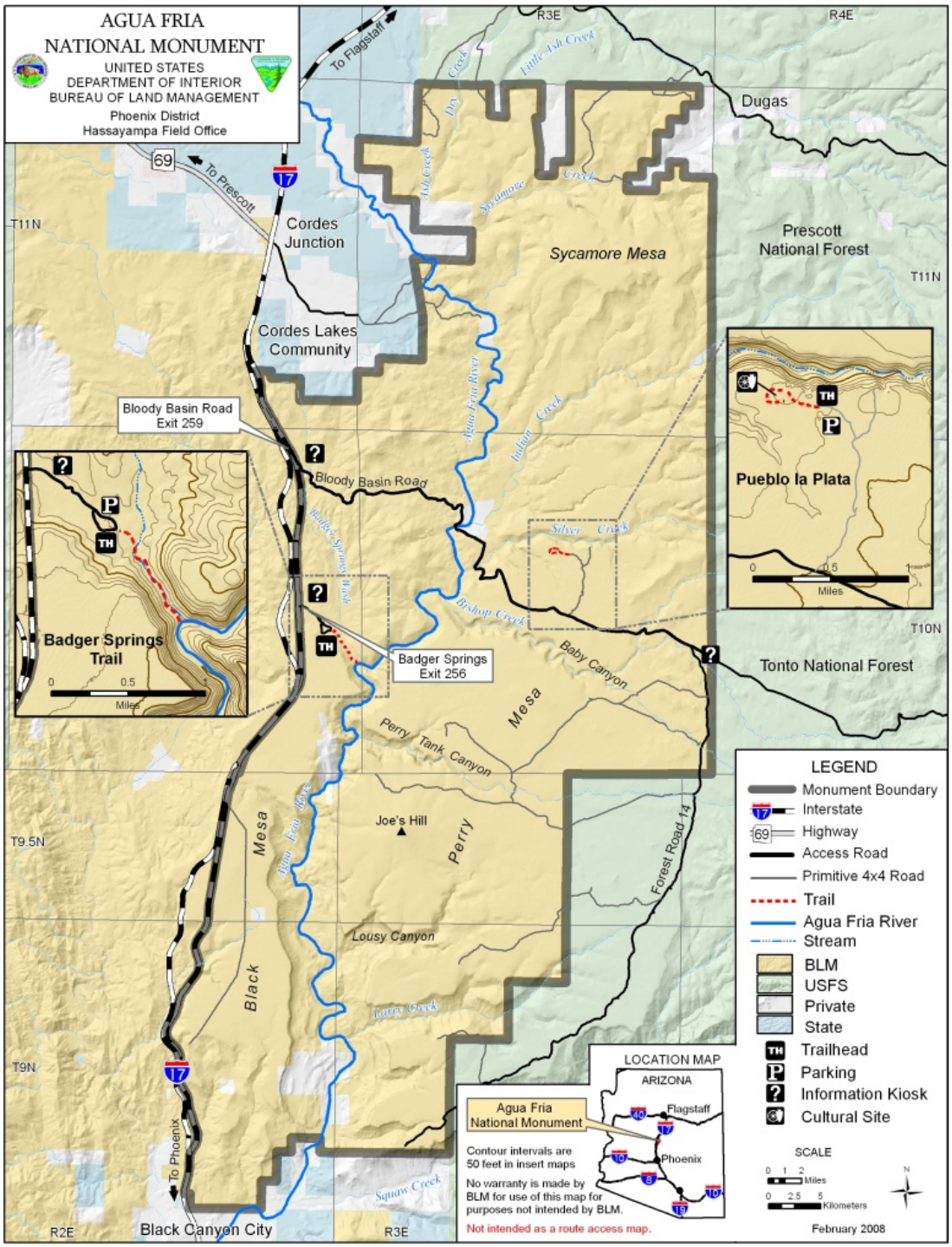

Figure 1:The Agua Fria National Monument (AFNM) is located approximately 40 miles north of Phoenix, Arizona; located in southeastern Yavapai County. The Badger Springs Trailhead and Pueblo la Plata are called out.

Managing Partners

The Agua Fria National Monument (AFNM) does not currently have established partnerships to assist with the management of the unit.

Staffing

The Agua Fria National Monument (AFNM) was staffed with Monument Manager/Assistant Field Manager Amanda James, Wildlife Biologist Paul Sitzmann, Archeologist Bryan Lausten, Natural Resource Specialist Casey Addy, and two Park Ranger detailers in Fiscal Year 2014 (FY14). All four of the permanently filled positions also provided support to the Hassayampa Field Office (HFO). Since September 2013, the park ranger position has been vacant and temporarily filled by a series of detailers. In February 2014, the Monument Manager position was reclassified as Monument Manager/Assistance Field Manager for the HFO. Listed below are the positions on the AFNM Table of Organization, percent of each staff member's time dedicated to the Monument workload and staff member's names.

Monument Manager/Assistant Field Manager (50%):	Amanda James
Park Ranger (100%):	Vacant
Wildlife Biologist (75%):	Paul Sitzmann
Archaeologist (50%):	Bryan M. Lausten
Natural Resource Specialist (75%):	Casey Addy

2 Planning and NEPA

Status of the Resource Management Plan

In FY14, the AFNM was managed under the Agua Fria Record of Decision and Approved Resource Management Plan (AFNM ROD/RMP) approved in April 2010. The implementation strategy for the plan was completed in July 2010. A review and update of the implementation strategy was conducted in FY13. An RMP evaluation is scheduled for 2015.

Status of Activity Plans

The travel management plan for the AFNM was approved by the AFNM ROD/RMP, 2010. Ongoing monitoring of road closures was conducted by park ranger detailers and volunteers.

A draft Badger Springs Recreation Plan was developed. NEPA analysis to implement the Badger Springs Recreation Plan was placed on hold due to a vacant recreation position in the Hassayampa Field Office.

Status of the RMP Implementation Strategy

The three-year review of the AFNM RMP Implementation Strategy was completed in FY13. The strategy emphasized the goals of achieving desired natural resource conditions, achieving desired biological communities, providing for recreational benefits in the AFNM Special Recreation Management Area (SRMA), enhancing the understanding and awareness of the AFNM, providing sustainable working landscapes, protecting and interpreting cultural and paleontological resources, enhancing land use, and protecting lives and property through wildfire management.

Strategic goals were accomplished by various actions that were conducted in FY14. Work toward achieving desired natural resource condition goals included upland and riparian monitoring, juniper thinning and pile burning actions, and completely two land health evaluations for the Cross Y and Horseshoe allotments. Achieving desired biological communities was accomplished by population monitoring and maintaining high quality habitat. Recreational opportunities in the AFNM Special Recreation Management Area (SRMA) were accomplished by maintaining roads and bathrooms in the area, and providing visitor information and personal contacts by the park rangers.

Cultural and paleontological resources were protected with an extensive partnership through the Arizona Site Stewardship program, which provides volunteers who monitor selected cultural resource sites and continued science partnership with Arizona State University. Additional protection to cultural resource sites was provided through monthly

archaeological surveys and documentation of new sites within the Perry Mesa Register Historical District with assistance from Bureau of Land Management (BLM) volunteers and the Friends of the Agua Fria National Monument. Enhanced land use was accomplished by ongoing visitor use projects and community outreach projects like the Black Canyon City Heritage Park which will serve as the community gateway visitor center for the AFNM.

Lastly, fire staff was on hand to respond to protect lives and property. In June 2014, a 487 acre wildfire burned near Badger Springs Recreation Area. Rapid response from BLM fire crews limited the overall extent and damage to resources and recreation facilities.

Key National Environmental Policy Act Actions and/or Project Authorizations

DOI-BLM-AZ-P030-2014-0001-EA Cross Y Land Acquisition

The AFNM completed the NEPA analysis to acquire lands offered in the Cross Y land acquisition in FY14. Project details are discussed further in the Land Acquisition portion of this report.

3 Year's Projects and Accomplishments

General Accomplishments

As is always true for the AFNM, an abundance of exciting work was accomplished in FY14. AFNM staff, federal, state, and nonprofit partners, and the large number of BLM volunteers and volunteers associated with the Friends of the AFNM (Friends) were critical to this year's success. Large assortments of projects were completed this year. Projects ranged from ongoing wildlife and habitat monitoring projects, rangeland monitoring and condition assessments, grassland and riparian restoration projects, youth engagement, cultural resource surveys, site documentation and monitoring and many more. Detailed projects are highlighted below by resources program areas.

In addition, the AFNM received Land and Water Conservation Fund (LWCF) money to acquire two 40 acre parcels located in the southern portion of the Monument. This was an exciting first step towards completing a long anticipated land acquisition of 1,984 acres once a part of the Cross Y Ranch.

Wildlife Program

- AFNM Wildlife Biologist completed a Master of Science degree related to vegetation response to fuels treatments on the AFNM at Arizona State University and presented results at Arizona Antelope Awareness Day.

- Over 100 acres of grassland restoration occurred in FY14. Restoration was centered on the removal of juniper trees in pronghorn movement corridors.

- Another successful year of yellow-billed cuckoo monitoring occurred in FY14. With the assistance of the Friends, Arizona Game and Fish Department (AGFD), Arizona Audubon, Sierra Club, Student Conservation Association, and many other volunteers.

- Fish surveys for Gila chub and Gila topminnow, both endangered species, were conducted in all tributaries where they are found. These tributaries include Larry Canyon, Lousy Canyon, Silver Creek, and Indian Creek. Electro-fishing, hoop nets, and snorkeling were used to count and measure fish. Both Larry and Lousy Canyons were found to have high numbers of Gila Chub and Gila topminnow. Populations of Gila chub continue to persist at low densities in Silver and Indian Creeks.

- The 7th Annual Wet/Dry event was successfully carried out in FY14. Approximately 40 volunteers hiked nearly 50 miles of river during June 21 which is one of the hottest and driest times of year.

Range Program

- 13,557 Animal Unit Months were authorized (cattle and sheep) on ten allotments within the Monument.

- Two draft Land Health Evaluations were completed in FY14 for the Cross Y and Horseshoe Allotments. The Cross Y met riparian standards but did not meet upland Land Health Standards for Arizona (BLM 2014a). The Horseshoe allotment met all of the standards for Land Health for Arizona (BLM 2014b).

- BLM staff and partners collected long and short-term upland and riparian vegetation monitoring data in several allotments within the AFNM. Data collection includes upland utilization data, dry weight rank data, rangeland health data, Proper Functioning Condition data, and Multiple Indicator Monitoring Data. BLM specialists also worked towards updating and verifying the Natural Resources Conservation Service (NRCS) Ecological Site Descriptions within the Monument.

- The Horseshoe - Copper Creek Coordinated Resource Management Plan (HS-CC CRMP) which includes personnel from the BLM, NRCS, Forest Service, AGFD, The Nature Conservancy, and interested public stakeholders made significant progress towards being completed in 2015.

- Large stretches of livestock control fences were modified to facilitate wildlife movement within different areas of the Monument. Several upland water catchments were also lined with bentonite to increase water holding capacity for livestock and wildlife use.

Recreation and Volunteer Program

- In FY14 visitor use data was obtained from four traffic counters placed along six roads on the Monument and processed through TRAFX software. The visitor use estimated totals were 85,000 visitors to the Monument. 65% of total visitation occurred on Bloody Basin Road, 16% at Badger Springs Recreation Area, 14% at Cordes Lakes Road, and the remainder divided between the 9014 Road, 9025 Road, and the Sunset Point exit to Black Mesa. Visitor use data and trends continue to show an increase of visitation to the AFNM annually.

- The AFNM has continued to implement the QR code program. Visitors can use smart phones to access information about the landscape they are visiting by aiming their phones at the QR code. Visitors are also able call a number posted along routes and kiosks and receive a recorded message about safety, historical information, or items of interest. The BLM is able to check the status of visitors in real time and ascertain their home town.

- Work continues on development of interpretive signs and updating pamphlet information for the Monument. General interpretive informational brochures about the Monument are made available for the public at the Phoenix District Office.
- The Friends have adopted a stretch of I-17 from milepost 259 (Bloody Basin exit) to milepost 260, both northbound and southbound lanes. The benefits of participation in the Adopt-A-Highway are many, and among them are:
    - Cost effective recognition to millions of motorists

- Signage that works day and night all year long
- Unrivaled exposure in and around the Monument
- A display of responsible citizenship to potential and existing members and donors
- The foundation for an "environmentally conscious" public relations campaign
- Litter-free highways

Cultural and Paleontology Resources Program

- The continued partnership with Arizona State University's Legacy on the Landscape Project and the Monument resulted in the 2014 publishing of the manuscript for the Alliance and Landscape volume on ASU's work on Perry Mesa by University of Utah.
- The Pueblo La Plata Interpretative plan project initiated in FY14, is focusing on developing interpretative panels to highlight the rich cultural resource of Pueblo La Plata. The project is a partnership between the BLM, the Tonto National Forest, Native American tribes, the Arizona State University, the Friends of the Agua Fria National Monument, and The Friends of the Tonto National Forest.
- In 2014, 200 acres of archaeological survey were conducted within the Perry Mesa Archaeological District in the AFNM.
- 26 archaeological sites were monitored within the Monument for both direct and indirect impacts.
- Three newly discovered cultural resources sites were documented.
- Tribal Consultation was initiated with ten Native American Communities of Arizona.
- Three cultural resources site protection and interpretative actions within the AFNM were conducted.
- Five public outreach events were participated in and six educational hikes were conducted highlighting the cultural resources of the AFNM.

Figure 2: Cover image of the Alliance and Landscape publication.

Current Areas of Focus

The AFNM is currently focusing on maintaining sustainable working landscapes that emphasize proper ecological function and maintaining heritage properties of the National Conservation Lands while allowing for multiple uses of the landscape. This lofty goal is accomplished in a variety of ways. Monitoring, youth and community engagement, cultural resources surveys of the Perry Mesa Archaeology District, resource protection and administrative actions were critical in achieving this goal.

There have been multiple stressors that affected the AFNM. Ongoing drought for multiple

years continued to stress upland conditions and the resource that depend upon them. Additionally, the 487 acre Badger Fire burned on Black Mesa. Details are summarized in the Stressors section of this report.

Education, Outreach, and Interpretation

AFNM staff and members of Audubon Society partnered with local inter-city high schools to continue the River Pathways Project. The River Pathways curriculum, a collaborative effort between Audubon Arizona, the BLM, and the Phoenix Union High School District is intended to get urban students outdoors, introduce them to Arizona's native habitats, and build their interest in careers managing public lands. This is done through five classroom modules focused on riparian ecology and resource management, a field trip to the Nina Mason Pulliam Rio Salado Audubon Center. Students are trained in monitoring techniques used by biologists in the field.

Select students applied learned skills and conducted field studies with BLM biologists in the AFNM and staff with the Audubon. In FY14, River Pathways reached a total of 849 students from 17 high schools in the Phoenix area. Three students who participated in the River Pathways Program were hired for summer internships where they worked with Audubon Arizona and BLM staff during the annual yellow-billed cuckoo surveys within the AFNM. Additionally, through the Healthy Lands Initiative, Audubon staff and three youth interns conducted upland bird surveys to assess breeding bird response to grassland fuels treatments. During this reporting period, Audubon staff completed over 21 yellow-billed cuckoo surveys on the AFNM and 144 upland bird surveys.

The Arizona State University's Legacy on the Landscape partnership is a collaborative effort by archaeologists and ecologists to investigate the legacy of prehistoric and modern human land use on the mesas of AFNM north of the Phoenix Basin. This ongoing project has a strong educational component, involving both graduate and undergraduate students in interdisciplinary research in the field and laboratory.

The Friends staffed a booth at the 2014 Arizona Archaeological Expo, which was held at Catalina State Park, near Oracle, Arizona. They conducted public outreach and education regarding both cultural resources and projects they have participated in on the Monument. Educational hikes were performed on the Monument by and for members of the Friends, in addition hikes were offered for the general public to highlight cultural resources within the Monument. Dr. Connie Stone, retired BLM Archaeologist for the AFNM and now a Friends volunteer, presented three educational talks to public and avocational archaeologist groups concerning the AFNM.

In 2014, the AFNM provided a 10 week summer internship to an American Indian Science and Engineering Society (AISES) student from the University of Washington. The intern assisted with yellow-billed cuckoo surveys, riparian and upland monitoring, travel management and data management. The intern was also provided a BLM mentor during the internship and a travel scholarship to attend the National AISES Annual Conference for leadership development.

Lastly, Prescott College located in Prescott, Arizona held two multi-night camping trips in the AFNM as part of their new student orientation program and often conduct day hikes into the Monument as part of their curriculum on *Natural History and Ecology of the Southwest* courses.

Partnerships

Friends of the Agua Fria National Monument
The Friends are organized exclusively for charitable, scientific, and educational purposes; more specifically to protect, preserve, and promote appreciation and enjoyment of the ecological, archaeological, scenic, and scientific resources and values of the AFNM. The Friends play an important role in assisting the BLM with critical support for Monument activities. They organize outings and perform service projects on the Monument, such as: monitoring trails and cultural resources, organizing hikes and tours for Friends members and the public, removing non-native plant species, interpretative projects of historic resources, performing trash pickups, recording rock art, annual Wet-Dry mapping, and act as stewards for the Monument.

Arizona State University Legacies on the Landscape Project
The Legacies on the Landscape project is a collaborative effort by archaeologists and ecologists at ASU and BLM to investigate the legacy of prehistoric human land use on the mesas of the AFNM north of the Phoenix Basin. Arizona State University hosted a seminar highlighting student research papers centering at Perry Mesa on May 7, 2014. The research papers were not only part of the student's curriculum, but part of the ongoing Legacies on the Landscape Project. The project is funded in part by Cost Share Grants from the BLM, administered by the AFNM and funding from the National Science Foundation.

Tonto National Forest and Archaeology Southwest
A large portion of the Perry Mesa Archaeological District in the AFNM extends onto the adjoining Tonto National Forest (TNF). The effective management and interpretation of the archaeological resources of AFNM and the Perry Mesa Archaeological District requires detailed information on the nature and distribution of those resources both within and near the Monument. A unified database containing all sites will greatly increase the research possibilities (as well as the visibility to researchers) of the AFNM. Such information can improve interpretations of the archaeological resources in the broader landscape context which can help to provide a satisfying a more inclusive narrative of life in the AFNM for the public.

To reach this desired outcome and in partnership with the TNF, Archaeology Southwest was funded by the BLM National Conservation Lands Research Program to create a standardized geodatabase containing information from existing BLM and TNF records, as well as new information gathered by citizen scientists. The geodatabase is a common data storage and management framework used extensively by private and public agencies. It combines "geo" (spatial data) with "database" (data repository) to create a central data

repository for spatial data and associated metadata storage and management. This type of geodatabase is ideal for the spatially-referenced, archaeological information and it is now considered an essential tool for cultural resource managers and researchers alike. This partnership entails development of a master relational database using Microsoft Access and integrating this where locational data is present into a spatial database.

Horseshoe –Copper Creek Coordinated Resource Management Planning (HS-CC CRMP) Team

An important partnership revolves around the HS-CC CRMP. The Horseshoe Ranch, recently purchased by the AGFD, is the base property for the BLM AFNM Horseshoe Grazing Allotment and the US Forest Service TNF Copper Creek Grazing Allotment, which are managed jointly. The three agencies are working together to create a tri-agency CRMP for the two allotments. The CRMP planning process is a public collaborative process designed to engage all interested publics/stakeholders in the identification of local resource needs/opportunities, assist agencies in the collection of resource data, assist in the development of alternatives that address these needs/opportunities, and to encourage participation on long-term resource working groups and adaptive management processes.

Central Arizona Grasslands Conservation Strategy (CAGCS)

The CAGCS – an interagency team composed of BLM, Prescott National Forest and TNF, NRCS, and the AGFD. The mission of the CAGCS is to work across multiple land ownership jurisdictions to restore grassland ecosystems and benefit the wildlife that depend upon them, in particular species like the pronghorn antelope. The strategy emphasizes ground level project implementation and adaptive management focusing on habitat development, maintaining habitat corridor linkages and water source development projects. In FY14, CAGCS established and implementation team that focused on stakeholder engagement and prioritizing projects for future funding opportunities.

Volunteers

The number of volunteers for FY14 remained steady, with individuals from the Friends, the Arizona Site Stewards, the Arizona Archaeological Society, the Arizona Rock Art Coalition, the Upper Agua Fria Watershed Partnership, and the Arizona Riparian Council and BLM volunteers unassociated with any other local group.

Figure 3: Friends volunteers documenting an archaeology site.

Since its establishment in 2004, the Friends have been very active partners in supporting the BLM's efforts to manage and protect the AFNM's cultural and natural resources and in conducting public education and outreach. In FY14 the Friends continued to focus on public education and the preservation of the Monument. The Friends completed **1,630 volunteer hours** (valued at $35,860) which included:

Cultural Resources: **752 hours**

- Conducting archaeological field surveys and recording of cultural sites
- Attending Cultural Resource Committee meetings
- Public outreach, to support cultural resources protection in the AFNM
- Guiding hikes
- Archaeology site protection
- Trash clean ups at cultural resource sites, heavy recreation sites, and along Interstate 17
- Recording Rock Art sites
- Installation of informational signs
- Special projects

Administrative: **478 hours**

- Board of Directors and subcommittee meetings
- Organize Clean ups
- Organizational, administrative, and strategic planning meetings

Biological (Wet/Dry Mapping of the Agua Fria River): **400 hours**

- Administrative, training and organizing the wet/dry mapping activity
- Actual wet/dry mapping

Figure 4: Friends volunteers preparing to conduct an archeology survey.

Land (or Interests in Land) Acquisitions

Staff with the AFNM completed NEPA analysis for the Cross Y land acquisition in FY14. The 1,984-acre Cross Y acquisition consists of a 626-acre inholding at the southern border of the AFNM, two 40-acre inholding parcels on Black Mesa, and a 1,278-acre (two sections) parcel bounded by the Monument on the north, TNF on the east, and BLM and State Land on the south (see map 2). These parcels include substantial water rights; nearly one mile of the Agua Fria River; more than two miles of Squaw Creek; wildlife migratory corridors; many cultural resources including several large pueblo ruins, rock art sites, and artifact scatters; and opportunities for public access to Monument lands. The parcels are highly scenic and include one of the densest stands of saguaro cacti in Arizona. It is the goal to acquire parcels in a phased approach. The first phase is to acquire the two 40 acre inholdings on Black Mesa. The second phase is to acquire the 626 acre inholding at the south end of the AFNM. The final phase of the acquisition is to acquire the 1,278 acre edge holding parcels.

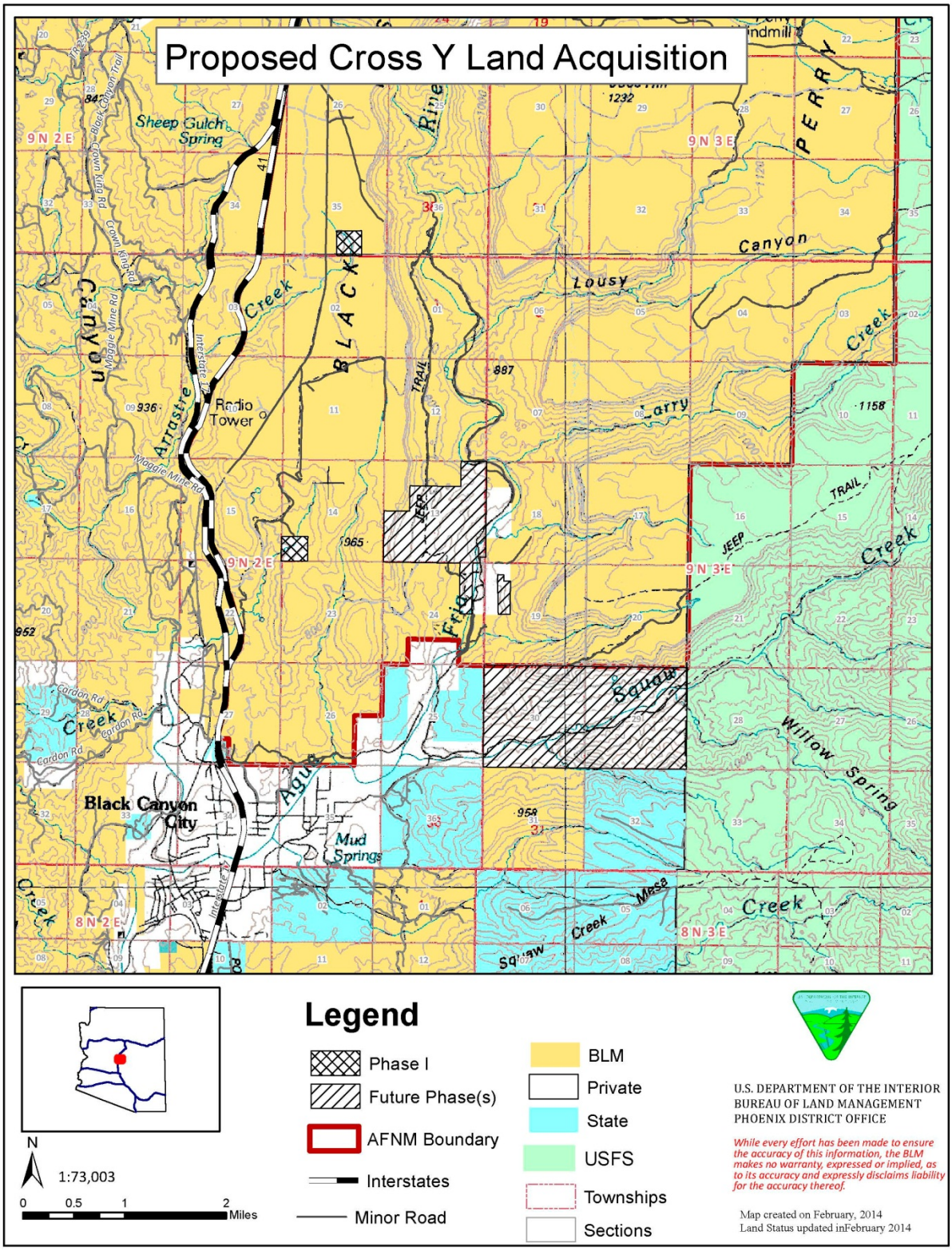

Figure 5: Map of the Agua Fria proposed Cross Y land acquisition

4 Science

Science

There are multiple ongoing science projects occurring within the AFNM. Current research is focused on gaining a better understanding of both the biological and cultural resources within the AFNM. Projects include an in depth study of the fire ecology as it relates to habitat values for pronghorn antelope, grassland bird response to wildfire and precipitation, genetic studies of agave cultivated by native peoples, investigation of prehistoric and modern human land use on the mesas of AFNM, and development of a master relational database of cultural sites for the AFNM and portions of the TNF.

The draft Science Plan for the AFNM is expected to be finalized in 2015.

Grassland habitat response to vegetation treatments (Dr. William Miller, Arizona State University, Polytechnic, and Paul Sitzmann, BLM graduate student)

Wildlife biologist, Paul Sitzmann, completed his Masters of Science degree in Applied Biological Science at Arizona State University. His research focused on understanding the effects of fire on the semi-desert grasslands and the effects of juniper pile burning in areas where woody species have encroached within the AFNM. Grasslands are important to many wildlife species including the pronghorn antelope which depend upon the grasslands for many of their basic biologic needs including fawning. Areas were juniper treatments occurred are movement corridors between isolated grassland patches. Information gleaned from his thesis will be used to inform land management decisions and direct habitat restoration efforts to benefit pronghorn antelope. His results were presented at the annual Antelope Awareness Day hosted at AGFD's Horseshoe Ranch.

The work completed by Paul Sitzmann was the initial phase of the study. Future research revisiting the same treatment units will capture the long term effects of prescribed burning and juniper thinning on the habitat values for species such as the pronghorn antelope. In FY11 $50,000 from BLM was awarded to Arizona State University through a grant opportunity.

Semi-desert grassland Bird Study of the Agua Fria National Monument (Rio Salado Audubon Center and Sonoran Audubon Chapter, Phoenix, Arizona)

Staff with the Rio Salado Audubon Center and interns hired through the River Pathways Program initiated grassland bird surveys in the AFNM. The study focused on grassland bird response to fuels treatments and monsoon rains on the semi-desert grasslands of the AFNM. Paired plots were used to assess the difference in bird densities and species richness between a recently burned area (2 years post treatment) and an area that had not burned since at least 2000.

The work completed by Audubon is in the initial phase of the study. Future work is needed

to assess grassland bird response to fire immediately post fire and to determine grassland bird recovery post fire. In FY14, $30,000 from BLM was awarded through a grant opportunity.

Legacies on the Landscape Project (Arizona State University School of Human Evolution and Social Change, Tempe, Arizona)

Arizona State University's Legacies on the Landscape partnership is a collaborative effort by archaeologists and ecologists to investigate the legacy of prehistoric and modern human land use on the mesas of AFNM north of the Phoenix Basin. This desert grassland and riparian ecosystem has experienced two intense pulses of human use in the past 750 years: a sizeable agricultural occupation in the 1300s and livestock grazing since the late 1800s. The project looks to reconstruct key ecological and archaeological features of the landscape before, during, and after (in the case of the indigenous occupation) these pulses of human land-use. This project has a strong educational component, involving both graduate and undergraduate students in interdisciplinary research in the field and laboratory.

Figure 6: Pueblo la Plata

During FY14, Legacies on the Landscape did not perform any fieldwork, but focused on synthesizing data from the FY13 field season. In FY14 $15,000 from BLM was awarded through a grant opportunity.

Inventory and Monitoring Geodatabase Development for Agua Fria National Monument (Southwest Archaeology, Tucson, Arizona)

The AFNM includes a significant portion of the Perry Mesa Archaeological District (PMAD), one of the largest if not the largest Archaeological Districts in the United States. The District boundaries extend onto the adjacent TNF lands. This project entails development of a master relational database of cultural sites for the entire AFNM and that portion of PMAD on TNF lands, using Microsoft Access and integrating this where locational data is present into a spatial database. The development of a standardized geodatabase containing information from existing BLM and TNF records, as well as new information gathered by citizen scientists working with BLM and TNF archaeologists will provide a central data repository for spatial data and associated metadata storage and management. To facilitate the continued use of the database as a centralized repository, data entry forms based on existing agency cultural resource site forms will be automated. In addition, a volunteer field form will be developed to ensure that information collected by

citizen scientists working under the direction of agency archaeologists is compatible with the database structure. A portion of the project will be directed at assessing over 500 citizen scientist cultural site records to identify previously recorded cultural sites and new cultural sites. A sub sample of the new sites will be validated in the field by professional archaeologists. This project will have immediate benefits in the development of the HS-CC CRMP. Landscape-level management will be enhanced by systematically organizing the archaeological record across jurisdictional boundaries to better understand Perry Mesa and earlier archaeological traditions. This should encourage increased cross jurisdictional collaboration for future research and interpretation programs.

The work completed by Southwest Archaeology is in the initial phase. In FY14 $11,000 from BLM was awarded through a grant opportunity.

5 Resources, Objects, Values, and Stressors

The AFNM's "resources, objects, and values" were established by Presidential Proclamation (January 2000). The Monument embraces an extraordinary array of cultural and biological resources. These objects of scientific and historic interest are described below verbatim from the Presidential Proclamation:

Heritage Resources

"The ancient ruins within the monument, with their breathtaking vistas and spectacular petroglyphs, provide a link to the past, offering insights into the lives of the peoples who once inhabited this part of the desert Southwest. The area's architectural features and artifacts are tangible objects that can help researchers reconstruct the human past. Such objects and, more importantly, the spatial relationships among them, provide outstanding opportunities for archeologists to study the way humans interacted with one another, neighboring groups, and with the environment that sustained them in prehistoric times.

The monument contains one of the most significant systems of late prehistoric sites in the American Southwest. Between A.D. 1250 and 1450, its pueblo communities were populated by up to several thousand people. During this time, many dwelling locations in the Southwest were abandoned and groups became aggregated in a relatively small number of densely populated areas. The monument encompasses one of the best examples of these areas, containing important archeological evidence that is crucial to understanding the cultural, social, and economic processes that accompanied this period of significant change.

Figure 7: Tank Canyon rock art

At least 450 prehistoric sites are known to exist within the monument and there are likely many more. There are at least four major settlements within the area, including Pueblo La Plata, Pueblo Pato, the Baby Canyon Ruin group, and the Lousy Canyon group. These consist of clusters of stone-masonry pueblos, some containing at least 100 rooms. These settlements are typically situated at the edges of steep canyons, and offer a panorama of ruins, distinctive rock art panels, and visually spectacular settings. Tank canyon Rock Art

Many intact petroglyph sites within the monument contain rock art symbols pecked into the surfaces of boulders and cliff faces. The sites range from single designs on boulders to cliffs covered with hundreds of geometric and abstract symbols. Some of the most impressive sites are associated with major pueblos, such as Pueblo Pato.

The monument holds an extraordinary record of prehistoric agricultural features, including extensive terraces bounded by lines of rocks and other types of landscape modifications. The agricultural areas, as well as other sites, reflect the skills of ancient residents at producing and obtaining food supplies sufficient to sustain a population of several thousand people."

In addition, the free-flowing Agua Fria River, which virtually bisects the Monument is a notable heritage resource and is suitable for designation under the Wild and Scenic Rivers Act. The river's tributaries were determined to be eligible for further study under the Wild and Scenic Rivers Act through the AFNM RMP.

Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY14
70,900	4,808 acres (6.8% of total unit acres)	~70,000 acres (this is difficult to determine since only 6.8% of the unit has been surveyed)	11 Acres

Acres in Unit	Number of objects identified by survey	Number of objects identified as possessing value	Number of Cultural Resource sites monitored (of those possessing object or value)
70,900	550	550	22

Stressors Affecting Cultural Resources

As in FY13, vandalism, increased visitor use, and occasional off road vehicle use occurs in river bottoms and cross county. In FY14, no reports of vandalism or theft of cultural sites were issued. Visitation to the Monument and known cultural sites continues to increase annually. With the availability of information on the internet, visitation to previously unknown cultural sites has increased.

Biological Resources

"In addition to its rich record of human history, the monument contains other objects of scientific interest. This expansive mosaic of semi-desert grassland, cut by ribbons of valuable riparian forest, is an outstanding biological resource. The diversity of vegetative communities, topographical features, and relative availability of water provide habitat for a wide array of sensitive wildlife species, including the lowland leopard frog, the Northern Mexican garter snake, the common black hawk, and the desert tortoise. Other wildlife is abundant and diverse, including pronghorn, mule deer, and white-tail deer. Javelina, mountain lions, small mammals, reptiles, amphibians, fish, and neotropical migratory birds also inhabit the area. Elk and black bear are present, but less abundant. Four species of native fish, including the longfin dace, the desert sucker, the Gila chub, and the Gila topminnow, exist in the Agua Fria River and its tributaries."

Biological resources are monitored in the following manner:

Upland Vegetation

Upland vegetation resources primarily consist of semi-desert grasslands dominated by tobosa grass. These areas occur primarily on mesa tops and support an abundance of wildlife. Other primary vegetation types consist of a mix of Sonoran Desert scrub, semi-desert chaparral, and juniper forests. These areas also support an abundance of wildlife. Upland vegetation was monitored at various locations using long term and short term methods in 2014.

Figure 8: Wildflowers growing on Perry Mesa of AFNM in August 2014 following summer monsoon rains.

2014 Land Health Evaluation Findings

Allotment	Standard 1 (Upland)	Standard 3 (Desired Plant Communities)
Horseshoe	Met	Met
Cross Y	Not Met	Not Met (Upland)

A draft Land Health Evaluation for the Horseshoe Allotment shows the uplands in the allotment are in overall good condition. Current upland plant communities in the Horseshoe Allotment are also making progress towards meeting Desired Plant Community objectives. A draft Land Health Evaluation for the Cross Y Allotment was also prepared in

2014. The uplands did not meet Arizona Land Health Standard 1 or the upland portion of Standard 3 due to the amount of repeat wildfires that have occurred on the Black Mesa portion of the allotment.

Upland Vegetation Status and Trend Table

Status of Resource, Object, or Value	Trend
Fair	Upward

Upland Vegetation Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY14
70,900	*Upland*: ~90% - Using Attribute, Inventory, and Monitoring (AIM) Strategy methods.	~63,800 acres which excludes 47 miles of riparian habitat associated with the river and tributaries.	40,000 acres of Upland

Stressors Affecting Upland Vegetation

Wildfire continues to impact upland resources. Although the effects of fire are beneficial and part of the natural ecosystem maintenance, fires on the AFNM, particularly Black Mesa, have occurred at a much greater frequency than natural return intervals. In FY14, the 487 acre Badger fire burned a portion of Black Mesa near the Badger Springs exit. The fire was started by a RV that caught fire while traveling on Interstate 17.

Drought conditions for multiple years, especially during summers, negatively impacted native tobosa grasslands. Tobosa grass, a warm season grass, was reduced in vigor as a result of ongoing summer droughts. Shrubs likely increased in proportion across the uplands as a result of drought. However, summer rains in 2014 drastically improve tobosa grassland conditions. Following the monsoon of 2014, tobosa was taller and denser than any time in recent memory.

Riparian Vegetation

Riparian resources are made of lush deciduous tree forest with an understory of water dependent vegetation such as sedges, rushes, cat-tails and an assortment of other species. These areas are critical to support wildlife including many threatened and endangered species. Multiple indicator monitoring (MIM) plots were used to quantitatively assess riparian resource conditions. Proper Functioning Condition (PFC) assessments were used for qualitative assessments.

Figure 9: Students exploring the effectiveness of waders during a River Pathways trip in the Agua Fria River, April 2014.

2014 Land Health Evaluation Findings

Allotment	Standard 2	Standard 3 (Desired Plant Communities)
Horseshoe	Met	Met
Cross Y	Met	Met

The riparian standard in both the Horseshoe and Cross Y draft Land Health Evaluations released in 2014 were found to be meeting the standard. Riparian resources continue to improve throughout the AFNM.

Riparian Vegetation Status and Trend Table

Status of Resource, Object, or Value	Trend
Fair	Upward Trend (2.4 miles), Stable (4 miles), Downward Trend (6 miles)

Riparian Vegetation Inventory, Assessment, Monitoring Table

Acres in Unit	Miles Inventoried	Miles Possessing Object	Miles Monitored in FY14

70,900	*Riparian*—~100% - MIM and PFC	47 miles of riparian corridors occur in the Monument.	12 miles

Stressors Affecting [name of ROV]

The riparian resources within the AFNM continue to be stressed by multiple factors. Some factors such as drought and the legacy of a large wildfire are largely out of management control. Others factors that affect riparian resources such as OHV damage, livestock use, and weed infestations are actively managed by the AFNM.

Drought continues to be a concern to the riparian resources of the AFNM. Water levels of the Agua Fria River and its tributaries are low. Badger Springs wash continued to dry out and many mature riparian obligate tree species are dying. Monsoons in the latter half of the summer of 2014 alleviated some of the drought conditions and flooded the riparian areas within the AFNM but winter rains are also needed to improve water availability for riparian resources.

The legacy of the 2005 Cave Creek Complex on the adjoining Forest Service lands continues to negatively impact Silver Creek. The 500,000 acre fire continued to cause sediment to input into the area which has resulted in a loss of much of the surface flows in the creek. Silver Creek continued to flush some of the sediment out of the watershed.

Past management actions such as implementing a winter season of use, installing of OHV barriers, tree and sedge plantings, and hand pulling of Dalmatian toadflax continued to benefit riparian resources in FY14. OHV exclusion and the planting of trees and sedges prior to and within FY14 have directly resulted in riparian resource condition improvements. Weed treatments of Dalmatian toadflax have been small and only removed small infestations but efforts have kept infestations from increasing in size. Winter season use of livestock in riparian areas appeared to not have negatively influenced riparian areas, particularly in the River Bend area where multiple years of restoration activities have resulted in upward trends.

Wildlife Resources

The AFNM is home to many wildlife species including many native fish species, some of which are endangered; 196 bird species including the threatened yellow-billed cuckoo, the threatened northern Mexican garter snake, and many big game species such as the pronghorn antelope and mule deer. Fish surveys are conducted by snorkeling and electroshocking. Yellow-billed cuckoos are monitored with audio playback equipment.

Wildlife Resources Status and Trend Table

Status of Resource, Object, or Value	Trend

Good	**Stable (9 populations); Downward Trend (3 populations)** Wildlife resources are stable in most areas where assessed. However, due to influx of sediment in Silver Creek, Gila chub, desert sucker and longfin dace populations are well below pre-sediment conditions. Yellow-billed cuckoos were present in areas where they are expected to occur and were documented breeding in an area were not expected.

Wildlife Resources Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY14
70,900	*Pronghorn*—~100% of habitat	~50,000 acres of habitat	~40,000 acres
70,900	*Yellow-billed cuckoo*—~70% habitat	~30 miles of habitat	12 miles of habitat and 6 populations
70,900	*Native fish species*—~100% of T & E habitat and ~5% of total native fish habitat	~40 miles of habitat	12 miles of habitat and 12 populations

Stressors Affecting Wildlife Resources

Stressors affecting wildlife resources were discussed in detail within the Upland and Riparian sections of this report. Sediment from the 2005 Cave Creek Complex fire continued inundate Gila chub habitat within Silver Creek but other populations of Gila chub were stable. Yellow-billed cuckoos continued to thrive in riparian areas within the AFNM. The yellow-billed cuckoos moved from the previous year's survey but numbers documented were nearly identical. Pronghorn fawn recruitment was higher than the previous year despite the ongoing drought prior to fawning season.

Figure 10: Students conduct fish monitoring during a River Pathways trip in the Agua Fria River, April 2014.

6 Summary of Performance Measure

In FY14, approximately 200 acres of heritage resources were inventoried and 22 cultural sites were monitored with the assistance of volunteers from the Friends Cultural Resources Committee, Arizona Archaeology Society members, and Arizona Site Steward Volunteers. Biological resources monitored in FY14, 40,000 acres of terrestrial habitat and upland vegetation which encompassed pronghorn fawning grounds and movement corridors, 12 miles of riparian habitat and streams, 6 Yellow-billed cuckoo populations, and 12 native fish populations including Gila chub, Gila topminnow, longfin dace, and desert sucker, several of which are an endangered species.

Resources, Objects, and Values Status Summary Table		
Resource, Object, or Value	**Status**	**Trend**
Heritage Resources	Good	Stable
Upland Vegetation	Fair	Up
Riparian Vegetation	Fair	Upward Trend (2.4 miles); Stable (4 miles); Downward Trend (6 miles)
Wildlife Resources	Good	Stable (9 populations); Downward Trend (3 populations)

7 Manager's Letter

Partnerships have been a key factor in accomplishing the important work summarized in this report. The support and assistance from essential partners such as the Friends of the Agua Fria National Monument, Tonto National Forest, Arizona Game and Fish Department, The Nature Conservancy, Natural Resource Conservation Service, National Audubon Society, Arizona Site Stewarts, and Arizona Archaeological Society has afforded Monument staff the ability to accomplish complex proactive projects on our treasured National Conservation Lands. Not only have these relationships provided BLM with additional technical expertise and research opportunities, they have also helped foster trusts amongst stakeholders and the public.

In 2014 the Friends of the Agua Fria National Monument received BLM's "Public Lands Partnership Excellence" Award. The Public Lands Partnership Excellence Award recognizes an interpretive association or friends group that has demonstrated exceptional support for the agency's interpretive, educational, and/or public outreach programs. Friends of the Agua Fria National Monument have shown superior dedication in support of BLM's efforts to protect the Monument's valuable natural and cultural resources. Volunteers have logged thousands of hours to assist the BLM in completing stewardship and resource projects. This is an invaluable partnership and the Monument is grateful for their efforts.

Another important partnership revolves around the Horseshoe-Copper Creek Allotment Coordinated Resource Management Plan (HS-CC CRMP). The HS-CC CRMP planning team is comprised of BLM, USFS Tonto National Forest, Arizona Game and Fish Department, Natural Resource Conservation Service, The Nature Conservancy, and numerous stakeholders. In FY14, this working group has continued to engage interested publics/stakeholders in a collaborative manner, assisted BLM and USFS in the collection of resource data and assessing resource conditions, and assisted in the development of resource objectives and adaptive management processes. This partnership helped leverage funding to contract rangeland expertise to complete a land health evaluation of the Horseshoe allotment during a time of staffing shortages.

In the upcoming year we will continue with grassland restoration projects through the Central Arizona Grasslands Strategy partnership. In FY14 AFNM was once again recognized as a Healthy Landscapes focal area and received $100,000 of one-time funding to assist with grassland restoration efforts. With the completion of the Horseshoe allotment land health evaluation, the team expects to finish the HS-CC CRMP and NEPA analysis in 2015. Other projects planned to be completed in 2015 are the NEPA analysis of riparian exclosures along Indian Creek, Cross Y allotment grazing permit renewal, QR code interpretative tours of Pueblo la Plata, and the initiation of a programmatic special recreation permitting process for the Monument.

Agua Fria

National Monument

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