# Resource Management Plan

# Fort Bowie National Historic Site

December 1993 Revision

Recommended By: _____ 12/17/93
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# INTRODUCTION

Fort Bowie National Historic Site is located in Cochise County, Arizona, 120 miles east of Tucson, on a dirt road 14 miles south of the town of Bowie. It is administered by the Superintendent of Chiricahua National Monument. It is within the fifth Congressional District. The 1,000-acre historic site was authorized on August 30, 1964 for the preservation of the remaining historic structures. Lands were acquired and the historic site was established on July 28, 1972. The historic site preserves and interprets the nationally significant story of frontier settlement, especially from 1854 to 1894, and the end of the Indian wars in the west.

The Resource Management Plan identifies resource issues and proposes strategies to deal with them. These strategies often include a mix of research, monitoring, and mitigation projects. It replaces the previously approved Natural and Cultural Resource Management Plan (1986). Annual updates to the historic site's resource management program have been submitted.

While preservation of the historic ruins in a state of abandonment was the impetus to create the historic site, the importance of the natural setting and archeology is recognized as an integral part of the management of the unit. The Master Plan (1975) calls for management of the area in a manner that preserves an atmosphere of wilderness and historic abandonment.

The plan guides the resource management program at Fort Bowie National Historic Site in accordance with management objectives.

## The Management Objectives

Management objectives are derived from such documents as the enabling legislation, executive orders, and general environmental and cultural legislation. Following is a summary of the current resource-related management objectives, as outlined in the Statement for Management (1978).

-- to work cooperatively with other agencies and groups to minimize adverse effects of grazing, rights-of-way, mining and other non-park uses.

-- to identify, preserve and protect cultural resources, including Apache Springs, the first and second fort ruins, the Butterfield stage route and station, the cemetery, and archeological sites.

-- to realize an adequate land base through acquisition of fee and less-than-fee inholdings.

-- to secure a legal right of vehicular access for administrative use.

-- to secure adequate information on park resources, through research and other means, for the purposes of facilitating resource preservation and interpretation, environmentally compatible development, and effective park management.

-- to foster understanding and appreciation of the historic site as a southwestern frontier settlement and to interpret all significant historical features and sites.

-- to promote visitor and employee safety through awareness of environmental hazards and safety-conscious management practices.

-- to encourage visitor use and enjoyment of the park's trails and historic resources to the extent compatible with natural and cultural resource protection.

-- to assure safe and adequate access to and circulation within the historic site.

-- to cooperate with the Cochise Visitor Center and the Southwest Parks and Monuments Association in order to provide adequate public information on the park's resources and programs.

## PRESENT RESOURCE STATUS

### Natural Resource Baseline Information

> "A virgin forest is a place where the hand of man has never set foot." --Lederer, 1989

The natural environment in this area includes riparian woodlands, canyons, desert scrub hillsides and grassy meadows. These provide shelter and sustenance to resident and migratory wildlife. These also provide an aesthetic setting for the park visitor and for the interpretation of historic events. Because the geological forms and biotic components are integral features, the historic site is dedicated to maintaining the natural landscape. To that end, it is essential to protect and preserve the ecological and geological processes that created this setting, along with the historic ruins of the fort.

The status of Fort Bowie National Historic Site's resource information base is inadequate for the job at hand because so little data exists. The major focus of the natural resource section of this Resource Management Plan is the development of an adequate baseline data base for the historic site.

Some baseline information does exist for Fort Bowie, but the level of information in past and current studies is inadequate to understand the natural resources or to guide proper management over the long run. Consequently, many of the natural resource project statements listed within this Natural and Cultural Resource Management Plan are designed to provide baseline data for the historic site.

Currently, the natural resource data base is comprised of the following information:

1. Vegetation and Flora of Fort Bowie National Historic Site publication, conducted by Warren, Hoy and Hoy, 1992.

2. Black and white aerial photographs were obtained from the EROS Data Center, U.S. Geological Survey. Photos date from 1958, 1970, 1973 and 1976.

3. Black and white aerial photos were obtained from Cooper Aerial Surveys, Tucson in 1979.

## Natural Resources

Human activities affect the natural resources. Issues are briefly discussed below and are the subject of several project statements.

Major Issues:

1. Cattle grazing: There is ongoing cattle grazing on the NPS property itself, as well as on surrounding public and private lands. Impacts include vegetation reduction, changes in vegetation composition, soil disturbance, and erosion.

2. Lack of basic data and insufficient understanding of the ecosystem: Basic inventory and monitoring is needed. The level of current information is inadequate to understand the natural resources or to guide proper management. The major focus of the natural resource section of this plan is the development of an adequate baseline data base for the historic site.

3. Lack of staff and support: This program need is tied in with the lack of basic data statement above, since adequate and quality data collection is dependent on adequate and quality staff. Training, FTE and support are needed for the overall natural resource protection program.

4. Adjacent land uses and increasing insularity of the park ecosystem: Increased development on adjacent lands results in direct and indirect impacts, i.e., mining, woodcutting, water demands, and visual intrusions to the natural setting. The national historic site encompasses just 1,000 acres of the Apache Pass area between the Chiricahua Mountains, which is mostly managed by the U.S. Forest Service (USFS), and the Dos Cabezas Mountains, which is mostly managed by the Bureau of Land Management (BLM). Impacts on the resident and migratory wildlife are from hunting, poaching, competition with cattle, habitat loss to development, and pressure from recreationalists who drive, hike and camp over much of the USFS and BLM lands. The natural habitats of the historic site are insufficient to maintain the unexpectedly high biodiversity of this ecosystem.

5. Non-native species invasion: Non-native species accompanying human occupation have invaded the historic site with varying degrees of impact to native fauna and flora, e.g. weeds dominating sites.

Other Issues:

1. Deterioration of air quality related values: The historic site is northeast of three large copper producing areas. The one in the United States is at Douglas, Arizona and has recently stopped production. The other two are in Mexico at Cananea and Nacazari, Sonora and are active. Copper smelters are large point source polluters. Visibility impairment and biological effects are a concern.

2. Water pollution: Deterioration of water quality results from mining operations or other development activity near the historic site, such as sewage disposal, irrigation, pesticide use and fertilization.

3. Visitor impacts: The limits of acceptable change to natural resources are being exceeded by visitor impacts. Enhanced popularity has resulted in increased visitation. The physical and social human impacts cause a strain on the natural and cultural resources, the facilities, and the quality of the visit.

4. Fire suppression: The over-protection from fire causes changes in the native vegetation community which are long lasting. These human-caused changes have serious effects on the unique mix of animals which inhabit the historic site.

Cultural Resource Baseline Information

The cultural resources of Fort Bowie National Historic Site include prehistoric Indian sites and artifacts, historic Indian activities, and an 1800s military encampment.

The flowing springs and wooded riparian corridors provide an aesthetic setting for the park visitor to understand these cultural resources. Because the geological and biotic components are integral features of the cultural resources, the historic site is dedicated to maintaining the landscape that attracted the earlier residents of the historic period being interpreted. To that end, it is essential to protect and preserve the ecological and geological processes that created this setting.

The status of Fort Bowie National Historic Site's resource information base is inadequate for the job at hand because so little data exists. The major focus of the cultural resource section of this Resource Management Plan is the development of an adequate baseline data base for the historic site.

Some baseline information does exist for Fort Bowie, but the level of information in past and current studies is inadequate to understand the cultural resources or to guide proper management over the long run. Consequently, many of the cultural resource

project statements listed within this Natural and Cultural Resource Management Plan are designed to provide baseline data for the historic site.

See Appendix 1 for the status of the cultural resources documentation for Fort Bowie National Historic Site.

Cultural Resources

Currently, the cultural resource data base is comprised of the following information; see also Appendix 2, Cultural Resource Status Summary Charts.

1. Archeological sites: Fort Bowie National Historic Site, has not been completely surveyed for archeological sites. A few prehistoric sites are known to exist; however, neither they, nor the rest of the park, have been surveyed. The only archeological survey work which has been accomplished is for historic archeology, and only in three locations: the fort ruins, the Butterfield stage station ruins, and the post cemetery. These three locations together constitute about 1 percent of the 1,000-acre national historic site. See the Summary Chart for Sites, Appendix 2.

2. Structures: The historic site presents the structures of Fort Bowie in a condition of historic abandonment. Vacated in 1894, the structural remnants are mostly stone and mortar foundations and partial adobe wall ruins.

   A. List of Classified Structures records: There are 96 structures on the List of Classified Structures. See the Summary Chart for Structures, Appendix 2.

   B. National Register of Historic Places: All of the 96 structures on the List of Classified Structures are also on the National Register of Historic Places as a single listing. The entire park is classified as a single historic zone. See the Summary Chart for Structures, Appendix 2.

3. Objects: Collections records; archeological material recovered from the area, and artifacts acquired to demonstrate the historic period, make up the park cultural collection. These items are either on exhibit in the contact station, in the park collections storage room, or stored and curated at the Museum Collections Repository, Western Archeological and Conservation Center, Tucson, Arizona. See the Summary Chart for Objects in Appendix 2 for cataloging status.

4. Cultural landscapes: The entire 1,000-acre national historic site has some 96 structures on the National Register of Historic Places, however it has never been evaluated as a cultural landscape.

5. Ethnographic resources: The Chiricahua Apache community was significant in the history of the national historic site. Today, however, they make no special authorized (legislative or policy based) use of cultural or natural resources.

Some human activities affect the cultural resources. These are briefly discussed below and are the subject of several project statements.

Major Issues:

1. Erosion of cultural structures: The primary cultural resource, the ruins of Fort Bowie itself, is being affected by loss to weathering of the adobe walls.

2. Lack of basic data: The level of current information is inadequate to understand the cultural resources or to guide proper management. The major focus of the cultural resource section of this plan is the development of an adequate baseline data base for the historic site.

3. Lack of staff and support: This program need is tied in with the lack of basic data statement above, since adequate and quality data collection is dependent on adequate and quality staff. Training, FTE and support are needed for the overall cultural resource protection program.

4. Neighboring land use: Mining exploration and mining on boundary lands are impacts on the historic scene by leaving visible scars on the land.

Other Issues:

1. Illegal collecting: Surface disturbance and collecting of artifacts is a concern as these archeological and historic resources are irreplaceable. The location and significance of many sites are not known since a park-wide archeological survey has never been conducted.

2. Visitor impacts: The limits of acceptable change to the historic resources are being exceeded by visitor impacts. Enhanced notoriety and popularity has resulted in increased visitation. The physical and social human impacts cause a strain on the natural and cultural resources, the facilities, and the quality of the visit.

3. Cultural vegetation management: Some non-native species are historic cultivars (cultivated plants) and are an important part of the cultural resources of the park. The cultural landscape in the historic zone is damaged by non-native plant species, especially Russian thistle. The heavy human impact which the fort received (settlement, roads, grazing,

woodcutting) is now undergoing vegetational succession. Mesquite trees and saplings, as well as other shrubby species, overgrow to the point of obscuring the historic scene. Their roots also damage the original fabric of the fort ruins. The fort ruins must be kept visible and protected through vegetation management.

4. Acid rain damage to cultural resources: Fort Bowie National Historic Site is northeast of three large copper producing areas. Acid rain erosive damage to cultural resources, especially adobe walls, is a concern.

5. Wildlife impacts: Burrowing rodents damage historic structures. Insects are a threat to historic collections. The park's Integrated Pest Management (IPM) program should address each of these effects on cultural resources.

Cultural Context/Theme

Fort Bowie National Historic Site has been identified as representing the following three themes in the publication "History and Prehistory of the NPS and the National Historic Landmarks Program" (NPS, 1987).

X. Westward Expansion of the British Colonies and the United States, 1763 to 1898.
   C. Military - Aboriginal American Contact and Conflict.
      4. The Southwest.
   D. Western Trails and Travelers.
      4. California Trails and Settlement of California.
XV. Communication.
   B. Mail Service (Overland, Water, and Air Routes).

The major cultural themes identified in the Statement for Management (April 1978) are as follows.

1. The original fort (actually an encampment site) and the second Fort Bowie are presented to park visitors as ruins, in a state of historic abandonment.

2. The frontier settlement period of 1854 to 1894 is interpreted.

3. The conflict of cultures between the Chiricahua Apache and the Army-supported frontier settlement is interpreted.

4. The Bascom Affair of 1861 and the Cochise War are interpreted. The 1861 wagon train massacre is interpreted. The battle of Apache Pass and the founding of Fort Bowie is interpreted.

5. The Butterfield overland mail operation is represented as ruins of the station and the route. The 1854 Parke camp, part of the southern railroad route survey, is interpreted.

6. The Chiricahua Apache Indians and their culture are interpreted, especially Cochise and Geronimo.

7. Apache Pass (the physical separation between the Dos Cabezas and Chiricahua Mountains) and Apache Spring are interpreted as settings for human events.

8. The natural and scenic resources of the area are interpreted.

9. Prehistoric Indians of the area are interpreted.

## RESOURCE MANAGEMENT PROGRAM

### Overview of Current Program and Needs

Current staffing levels are sufficient to allow for the continuation of minimal levels of resource management. This includes such ongoing activities as non-native vegetation removal, fence maintenance, brush and tree removal, integrated pest management, curation of study collections, historic buildings preservation maintenance, and curation of artifacts on display in the visitor center. Funding for these comes from cyclic maintenance, FIREPRO, repair and rehabilitation funds, and base funding.

The base funding includes salary for one resource management specialist to handle both Chiricahua National Monument and Fort Bowie National Historic Site, but includes little support money. The resource management specialist for Fort Bowie is stationed at Chiricahua and only spends about 0.2 FTE on Fort Bowie projects.

Additional resource management activities are conducted by a ranger-in-charge, a park ranger, and a maintenance worker. These three people make up the entire permanent Fort Bowie staff. The ranger-in-charge and the park ranger positions are largely interpretive, while both work on curatorial, resource management, and maintenance projects. Additional resource management activities are performed by the Chiricahua chief ranger who implements the fire program. See Table 1 (Personnel) and Table 2 (Funding).

The Western Archeological and Conservation Center (WACC), provides assistance in curation of museum objects and with archeological clearances. The Cooperative Park Studies Unit at the University of Arizona, CPSU/UA, provides assistance with natural resource research issues. The Southern Arizona Group Office (SOAR), provides natural and cultural resource management and planning assistance. Most of this assistance, however, is predicated on project-specific funding rather than on base-funded activities.

Natural Resource Program Needs -- Current staffing and support levels only allow minimal progress toward addressing the historic site's priority natural resource issues. The following long-range strategies will be pursued to address these issues as funding becomes available.

1. Cattle grazing -- Cattle grazing is not mentioned in the enabling legislation itself; however, during the congressional hearings which preceeded the legislation, it was agreed that grazing would be allowed to continue and that the NPS has the right to fence out cattle from the ruins area itself in order to protect cultural resources. This situation raises several questions. The long-range strategy to address this issue is to (a) review current management agreements with the BLM, (b) evaluate any grazing impacts to the natural resources of the historic site (N-2), (c) initiate mitigation measures to decrease natural resource impacts, (d) determine which areas are considered to have structural ruins significant enough to close to grazing, and (e) initiate mitigation measures to protect cultural resources (I-2).

2. Lack of basic data -- As discussed under the Natural Resource Baseline Information section of this plan, there is inadequate data available to understand the natural resources or to guide their proper long-term management. The long-range strategy to address this issue is to (a) inventory important monument resources, (b) develop monitoring protocols for selected species and other resource components, (c) train staff in the proper implementation of these protocols, (d) initiate long-term monitoring efforts, (e) develop a geographic information system to store and analyze the inventory information gathered, and (f) once a series of monitoring efforts have been initiated, integrate the individual protocols into a unified long-term monitoring program. This long-range strategy has been translated into a series of project statements:

   A. I-5 Develop the GIS

   B. N-7 Develop an Inventory and Monitoring Program for Birds

   C. N-8 Develop an Inventory and Monitoring Program for Herpetofauna

   D. N-5 Develop an Inventory and Monitoring Program for Invertebrates

   E. N-9 Develop an Inventory and Monitoring Program for Mammals

   F. N-3 Develop the Water Resource Management Program

G. N-4 Develop the Fire Management Program

H. I-3 Develop the Vegetation Management Program

3. Lack of staff and support -- This program need is tied in with the lack of basic data statement above, since adequate and quality data collection is dependent on adequate and quality staff. Training, FTE and support are needed for the overall natural resource protection program. The long-range strategy for addressing this issue is to improve staffing, FTE and training in both the natural and integrated resource management programs (N-1) and (I-1).

4. Adjacent land use -- Increased development on adjacent lands results in direct and indirect impacts. Pressure on the resident and migratory wildlife is increasing. The natural habitat of the historic site is insufficient to maintain the biodiversity of this ecosystem. The long-range strategy for addressing this issue is to (a) carefully monitor plans, proposals, and activities on neighboring land, whether private or BLM, (b) work closely with the BLM to determine appropriate actions to protect resources of the historic site, (c) develop cooperative agreements with the BLM, and (d) develop agreements with adjacent private land owners to protect historic site resources (N-1), (I-1), and (I-5).

5. Non-native species -- Non-native species accompanying human occupation have invaded the historic site. The long-range strategy for addressing this issue is to (a) list and describe all non-native plants, (b) prioritize the impacts and the possible control measures for each species, and (c) initiate a program of weed control (I-3), and (I-6).

Cultural Resource Program Needs -- Current staffing and support levels are similarly insufficient to make significant progress toward addressing the historic site's highest priority cultural resource issues. The following long-range strategies will be pursued to address these issues as funding becomes available.

1. Erosion of cultural structures -- The primary cultural resource is being lost to weathering of the adobe walls. The long-range strategy for addressing this issue is to (a) develop a base-funded ruins stabilization program (C-2) which is now funded year-by-year through competitive cyclic maintenance requests, (b) establish a ruins erosion monitoring program with a feedback mechanism to evaluate the ruins stabilization program, and (c) continue to seek and implement the advice from top NPS and other curators of ninteenth century ruins to assure proper techniques are being used.

2. Lack of basic data -- The major focus of the cultural resource section of this plan is the development of an adequate baseline data base for the historic site. The long-range strategy for addressing this issue is to (a) conduct an archeological survey (C-3), (b) conduct a study to learn more about daily life at Fort Bowie (C-5), and (c) complete a bibliographic data base and assess the data (I-4).

3. Lack of staff and support -- This program need is tied in with the lack of basic data statement above, since adequate and quality data collection is dependent on adequate and quality staff. Training, FTE and support are needed for the overall cultural resource protection program. The long-range strategy for addressing this issue is to improve staffing, FTE and training in both the cultural and integrated resource management programs (N-1) and (I-1).

4. Adjacent Land Use -- Mining exploration and mining on boundary lands are impacts on the historic scene, leaving visible scars on the land. The long-range strategy for addressing this issue is to (a) carefully monitor activities to forestall possible problems, (b) work closely with the NPS Mining and Minerals Branch staff to determine other appropriate actions to protect historic site resources, (c) carefully monitor BLM and Cochise County planning processes, and (d) work closely with these agencies and potential developers to minimize possible impacts on the historic site's resources (C-1), (I-1), and (I-5).

Other Issues That Cannot Be Addressed With Current Staffing and Funding Levels -- There are several other basic resource management programs that are not receiving any substantial attention at this time. This is not because they are unimportant, rather, it is because they are not quite as urgent as the activities currently being addressed. These issues include the following.

1. Deterioration of air quality related values -- Visibility impairment and biological effects are concerns. Acid rain erosive damage to cultural resources, especially adobe walls, is a concern. This is addressed in the project statement I-7, Evaluate Air Quality Impacts.

2. Water pollution -- Deterioration of water quality results from mining operations or other development activity near the historic site, such as sewage disposal, irrigation, pesticide use and fertilization. This is addressed in the project statement N-3, Develop the Water Resource Management Program.

3. Visitor impacts -- This need is addressed in the project statement I-8, Conduct a Visitor Survey and Impact Study.

4. Fire -- The over-protection from fire causes changes in the native vegetation community which are undesirable. This is addressed in the project statement N-4, Develop the Fire Management Program.

5. Illegal collecting -- Surface collecting of artifacts is a concern as these archeological and historic resources are irreplaceable and as yet undocumented. This is addressed in the project statement C-3, Conduct a Parkwide Archeological Survey and Assessment.

6. Cultural vegetation management -- Some non-native species are historic cultivars (cultivated plants) and are an important part of the cultural resources of the historic site. Mesquite overgrowth is another issue. This is addressed in the project statement I-3, Develop the Vegetation Management Program.

7. Wildlife impacts -- Burrowing rodents damage historic structures and insects are a threat to historic collections. This is addressed in the project statement I-6, Develop an Integrated Pest Management Program.

Staffing and Funding Needs -- Tables 1 and 2 show the current levels of staffing and funding for natural and cultural resource management. As described above, this level of funding only enables the historic site to attend to basic ongoing resource management functions. A base increase is needed to hire seasonal staff to begin addressing the resource management issues of the historic site in a more comprehensive way.

To reduce this time lag, a substantial increase in regional or servicewide funding is recommended to pay for non-recurring medium-to-large scale research and resource management projects.

## Current Funding and Personnel

-- Tables 1 and 2 show the levels of personnel and funding currently available for natural and cultural resource management activities in the historic site. They are computer-generated as part of the annual Resource Management Plan update.

Table 1 -- PERSONNEL

Funding Source Codes -- Used in Table 2, and later in Programming Sheets

Table 2 -- Natural & Cultural Resource FUNDING

TABLE 1
NPS RESOURCE PERSONNEL
(current year only)

FY: 93
PARK: FOBO
REGION: WRO

| TYPE OF NPS EMPLOYEE | FTEs OF RESOURCES WORK | | |
|---|---|---|---|
| | Natural | Cultural | Total |
| Research Scientists | 0.0 | 0.0 | 0.0 |
| Resources Specialists | 0.0 | 0.0 | 0.0 |
| 025 Park Rangers Res Mgmt | 0.0 | 0.0 | 0.0 |
| 025 Park Rangers Res Prot | 0.0 | 0.0 | 0.0 |
| 025 Park Rangers Res Interp | 0.0 | 0.0 | 0.0 |
| Maintenance Personnel | 0.0 | 0.4 | 0.4 |
| Total of RES Personnel | 0.0 | 0.4 | 0.4 |
| TOTAL PARK FTE: 4.0<br>PERCENT | 0.0% | 10.0% | 10.0% |

Funding Source Codes - used in Table 2 and Programming Sheets

Funding Source Codes
(New as of November 30, 1990)

**PARK**

| | |
|---|---|
| Recurring (Permanent) Operating Base-Nat. Resources | PNR1 |
| Recurring (Permanent) Operating Base-Cult. Resources | PCR1 |
| Recurring (Permanent) Operating Base-Other | POF1 |
| Non-Recurring (Temporary) Operating Funds-Nat. Resources | PNR2 |
| Non-Recurring (Temporary) Operating Funds-Cult. Resources | PCR2 |
| Non-Recurring (Temporary) Operating Funds-Other | POF2 |
| Fee Revenues | PFEE |
| Special Accounts (Historic Leasing, Agriculture) | PSPA |

**REGION**

| | |
|---|---|
| Natural Science Research | RNSR |
| Natural Resource Management | RNRM |
| Cultural Resource Cyclic Maintenance | RCCM |
| Regular Cyclic Maintenance | RMCM |
| Repair-Rehabilitation | RMRR |
| Volunteer-In-Parks (VIP) | RVIP |
| Other | ROTH |

**SERVICEWIDE**

| | |
|---|---|
| Natural Resource Preservation Program (NRPP) | SNRP |
| Water Resources | SNWR |
| Air Quality | SNAQ |
| Acid Precipitation | SNAP |
| Natural Resources Inventory and Monitoring | SNIM |
| Global Climate Change | SNGC |
| Geographic Information Systems | SNGS |
| Energy, Mining and Minerals | SNEM |
| Fire Accounts | SFIR |
| Forest Insect and Disease Control | SIDC |
| Cultural Resource Preservation Program (CRPP) | SCRP |
| Construction (Development) Program | SDEV |
| Emergency and Unscheduled Project (Lump Sum Construction) | SDLS |
| Other | SOTH |

**NON-NPS**

| | |
|---|---|
| Other Federal | NFED |
| State or Local Government Agency | NSTA |
| University or College | NUNV |
| Non-Profit Institution (Cooperating Associations, etc,) | NPRF |
| Financial Donations | NDON |
| Volunteer Labor and Independent Studies | NVOL |
| Other | NOTH |

TABLE 2
NATURAL AND CULTURAL
CURRENT YEAR FUNDING
($ in thousands - by activity type)

FY: 93
PARK: FOBO
REGION: WRO

| FUNDING SOURCE | TOTAL | RES | MIT | MON | PRO | INT | ADM |
|---|---|---|---|---|---|---|---|
| RCCM | 13.00 | 0.00 | 13.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TOTAL | 13.00 | 0.00 | 13.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## Programming Sheets

The following few pages contain programming sheets which list the natural, cultural, and integrated resource projects for Fort Bowie National Historic Site which are currently funded and ongoing, as well as priority listings of unfunded needs for both subject areas. These sheets are computer-generated as part of the annual Resource Management Plan update process.

On the following pages are found:

1. Natural Resource Issue Codes
2. Activity Type Codes
3. Natural Resource PROGRAMMING SHEET 1 -- Funded Activities
4. Natural Resource PROGRAMMING SHEET 2 -- Unfunded Activities
5. Cultural Resource Issue Codes
6. Cultural Resource PROGRAMMING SHEET 1 -- Funded Activities
7. Cultural Resource PROGRAMMING SHEET 2 -- Unfunded Activities
8. Integrated (Natural and Cultural Resource) PROGRAMMING SHEET 1 -- Funded Activities
9. Integrated (Natural and Cultural Resource) PROGRAMMING SHEET 2 -- Unfunded Activities

Natural Resource Issue Codes - used in Programming Sheets

| CODE | SERVICEWIDE NATURAL RESOURCE ISSUE |
|---|---|
| N01 | Degradation of Park Resources Due to Native Animal Species Overpopulation |
| N02 | Impacts on Threatened, Endangered and Other Sensitive Animals |
| N03 | Impacts on Threatened, Endangered and Other Sensitive Plants |
| N04 | Degradation of Park Resources Due to Non-Native Animals |
| N05 | Degradation of Park Resources Due to Non-Native Plants |
| N06 | Disruption of Native Plant Communities and Accelerated Erosion Due to Past Land Practices |
| N07 | Disruption of Natural Fire Regimes |
| N08 | Loss of Cultural Landscapes |
| N09 | Disruption of Natural Coastal Dynamics |
| N10 | Disruption of Park Resources Due to Mineral Extraction and Geothermal Activities |
| N11 | Degradation of Park Water Quality Due to External Activities |
| N12 | Alteration of Natural Flow Regimes/Groundwater Levels |
| N13 | Lack of Secure Water Rights |
| N14 | Visibility Impairment and Biological Damage Caused by Air Pollution (includes wet and dry deposition) |
| N15 | Noise, Visual, and Biological Impacts Related to Aircraft Overflights |
| N16 | Visual and Biological Impacts of Urbanization and Other Near-Park Development on Park Resources |
| N17 | Loss of Biological Diversity |
| N18 | Visitor Use Impacts on Backcountry Park Resources |
| N19 | Loss of Park Resources Due to Consumptive Practices (hunting, fishing, commercial fishing, grazing) |
| N20 | Lack of Basic Data: Insufficient Understanding of Park Ecosystems and Threats to Them |
| N21 | Loss of Fragile and Irreplaceable Cave Resources |
| N22 | Overuse/Impacts of Recreation and/or Landscape Zones |
| N23 | Loss of Paleontologic Resources |
| N24 | Other Issues |

Activity Type Codes - used in Programming Sheets

| ACTIVITY | CODE |
|---|---|
| Research/Documentation | RES |
| Mitigation/Treatment | MIT |
| Monitoring | MON |
| Protection (Enforcement) | PRO |
| Program Administration/Training | ADM |

# PROGRAMMING SHEET 1
## NATURAL
## CURRENT YEAR FUNDED ACTIVITIES
## ($ in thousands)

FY: 93
PARK: FOBO
REGION: WRO

| PROJECT NUMBER | PROJECT TITLE | PKG NUM TYPE | CULT RES ISSUE | WIDE | SYSTEM-SOURCE | FUNDING TYP | ACT 1993 $$ | ACT 1993 FTE | CURRENT YEAR 1994 $$ | CURRENT YEAR 1994 FTE | OUTYEAR 1 1995 $$ | OUTYEAR 1 1995 FTE | OUTYEAR 2 1996 $$ | OUTYEAR 2 1996 FTE | OUTYEAR 3 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No relevant data | | | | | | | | | | | | | | | | |

# PROGRAMMING SHEET 2
## NATURAL
## UNFUNDED ACTIVITIES
## ($ in thousands)

FY: 93
PARK: FOBO
REGION: WRO

| PK PRI | PROJECT NUMBER | PROJECT TITL | PKG NUM | CULT RES TYPE | SYSTEM-WIDE ISSUE | FUNDING SOURCE | ACT TYP | STARTING YEAR $$ | STARTING YEAR FTE | OUTYEAR 1 $$ | OUTYEAR 1 FTE | OUTYEAR 2 $$ | OUTYEAR 2 FTE | OUTYEAR 3 $$ | OUTYEAR 3 FTE | TOTAL $$ | TOTAL FTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 002.000 | DEVELOP THE GRAZING MANAGEMENT PROGRAM | | COMB | N19 | RG-RM-NAT | MIT | 14.30 | 0.5 | 10.30 | 0.5 | 10.30 | 0.5 | 10.30 | 0.5 | 45.20 | 2.0 |
| 9 | 003.000 | DEVELOP THE WATER RESOURCES MANAGEMENT PROGRAM | | CULL | N13 N12 | WATER-RES | MIT | 19.50 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.50 | 0.5 |
| | | | | | | WATER-RES | MON | 0.0 | 0.0 | 10.50 | 0.5 | 10.50 | 0.5 | 10.50 | 0.5 | 31.50 | 1.5 |
| | | | | | | Subtotal | | 19.50 | 0.5 | 10.50 | 0.5 | 10.50 | 0.5 | 10.50 | 0.5 | 51.00 | 2.0 |
| 13 | 004.000 | DEVELOP THE FIRE MANAGEMENT PROGRAM | | CULL | N07 | FIRE-$ | MIT | 81.00 | 1.5 | 48.30 | 2.2 | 48.30 | 2.2 | 48.30 | 2.2 | 225.90 | 8.1 |
| 15 | 007.000 | INVENTORY AND MONITOR BIRDS | | | N20 N02 | RG-NS-RES | RES | 29.50 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.50 | 0.5 |
| | | | | | | NR-I&M | MON | 0.0 | 0.0 | 11.00 | 0.5 | 11.00 | 0.5 | 11.00 | 0.5 | 33.00 | 1.5 |
| | | | | | | Subtotal | | 29.50 | 0.5 | 11.00 | 0.5 | 11.00 | 0.5 | 11.00 | 0.5 | 62.50 | 2.0 |
| 18 | 005.000 | INVENTORY AND MONITOR INVERTEBRATES | | | N20 N04 | RG-NS-RES | RES | 39.00 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.00 | 0.5 |
| | | | | | | NR-I&M | MON | 0.0 | 0.0 | 10.80 | 0.5 | 10.80 | 0.5 | 10.80 | 0.5 | 32.40 | 1.5 |
| | | | | | | Subtotal | | 39.00 | 0.5 | 10.80 | 0.5 | 10.80 | 0.5 | 10.80 | 0.5 | 71.40 | 2.0 |
| 20 | 008.000 | INVENTORY AND MONITOR AMPHIBIANS AND REPTILES | | | N20 N02 | RG-NS-RES | RES | 24.30 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.30 | 0.2 |
| | | | | | | NR-I&M | MON | 0.0 | 0.0 | 6.10 | 0.3 | 6.10 | 0.3 | 6.10 | 0.3 | 18.30 | 0.9 |
| | | | | | | Subtotal | | 24.30 | 0.2 | 6.10 | 0.3 | 6.10 | 0.3 | 6.10 | 0.3 | 42.60 | 1.1 |
| 21 | 009.000 | INVENTORY AND MONITOR MAMMALS | | | N20 N02 | RG-NS-RES | RES | 25.50 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.50 | 0.2 |
| | | | | | | NR-I&M | MON | 0.0 | 0.0 | 6.20 | 0.2 | 6.20 | 0.2 | 6.20 | 0.2 | 18.60 | 0.6 |
| | | | | | | Subtotal | | 25.50 | 0.2 | 6.20 | 0.2 | 6.20 | 0.2 | 6.20 | 0.2 | 44.10 | 0.8 |
| | 7 projects printed | | | | | | | | | | | | | | | | |
| | | | | | | Grand Total | | 233.10 | 3.9 | 103.20 | 4.7 | 103.20 | 4.7 | 103.20 | 4.7 | 542.70 | 18.0 |

Cultural Resource Issue Codes - used in Programming Sheets

| CODE | SERVICEWIDE CULTURAL RESOURCE ISSUE |
|---|---|
| 1. | Documentation Issues: |
| C01 | Inadequate Planning Documents (GMP, SFM, DCP) |
| C02 | Inadequate Archeological Survey and Inventory, Including Archeological Identification and Evaluation Studies, Overviews and Assessments |
| C03 | Incomplete Cataloging of Museum Collections (ANCS) |
| C04 | Need for Ethnographic Overviews and Assessments, Oral Histories and Life Histories |
| C05 | Need for Historic Structures Reports, Assessments Condition |
| C06 | Need for Historic Structures Preservation Guides |
| C07 | Inadequate Historic Structure Survey and Inventory (LCS) |
| C08 | Need for Historic Resource Studies and Administrative Histories |
| C09 | Need for Collections Management Plans, Collection Storage Plans, Collection Condition Surveys |
| C10 | Need for Specialized Studies for Unique or Complex Management Issues |
| C11 | Need for Cultural Landscape Report |
| 2. | Treatment Issues: |
| C12 | Inadequate Preservation Maintenance Programs Including Stabilization and Cyclic Maintenance |
| C13 | Need for Rehabilitation or Restoration of Historic and Prehistoric Structures, and Cultural Landscapes |
| C14 | Need for Major Archeological Data Recovery |
| C15 | Need for Conservation Treatment of Museum Objects |
| C16 | Inadequate Storage and Environmental Controls for Museum Objects |
| C17 | Control of Environmental Impacts (Wildlife, natural erosion, animal damage, insects, vegetation, acid rain, etc.) |
| 3. | Monitoring Issues: |
| C18 | Control of Visitor Impacts (excessive foot traffic, wall climbing, touching, recreational impacts, etc.) |
| C19 | Inadequate Cultural Resource Monitoring Programs |
| 4. | Protection Issues: |
| C20 | Inadequate Security (looting, vandalism, graffiti, arson, fire and burglary systems) |
| C21 | Need for Emergency Site and Structure Stabilization |
| C22 | Threats to Cultural Landscapes and Viewsheds from Beyond Park Boundaries |
| C23 | Conflicting Park Management and Development Activities |
| 5. | Other Cultural Resource Issues: |
| C24 | Insufficient Professional Staff |
| C25 | Need for CRM-Related Training (including Section 106 Compliance) |
| C26 | Other |

# PROGRAMMING SHEET 1
## CULTURAL
## CURRENT YEAR FUNDED ACTIVITIES
## ($ in thousands)

FY: 93
PARK: FOBO
REGION: WRO

| PROJECT NUMBER | PROJECT TITLE | PKG NUM | CULT RES TYPE | SYSTEM-WIDE ISSUE | FUNDING SOURCE | ACT TYP | CURRENT YEAR 1993 $$ | CURRENT YEAR 1993 FTE | OUTYEAR 1 1994 $$ | OUTYEAR 1 1994 FTE | OUTYEAR 2 1995 $$ | OUTYEAR 2 1995 FTE | OUTYEAR 3 1996 $$ | OUTYEAR 3 1996 FTE | TOTAL $$ | TOTAL FTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 002.000 | CONDUCT RUINS STABILIZATION | | STRC | C13 C01 | RG-CR-MTN | MIT | 13.00 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.00 | 0.4 |
| 1 projects printed | | | | | | | | | | | | | | | | |
| | | | | | Grand Total | | 13.00 | 0.4 | 0.00 | 0.0 | 0.00 | 0.0 | 0.00 | 0.0 | 13.00 | 0.4 |

# PROGRAMMING SHEET 2
# CULTURAL
# UNFUNDED ACTIVITIES
# ($ in thousands)

FY: 93
PARK: FOBO
REGION: WRO

| PK PRI | PROJECT NUMBER | PROJECT TITL | PKG NUM | CULT RES TYPE | SYSTEM-WIDE ISSUE | FUNDING SOURCE | ACT TYP | STARTING YEAR $$ | STARTING YEAR FTE | OUTYEAR 1 $$ | OUTYEAR 1 FTE | OUTYEAR 2 $$ | OUTYEAR 2 FTE | OUTYEAR 3 $$ | OUTYEAR 3 FTE | TOTAL $$ | TOTAL FTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 002.000 | CONDUCT RUINS STABILIZATIO N | | STRC | C13 C01 | RG-CR-MTN | MIT | 72.00 | 2.5 | 53.20 | 1.9 | 53.20 | 1.9 | 53.20 | 1.9 | 231.60 | 8.2 |
| 5 | 003.000 | CONDUCT AN ARCHEOLOGICA L SURVEY | | SITE | C02 C14 | RG-CR-MTN | RES | 99.10 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 99.10 | 0.5 |
| | | | | | | RG-CR-MTN | MON | 0.0 | 0.0 | 1.50 | 0.0 | 1.50 | 0.0 | 1.50 | 0.0 | 4.50 | 0.0 |
| | | | | | | Subtotal | | 99.10 | 0.5 | 1.50 | 0.0 | 1.50 | 0.0 | 1.50 | 0.0 | 103.60 | 0.5 |
| 7 | 004.000 | DEVELOP A COLLECTIONS MANAGEMENT PLAN | | OBJC | C09 | RG-CR-MTN | ADM | 12.50 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.50 | 0.5 |
| 11 | 007.000 | PRODUCE AN ADMINISTRATI VE HISTORY | | COMB | C08 | RG-CR-MTN | RES | 12.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.00 | 0.0 |
| 14 | 005.000 | CONDUCT A STUDY OF DAILY LIFE AT FT BOWIE | | ETHN | C04 | RG-CR-MTN | RES | 12.50 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.50 | 0.0 |
| 16 | 006.000 | CONDUCT A HISTORIC ROUTES STUDY | | SITE | C02 C01 | RG-CR-MTN | RES | 19.00 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.00 | 0.5 |
| | | | | | | RG-CR-MTN | MIT | 0.0 | 0.0 | 1.00 | 0.0 | 1.00 | 0.0 | 1.00 | 0.0 | 3.00 | 0.0 |
| | | | | | | Subtotal | | 19.00 | 0.5 | 1.00 | 0.0 | 1.00 | 0.0 | 1.00 | 0.0 | 22.00 | 0.5 |
| | 6 projects printed | | | | | Grand Total | | 227.10 | 4.0 | 55.70 | 1.9 | 55.70 | 1.9 | 55.70 | 1.9 | 394.20 | 9.7 |

# PROGRAMMING SHEET 1
# NATURAL and CULTURAL
# CURRENT YEAR FUNDED ACTIVITIES
# ($ in thousands)

FY: 93
PARK: FOBO
REGION: WRO

| PROJECT NUMBER | PROJECT TITLE | PKG NUM | CULT RES TYPE | SYSTEM-WIDE ISSUE | FUNDING SOURCE | ACT TYP | CURRENT YEAR 1993 $$ | CURRENT YEAR 1993 FTE | OUTYEAR 1 1994 $$ | OUTYEAR 1 1994 FTE | OUTYEAR 2 1995 $$ | OUTYEAR 2 1995 FTE | OUTYEAR 3 1996 $$ | OUTYEAR 3 1996 FTE | TOTAL $$ | TOTAL FTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No relevant data | | | | | | | | | | | | | | | | |

# PROGRAMMING SHEET 2
# NATURAL and CULTURAL
# UNFUNDED ACTIVITIES
# ($ in thousands)

FY: 93
PARK: FOBO
REGION: WRO

| PK PRI | PROJECT NUMBER | PROJECT TITL | PKG NUM | CULT RES TYPE | SYSTEM-WIDE ISSUE | FUNDING SOURCE | ACT TYP | STARTING YEAR $$ | STARTING YEAR FTE | OUTYEAR 1 $$ | OUTYEAR 1 FTE | OUTYEAR 2 $$ | OUTYEAR 2 FTE | OUTYEAR 3 $$ | OUTYEAR 3 FTE | TOTAL $$ | TOTAL FTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 001.000 | ADMINISTER THE RESOURCE MANAGMENT PROGRAM | | CULL | N20 C12 | RG-RM-NAT | MIT | 15.00 | 0.5 | 15.00 | 0.5 | 15.00 | 0.5 | 15.00 | 0.5 | 60.00 | 2.0 |
| 4 | 002.000 | CONSTRUCT AND MAINTAIN CATTLE EXCLUSION FENCES | | COMB | C23 C15 | REG-OTHER | MIT | 86.00 | 3.0 | 11.00 | 0.5 | 11.00 | 0.5 | 11.00 | 0.5 | 119.00 | 4.5 |
| 6 | 005.000 | DEVELOP THE GEOGRAPHIC INFORMATION SYSTEM | | COMB | C01 N20 | GIS | RES | 101.20 | 2.0 | 24.00 | 0.8 | 24.00 | 0.8 | 24.00 | 0.8 | 173.20 | 4.4 |
| 8 | 006.000 | DEVELOP THE INTEGRATED PEST MANAGEMENT PROGRAM | | COMB | N03 N01 | REG-OTHER | MIT | 18.00 | 0.5 | 13.00 | 0.4 | 13.00 | 0.4 | 13.00 | 0.4 | 57.00 | 1.7 |
| 10 | 003.000 | DEVELOP THE VEGETATION MAMAGEMENT PROGRAM | | CULL | N08 N17 | REG-OTHER | MIT | 30.50 | 1.0 | 10.30 | 0.5 | 10.30 | 0.5 | 10.30 | 0.5 | 61.40 | 2.5 |
| 12 | 004.000 | DEVELOP A BIBLIOGRAPHIC DATABASE AND ASSESSMENT | | COMB | N20 C02 | REG-OTHER | RES | 21.10 | 0.5 | 5.50 | 0.3 | 5.50 | 0.3 | 5.50 | 0.3 | 37.60 | 1.4 |
| 17 | 008.000 | CONDUCT A VISITOR SURVEY AND VISITOR IMPACT STUDY | | COMB | C18 N18 | REG-OTHER | RES | 17.00 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.00 | 0.2 |
| 19 | 007.000 | EVALUATE AIR QUALITY IMPACTS | | STRC | N14 C17 | AIR-QUAL | RES | 20.50 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.50 | 0.3 |
| | | | | | | AIR-QUAL | MON | 0.0 | 0.0 | 6.00 | 0.3 | 6.00 | 0.3 | 6.00 | 0.3 | 18.00 | 0.9 |
| | | | | | | Subtotal | | 20.50 | 0.3 | 6.00 | 0.3 | 6.00 | 0.3 | 6.00 | 0.3 | 38.50 | 1.2 |

continued...

# PROGRAMMING SHEET 2
# NATURAL and CULTURAL
# UNFUNDED ACTIVITIES
# ($ in thousands)

FY: 93
PARK: FOBO
REGION: WRO

| PK PRI | PROJECT NUMBER | PROJECT TITL | PKG NUM | CULT RES TYPE | SYSTEM-WIDE ISSUE | FUNDING SOURCE | ACT TYP | STARTING YEAR $$ | STARTING YEAR FTE | OUTYEAR 1 $$ | OUTYEAR 1 FTE | OUTYEAR 2 $$ | OUTYEAR 2 FTE | OUTYEAR 3 $$ | OUTYEAR 3 FTE | TOTAL $$ | TOTAL FTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 009.000 | INVENTORY AND ASSESSMENT OF ABANDONED MINERAL LANDS | | COMB | N20 N10 | PKBASE-NR | MON | 1.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.00 | 0.0 |
| | | | | | | PKBASE-NR | ADM | 1.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.00 | 0.0 |
| | | | | | | Subtotal | | 2.00 | 0.0 | 0.00 | 0.0 | 0.00 | 0.0 | 0.00 | 0.0 | 2.00 | 0.0 |
| | 9 projects printed | | | | | | | | | | | | | | | | |
| | | | | | | Grand Total | | 311.30 | 8.0 | 84.80 | 3.3 | 84.80 | 3.3 | 84.80 | 3.3 | 565.70 | 17.9 |

## Natural Resource Project Statements: Funded Program

The following project statements are a description of the natural resource protection and information program currently funded at Fort Bowie National Historic Site.

-- none --

## Natural Resource Project Statements: Unfunded Program

The following project statements are a description of the natural resource management and information program currently unfunded at Fort Bowie National Historic Site.

| Prk Pri | Project Number | Project Name |
|---|---|---|
| 1. | FOBO-N-2 | Develop the Grazing Management Program |
| 2. | FOBO-N-3 | Develop the Water Resource Management Program |
| 3. | FOBO-N-4 | Develop the Fire Management Program |
| 4. | FOBO-N-7 | Inventory and Monitoring Birds |
| 5. | FOBO-N-5 | Inventory and Monitoring Invertebrates |
| 6. | FOBO-N-8 | Inventory and Monitoring Amphibians and Reptiles |
| 7. | FOBO-N-9 | Inventory and Monitoring Mammals |

## PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-N-002.000

TITLE: DEVELOP THE GRAZING MANAGEMENT PROGRAM

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 45.20

SERVICEWIDE ISSUES: N19 CONSUMPT USE

CULTURAL RESOURCE TYPE CODE: COMB

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Legal cattle grazing by a lessee continues on Fort Bowie National Historic Site. The grazing is administered through a cooperative agreement between the NPS and the BLM. The BLM evaluates the range condition, sets the grazing limits and collects the grazing fee from the lessee. The NPS can have greater input into this process, however, in the past NPS has not been active in range management at Fort Bowie. There is no NPS Grazing Management Plan for Fort Bowie.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A Grazing Management Plan will be developed. NPS will evaluate range condition periodically and will adjust conditions of the grazing lease accordingly.

BUDGET AND FTEs:

| | FUNDED | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| Total: | | | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-RM-NAT | MIT | 14.30 | 0.5 |
| Year 2: | RG-RM-NAT | MIT | 10.30 | 0.5 |
| Year 3: | RG-RM-NAT | MIT | 10.30 | 0.5 |
| Year 4: | RG-RM-NAT | MIT | 10.30 | 0.5 |
| | | Total: | 45.20 | 2.0 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. The BLM will continue to manage the grazing lease at Fort Bowie National Historic Site, and the NPS will tacitly agree with BLM range management decisions.

B. A Grazing Management Plan will be developed for Fort Bowie National Historic Site, and the NPS will assume an active role in range management.

COMPLIANCE CODE(s): 106 EXCL

EXPLANATION: 516 DM6 App. 7.4 E(2)

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-N-003.000

TITLE: DEVELOP THE WATER RESOURCES MANAGEMENT PROGRAM

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 51.00

SERVICEWIDE ISSUES: N13 WATER RIGHTS N12 WATER FLOW

CULTURAL RESOURCE TYPE CODE: CULL

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Fort Bowie NHS at present has no Water Resource Management Plan. It, therefore, has no guiding document for its water resource management program.

The historic site's domestic water source is a well recently developed and maintained by NPS. It is susceptible to upstream surface contamination.

Fort Bowie has had a history of water allocation issues, including litigation, concerning water from the historic Apache Springs. Presently, the NPS receives half the flow which is used to maintain a reduced but natural riparian corridor near the springs. The other half of the flow is piped away for use by cattle, which graze within and adjacent to the NPS lands. Impacts of grazing, of reduced flow, and of piped water to the resources of the park are unknown. The spring's flow rate is not monitored.

The historic site is in the western Chihuahua Desert and is subject to late summer monsoon rains. These rains are typically convection cell thunderstorms which drop large amounts of rain on small areas for a short time. This results in frequent summer flash flooding, especially from steep canyons. The visitor access to the fort ruins is by a foot trail which crosses some large dry washes. During the late summer there is a danger of flash flooding to the park trails and the possibility of stranding visitors across a dangerous flow.

The historic site's wetlands have yet to be delineated. Such work is necessary to protect park wetlands resources under national legislation.

A hydrological study needs to be conducted to determine the underlying setting for wetlands protection, for protection of the site's drinking supply, and for integrating knowledge into better ecosystem understanding.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A Water Resource Management Plan will be completed and reviewed by the NPS Water Quality Division in Fort Collins, Colorado. The plan will integrate the various water quality issues of the historic site. It will guide further actions, set priorities and set standards.

A floodplain study and assessment will be conducted. Threat to the visitor from flash flooding will be analyzed and appropriate mitigating actions will be recommended. Records will be summarized regarding drinking water quality and the water systems will be reviewed. Wastewater treatment will be reviewed, especially in light of its possible affect on public health and natural resources. A spring flow gauging station will be set up in the present Apache Springs spring box, and records will be kept as to flow rates, and seasonal variation of flow. A program of monitoring the spring's water quality will be instituted. Research will determine the historic flows of Apache Springs and determine the causes of any decline.

BUDGET AND FTEs:

| FUNDED | | | |
|---|---|---|---|
| Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | |
| Year 2: | | | |
| Year 3: | | | |
| Year 4: | | | |
| Total: | | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | WATER-RES | MIT | 19.50 | 0.5 |
| Year 2: | WATER-RES | MON | 10.50 | 0.5 |
| Year 3: | WATER-RES | MON | 10.50 | 0.5 |
| Year 4: | WATER-RES | MON | 10.50 | 0.5 |
| | | Total: | 51.00 | 2.0 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. The status quo will continue with various park water resource management projects without an integrating plan or program. The historic loss of perennial riparian habitat will go unresearched. The threats to visitors from flash floods will go unchecked. The threats to drinking water supplies will continue to go unchecked until crisis management is necessary.

B. An integrative Water Resource Management Plan would guide the assorted water resource issues. The NPS Water Quality Division would assist with reviewing the plan and analyzing the flash flood danger to visitors. Historical research would help determine the earlier flow of Apache Springs and determine the impacts of its partition. The site's water well and drinking water quality would be reviewed.

COMPLIANCE CODE(s): 106 EXCL

EXPLANATION: 516 DM6 App. 7.4 E(2)

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-N-004.000

TITLE: DEVELOP THE FIRE MANAGEMENT PROGRAM

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 225.90

SERVICEWIDE ISSUES: N07 NAT FIRE REGM

CULTURAL RESOURCE TYPE CODE: CULL

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

The fire management program operates under a Fire Management Plan. At this time, there is no such plan for Fort Bowie National Historic Site but one is needed.

The ranger-in-charge maintains a small cache of fire tools. The fire program with threeemployees is necessarily one of total suppression. There has been no FIREPRO funding. Any attempt at management of a complex fire program (i.e. including both fire suppression and a prescribed burn program) would require the outside assistance of personnel and equipment, possibly from Chiricahua. The 1000-acre natural setting is of desert scrub and riparian woodland in dry southeast Arizona.

The fire program is in need of research, monitoring and development. There is a lack of knowledge about the area's natural fire history, about fire response of dominant species as well as rare species and non-native vegetation. Ecological objectives of management need to be defined, and the appropriate use of prescribed burning and prescribed natural fire needs to be evaluated. The significance of threats of wildfires to park facilities needs to be analyzed and mitigation measures need to be initiated -- either hand thinning of fuels or prescribed burning. Permanent and seasonal staff need to be trained in various aspects of fire management; suppression, monitoring, prescriptions, supervision, specialized equipment use, etc. The use of prescribed burning to maintain historic landscapes needs to be evaluated and, if appropriate, a program needs to be initiated. A fire history study has not been done for Fort Bowie. Without such a study, the basic background information for a prescribed fire program to maintain natural biological diversity is missing.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

An integrated fire management program will be developed. A Fire Management Plan will be written to detail each of the parts of the program and will guide all fire activities. Cooperative Agreements with adjacent land owners regarding fire management will be promulgated. Cases for using fire as a vegetation management tool will be evaluated -- to maintain the natural plant communities and species diversity, to maintain a safety clearing around structures and historic ruins, to maintain historic landscape, and to control non-native plants. Fire management research needs will be assessed, including research burns, fire histories, and fire ecology studies of selected species.

Equipment needs and staff training needs will be assessed. The fire management program will reflect present policy and recent developments in the field of ecological fire science.

A fire history study and other necessary fire related research will be conducted. Fire effects on key plant species will be investigated. The ecological objectives will be developed for a prescribed burning program. These will aim at restoration and maintenance of natural vegetation communities and at maintenance of natural species diversity. Fire objectives will be based on adequate research which still needs to be conducted. A program will be initiated for using prescribed burning to help restore and maintain a natural vegetation community mix and to maintain the natural diversity of species.

A management-ignited prescribed fire program will be initiated. Fire objectives will be evaluated by using data from field index plots. These vegetation and fuel monitoring plots will be read pre-burn, post-burn and then at set year intervals. The Fire Management Plan will be re-evaluated for appropriateness of using prescribed burning to help restore and maintain historic or managed landscapes in the fort ruins area. The appropriateness of using prescribed burning to help control non-native vegetation will be evaluated.

BUDGET AND FTEs:

FUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

UNFUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | FIRE-$ | MIT | 81.00 | 1.5 |
| Year 2: | FIRE-$ | MIT | 48.30 | 2.2 |
| Year 3: | FIRE-$ | MIT | 48.30 | 2.2 |
| Year 4: | FIRE-$ | MIT | 48.30 | 2.2 |
| | | Total: | 225.90 | 8.1 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. The base funded status quo includes essentially no expenditure for fire protection, fire history research, evaluation of ecological fire effects, prescribed burn program, or fire monitoring.

B. An integrated Fire Management Plan would guide the assorted fire related issues. The Service's Branch of Fire and Aviation Management staff in Boise would assist with reviewing the plan and analyzing the need for increased fire management capabilities. Research would help determine the ecological role of fire and the natural frequency of lightning-caused fire. A park-wide fire history study would be conducted by contract research. The park's fire management program would reflect present policy and recent developments in the field of ecological fire science. It would also address the use of prescribed fire as an option for vegetation manipulation in maintaining historic areas. Ecological objectives would be defined for a management-ignited prescribed fire program. These would aim to restore and maintain a natural vegetation community mix and to maintain the natural diversity of species in the historic site. Fire objectives would be based on adequate research.

COMPLIANCE CODE(s): 106 EXCL

EXPLANATION: 516 DM6 App. 7.4 E(2)

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-N-007.000

TITLE: INVENTORY AND MONITOR BIRDS

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 62.50

SERVICEWIDE ISSUES: N20 BASELINE DATA N02 T&E ANIMAL

CULTURAL RESOURCE TYPE CODE: N/A

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

The most recent survey of birds at Fort Bowie was published by Cockrum, Russell and Lowe (1976). This survey needs to be updated and assessed. A long-term monitoring system for birds needs to be designed and implemented at Fort Bowie.

From time to time, excellent bird checklists (USFS n.d.) and birding guides (Davis & Russell 1984; Lane 1986) have been published for southeastern Arizona. None of these checklists satisfactorily ties the animals to their habitat, certainly not to the degree shown in the format created by Brown, et al. (1984). But a checklist presenting the latest avifauna observations related to abundance, seasonality and vegetative habitat with an extensive bibliography is needed, will be useful, and should be popular with the professional and amateur alike.

There has been a recent emphasis in the popular literature on avian ecology. Perhaps as a result of endangered species concern, many birders are no longer content to collect sightings in the same way philatelists collect stamps; they want to know more about how the bird lives and fits into the fabric of the ecosystem.

Sierra Madre as well as the Rocky Mountain vegetation is well and richly represented in the mountains of southeastern Arizona (Axelrod 1958). Furthermore, because these mountains are the northern range limit of a number of Mexican species, and lie close to the juncture of the Chihuahuan and Sonoran deserts, the regional species diversity is quite rich. Lowe (1963) notes that the fauna of the Atascosa, Santa Rita, Huachuca, and Chiricahua Mountains supports a richer than expected array of uncommon plants and animals. These mountains in general, and the Chiricahuas in particular, have a fine-grained mosaic of plant communities that range from xeric to mesic and from Rocky Mountain conifers to Madrean deciduous broad-leaf species. The habitat connections between the Sierra Madre of Mexico and the sky-island mountain ranges of southeast Arizona remain relatively intact (i.e. little

impacted by development) and serve as a conduit for Mexican species. All of these factors have created a very rich biota.

This richness has long been known to the birding community. Roger Tory Peterson lists southeastern Arizona as one of the 10 best birding areas in North America. The demand for a good checklist is significant.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

The development of an inventory and monitoring program for birds will undertake to accomplish the following tasks. Re-evaluate the historical bird records for Fort Bowie. Base a revised species list on verifiable records. Verify the historical list with recent observations. Integrate recent records (especially for rare and accidental categories) with long-term data base. Relate species occurrence with vegetation communities at the Series level (Brown, Lowe, & Pase 1979). Compile an extensive (aiming at exhaustive) bibliography of birds in the Fort Bowie area. Make the above information available to the public and the scientific community through a series of publications--(A) a traditional folded checklist for field use, (B) an annotated checklist presenting brief species accounts, fidelity to vegetation, abundance, seasonality, sighting localities, taxonomic synonymy, and citation to germane literature, (C) an annotated bibliography, and (D) an extensive natural history of Fort Bowie birds. The program will also develop monitoring protocols and recommendations for subsequent studies.

BUDGET AND FTEs:

| | FUNDED | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | Total: | | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-NS-RES | RES | 29.50 | 0.5 |
| Year 2: | NR-I&M | MON | 11.00 | 0.5 |
| Year 3: | NR-I&M | MON | 11.00 | 0.5 |
| Year 4: | NR-I&M | MON | 11.00 | 0.5 |
| | | Total: | 62.50 | 2.0 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. This alternative entails maintenance of the status quo. Fort Bowie staff will rely on the existing scant database to make management decisions affecting native birds. No research on native avifauna will be conducted. The public demand for a high quality checklist will go unmet.

B. Develop an Inventory and Monitoring Program for Birds. This program will provide information on native birds which will serve as an additional management tool for examining the ecological health of the historic site. It will also provide information on relative abundance and natural history characteristics of species. The inventory will be conducted using non-destructive sampling techniques such as mist netting and observation. This study will produce an annotated checklist of the birds of Fort Bowie National Historic Site.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-N-005.000

TITLE: INVENTORY AND MONITOR INVERTEBRATES

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 71.40

SERVICEWIDE ISSUES: N20 BASELINE DATA N04 NON-NAT ANIMAL

CULTURAL RESOURCE TYPE CODE: N/A

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Invertebrates are a large and diverse group of animals occupying terrestrial and aquatic environments at Fort Bowie National Historic Site. The large number of species and the difficulties in identifying specimens make invertebrates relatively difficult to study. Nonetheless, they are responsible for a number of vital ecosystem functions. The description of species new to science is not atypical among workers specializing in a particular Family or Genus of insect, crustacean, or mollusk. It is highly probably that many taxa in these three groups remain undescribed at Fort Bowie.

The ecological role of insects cannot be overemphasized. There is often great interpretive value associated with information about the interesting life histories of many insect species.

There are currently no known impacts on health and public safety at Fort Bowie, but a number of invertebrates are known to cause debilitating and life-threatening diseases elsewhere. Biting or stinging insects such as bees and wasps may also threaten hyperallergic people.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

An inventory of native invertebrates at the historic site will be conducted. This effort will initially concentrate on insects, crustaceans, mollusks and other relatively well known groups. Inventories should also be defined by habitats. A variety of collecting techniques will be used to effectively sample the diversity of invertebrates and their habitats. A seasonal sampling regime will allow researchers to make initial determinations of relative abundance, reproductive strategies, and other natural history attributes. Inventories will be implemented following a comprehensive review of pertinent literature. The voucher collection will be presented to the Service. The researchers will also develop monitoring protocols and recommendations for subsequent monitoring and studies which may

provide information having management significance. Studies should concentrate on taxa of management concern or exceptional scientific interest.

BUDGET AND FTEs:

| FUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

| UNFUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | RG-NS-RES | RES | 39.00 | 0.5 |
| Year 2: | NR-I&M | MON | 10.80 | 0.5 |
| Year 3: | NR-I&M | MON | 10.80 | 0.5 |
| Year 4: | NR-I&M | MON | 10.80 | 0.5 |
| | | Total: | 71.40 | 2.0 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. This alternative entails maintenance of the status quo. No research or evaluation on native or non-native invertebrates would be undertaken.

B. Inventory the Existing Invertebrates. This alternative calls for an inventory of invertebrates at Fort Bowie. The project should be phased to concentrate on Families or Orders of invertebrates. Specific taxonomic groups to be inventoried should include those that are preserved and studied easily. Protozoans, although of interest and importance in the historic site could only be studied cost-effectively on a very limited scale. This is true of other groups such as the flatworms and nematode worms as well. The studies should be designed to sample the biotic diversity of insects, crustaceans, mollusks and other better known groups of invertebrates. Organisms occupying different environments (i.e. aquatic or terrestrial) will be studied most effectively by different specialists.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-N-008.000

TITLE: INVENTORY AND MONITOR AMPHIBIANS AND REPTILES

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 42.60

SERVICEWIDE ISSUES: N20 BASELINE DATA N02 T&E ANIMAL

CULTURAL RESOURCE TYPE CODE: N/A

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

The most recent survey of amphibians and reptiles (herpetofauna or herps) at Fort Bowie was by Lowe and Johnson (1976). This survey needs to be updated and assessed. A long-term monitoring system for herps needs to be designed and implemented at Fort Bowie. The herps are commonly the most poorly understood vertebrate species in an area. Since herps are "cold-blooded" they are easily affected by slight changes in temperature, as between shady and sunny micro-habitats, and are probably the most reliable vertebrate indicators of thermal habitat change. Many species require moist habitats, during parts or all of their life cycles. Although changes in riparian ecosystems have resulted in severe reductions in species diversity and population densities for many plant and animal species, impacts of riparian habitat loss on the herpetofauna have not been as well documented as for birds. There has been a global die-off of frogs, without an explanation. Better knowledge of the amphibians of the historic site will allow for their better protection. One group of reptiles, rattlesnakes, constitutes a safety hazard for visitors and their distribution needs to be better understood. Understanding distribution and relative stability of herp species is an important element of vertebrate biology in relation to resource management and interpretation.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

Species richness and relative densities for amphibians and reptiles in the historic site will be examined. Species that have specialized requirements and are of interest to interpretation or that exhibit resource management problems will be studied in relationship issues. An annotated field checklist will be produced. The research will also develop monitoring protocols and recommendations for subsequent studies.

BUDGET AND FTEs:

FUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

UNFUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-NS-RES | RES | 24.30 | 0.2 |
| Year 2: | NR-I&M | MON | 6.10 | 0.3 |
| Year 3: | NR-I&M | MON | 6.10 | 0.3 |
| Year 4: | NR-I&M | MON | 6.10 | 0.3 |
| | | Total: | 42.60 | 1.1 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. Baseline information important to interpretive programs will not be gathered. Information that would assist in monitoring of environmental changes and changes in biological diversity will not be available for resource managers or for interpretation to the visiting public.

B. Develop an Inventory and Monitoring Program for Amphibians and Reptiles. This option will provide additional information to aid management in maintaining biological diversity in the historic site as well as providing information for interpretive exhibits and presentations.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-N-009.000

TITLE: INVENTORY AND MONITOR MAMMALS

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 44.10

SERVICEWIDE ISSUES: N20 BASELINE DATA N02 T&E ANIMAL

CULTURAL RESOURCE TYPE CODE: N/A

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Changes in riparian and upland ecosystems have resulted in species composition changes and population density changes in most of the mammals in the southwest. Some mammalian species are of interest because of recreational pursuits (e.g., hunting), some are disease vectors or reservoirs, and some cause economic losses due to competition with or predation upon domestic livestock. The majority of mammalian species are poorly known by land managers, wildlife managers and the general public. Comparison of modern photos with old photos of Fort Bowie National Historic Site indicate that this area has been heavily impacted by the military post activities, by cattle grazing and by mining. Activities that reduced and modified the riparian vegetative communities (and presumably mammal communities) included grazing, introduction of non-native species, surface disturbance and trampling resulting in erosion, and surface water withdrawal. This project is designed to supplement and develop baseline information on mammals within the historic site and provide more information about the interaction of key mammalian species (indicator species) with the rest of the environment. The most recent survey of mammals at Fort Bowie was by Roth and Cockrum (1976). This survey needs to updated and assessed. A long-term monitoring system for mammals needs to be designed and implemented at Fort Bowie.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

An inventory of mammals at Fort Bowie will document the occurrence of native and non-native mammals and their relative abundance within riparian and upland habitats. Species that have habitat requirements which are related to interpretive programs or resource management problems will be studied in relationship to those issues. An annotated checklist suitable for sale at the visitor center will be produced. The research will also develop monitoring protocols and recommendations for subsequent studies.

BUDGET AND FTEs:

FUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

UNFUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-NS-RES | RES | 25.50 | 0.2 |
| Year 2: | NR-I&M | MON | 6.20 | 0.2 |
| Year 3: | NR-I&M | MON | 6.20 | 0.2 |
| Year 4: | NR-I&M | MON | 6.20 | 0.2 |
| | | Total: | 44.10 | 0.8 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. This alternative entails maintenance of the status quo. Historic site staff will rely on the existing scant database to make management decisions affecting native mammals. No research on native mammals will be conducted.

B. Develop a Mammalian Inventory and Monitoring Program. This program will provide information on native mammals which will serve as an additional management tool for examining the ecological health of the historic site ecosystems. It will also provide information on the relative abundance and natural history characteristics of species. The inventory will be conducted using non-destructive sampling techniques such as live trapping and observation.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

## Cultural Resource Project Statements: Funded Program

**The following project statements are a description of the cultural resource protection and information program currently funded at Fort Bowie National Historic Site.**

**FOBO-C-002 Conduct Ruins Stabilization**

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-C-002.000

TITLE: CONDUCT RUINS STABILIZATION

FUNDING STATUS: FUNDED: 13.00 UNFUNDED: 231.60

SERVICEWIDE ISSUES: C13 REHAB/RESTORAT C01 INADEQUATE DOC

CULTURAL RESOURCE TYPE CODE: STRC

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

The exposed adobe walls of the ruins of Fort Bowie National Historic Site are subject to the direct erosive affects of wind, rain, rodents, and vegetation. Adobe construction possesses an inherently high maintenance requirement. The Second Law of thermodynamics, entropy, combined with the friable properties of soil, dictates that this will always be so. This maintenance requirement was made even greater by the removal of all doors, windows, and especially roofs by people within a few years of the Army's abandonment of the fort in 1894. Today, following a century of neglect, vandalism, cattle grazing, and ill-advised stabilization activities, only a small percentage of the original adobe structures remain. This historic fabric is even now being lost by the relentless actions of nature. Routine maintenance to trap rodents, repair tunnelling, remove vegetation from the walls, improve drainage away from walls, and protect highly erosive wall surfaces is urgently needed. Such work, however, requires a monitoring program that can detect and prioritize stabilization and rehabilitation needs on the various historic structures at Fort Bowie National Historic Site.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

This project will involve obtaining a Fort Bowie base budget increase. These funds will be used to hire a summer seasonal staff of a foreman and laborers to work on all aspects of ruins stabilization and protection at Fort Bowie. Vegetation growing on or near the walls of all ruins will be removed twice each year. Rodents will be routinely trapped throughout the summer months to prevent them from burrowing into the bases of walls. All wall caps and wall surfaces will be routinely treated and/or replaced to prevent erosion loss. Drainage systems will be installed to rapidly remove water from near the bases of standing walls. All the above activities will be carried out on a schedule that will be carefully followed each year. All work done will be carefully recorded, both photographically and in

writing, for future reference. The project will involve hiring an NPS preservation specialist or a private consultant to design a monitoring system for the structures of Fort Bowie National Historic Site. This specialist will work with the foreman of the ruins preservation crew and will identify all preservation needs that will require attention during the season.

BUDGET AND FTEs:

FUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-CR-MTN | MIT | 13.00 | 0.4 |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 13.00 | 0.4 |

UNFUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-CR-MTN | MIT | 72.00 | 2.5 |
| Year 2: | RG-CR-MTN | MIT | 53.20 | 1.9 |
| Year 3: | RG-CR-MTN | MIT | 53.20 | 1.9 |
| Year 4: | RG-CR-MTN | MIT | 53.20 | 1.9 |
| | | Total: | 231.60 | 8.2 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. Adobe is a perishable building material. No satisfactory method has yet been discovered for preserving historic adobe fabric in the long term. Doing nothing would be just letting nature take its course. This option would mean that the ruins continue without adequate preservation of historic fabric and, eventually, the historic form and scene will be lost. This is unacceptable under the NPS Organic Act and the Historic Preservation Act.

B. Operate under a cyclic maintenance program managed out of the regional office. Such a centralized cyclic maintenance program has been used to protect Fort Bowie since the area was added to the National Park System in 1964. Such a program has been far more effective than no maintenance at all, but it has its

drawbacks in that the cyclic interval is often so great that considerable erosion of original fabric occurs between maintenance pulses. Also, it does not seem logical for the park to have to compete annually for regional cyclic funding to conduct preservation maintenance on its primary resource, especially knowing that that primary resource is adobe which needs maintenance every year.

C. Operate a ruins stabilization and monitoring program using park base funds and staff. This option will require a park base budget increase for Fort Bowie National Historic Site. Staff will be familiar with the ruins, so they will detect undesirable changes. They will devote sufficient attention to the preservation maintenance needs of the Fort Bowie ruins. They will stay ahead of the loss of historic fabric. They will gain sufficient experience at Fort Bowie over time, and will become fully professional in treating the unique needs of these particular structures.

COMPLIANCE CODE(s): 106 HSPG

EXPLANATION: 516 DM6 APP. 7.4 C(4)

Proposal Date: 93

## Cultural Resource Project Statements: Unfunded Program

The following project statements are a description of the cultural resource protection and information program currently unfunded at Fort Bowie National Historic Site.

| Prk Pri | Project Number | Project Name |
|---|---|---|
| 1. | FOBO-C-3 | Conduct an Archeological Survey |
| 2. | FOBO-C-4 | Develop a Collections Management Plan |
| 3. | FOBO-C-7 | Produce Administrative History |
| 4. | FOBO-C-5 | Conduct a Study of Daily Life at Fort Bowie |
| 5. | FOBO-C-6 | Complete a Historic Routes Study |

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-C-003.000

TITLE: CONDUCT AN ARCHEOLOGICAL SURVEY

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 103.60

SERVICEWIDE ISSUES: C02 INADEQUATE INV C14 ARCH DATA RECV

CULTURAL RESOURCE TYPE CODE: SITE

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Currently, the only areas in Fort Bowie National Historic Site that have had archeological survey work are the fort area itself, the Butterfield stage station, and the cemetery. The rest of the 1,000 acre historic site has not been surveyed for archeological sites. The locations, significance and condition of archeological sites are unknown. It is likely that Fort Bowie is losing archeological sites due to erosion, vandalism, trampling from livestock, vegetation damage, and damage from wildlife. Also, there are no archeological site documents to assist park management in making decisions to avoid damaging cultural sites during maintenance, development or construction work. Without surveying, assessing, and monitoring sites, we cannot protect these important park resources.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A complete and thorough archeological survey is not feasible. Instead, a systematic, parkwide survey will be completed. The surveyors will consist of a team from WACC and park staff involved in cultural resource management. All parts of the park feasible (depending on terrain) will be systematically surveyed and the located sites fully documented, as to whether they are surface finds, their size, condition, degree of disturbance, topography, associated vegetation, unusual features, etc. The sites will be mapped and photographed. The final report will include all of the above information along with recommendations on monitoring and preservation work for each site. The park staff will then be responsible for monitoring and protecting the archeological sites.

Recovered archeological objects will be accessioned, cataloged, and curated according to NPS standards and guidelines for museum collections. Original documentation, such as field notes, photographs, and maps will be kept with accession records of recovered archeological objects.

BUDGET AND FTEs:

FUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

UNFUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-CR-MTN | RES | 99.10 | 0.5 |
| Year 2: | RG-CR-MTN | MON | 1.50 | 0.0 |
| Year 3: | RG-CR-MTN | MON | 1.50 | 0.0 |
| Year 4: | RG-CR-MTN | MON | 1.50 | 0.0 |
| | | Total: | 103.60 | 0.5 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. Without a systematic archeological survey and assessment, the remaining park archeological resources will never be known and thus cannot be protected or studied. With no action some valuable park resources will be lost.

B. Conduct parkwide, systematic archeological survey and assessment, using NPS staff. By using NPS staff the surveyors would be familiar with NPS guidelines and policies. A survey would allow the park to know what archeological resources were present, their significance, condition and what measures need to be taken to preserve them. The survey would also help to guide the park staff in making decisions on maintenance, development and construction projects by providing information on areas that should be avoided.

COMPLIANCE CODE(s): 106 EXCL

EXPLANATION: 516 DM6 App. 7.4 E(1)

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJ ECT NUMBER: FOBO-C-004.000

TITLE: DEVELOP A COLLECTIONS MANAGEMENT PLAN

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 12.50

SERVICEWIDE ISSUES: C09 NEED COLL MGMT

CULTURAL RESOURCE TYPE CODE: OBJC

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

To maintain the park collections in compliance with NPS standards, a Collections Management Plan for Fort Bowie National Historic Site is required. The collections are presently stored in less than desirable conditions, are placed in several locations, and comprise a variety of materials needing specific storage conditions. Storage space at Fort Bowie is quite limited. The plan should address utilization of space, security of collections, environmental requirements by object material, and care of historic furnishings on exhibit. The plan should make some determination regarding staffing requirements for collections maintenance and program administration.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A Collections Management Plan will be developed for the collections at Fort Bowie. By doing so, the collections will have the proper managing guidelines and impetus will exist to request funds needed to bring the collections management program into compliance with NPS-28 and the NPS Museum Handbook.

Funding will allow for a collections management team to be assembled, to visit Fort Bowie, and to write a Collections Management Plan under the direction of the Western Regional Curator.

BUDGET AND FTEs:

| FUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

| UNFUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | RG-CR-MTN | ADM | 12.50 | 0.5 |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 12.50 | 0.5 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. Park collections will continue to receive substandard care and management without the direction that a Collections Management Plan would provide.

B. A team of curatorial subject matter experts is needed to visit the historic site, scope and review conditions, draft initial planning documents for review, and compile a final plan for approval by park, regional and Washington levels. By doing so, the historic site will gain a document to guide the proper care and management of its curatorial collections.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM6 App. 7.4 B(2)

Proposal Date: 93

## PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-C-007.000

TITLE: PRODUCE AN ADMINISTRATIVE HISTORY

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 12.00

SERVICEWIDE ISSUES: C08 NEED ADMN HIST

CULTURAL RESOURCE TYPE CODE: COMB

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Fort Bowie National Historic Site was authorized on August 30, 1964 and established on July 28, 1972. In its short history, the historic site has not had a written administrative history. Such a document is a requirement of NPS-28, the Cultural Resource Management Guidelines.

"Each unit of the park system should have an administrative history, which is updated periodically. This document should be prepared or updated for those areas that are scheduled for preparation or revision of GMP's over the next few years so that they may be available at the beginning of general management planning. It may be prepared by the park staff, by National Park Service historians, or by contract agreement."

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A park administrative history will be prepared following NPS-28, the Cultural Resource Management Guidelines.

BUDGET AND FTEs:

| | FUNDED | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | |
| Year 2: | | | |
| Year 3: | | | |
| Year 4: | | | |
| Total: | | | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-CR-MTN | RES | 12.00 | 0.0 |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 12.00 | 0.0 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. No park administrative history report would be prepared.

B. Prepare a Park Administrative History. Research into the administrative records of Congress, the NPS, the BLM and others would be conducted. A summary report would be prepared by the park staff, by National Park Service historians, or by contract agreement.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-C-005.000

TITLE: CONDUCT A STUDY OF DAILY LIFE AT FORT BOWIE

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 12.50

SERVICEWIDE ISSUES: C04 ETHNOGRAPHY

CULTURAL RESOURCE TYPE CODE: ETHN

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

The Fort Bowie interpreters are frequently asked questions concerning the fort's social life. Items of common interest include water systems, utensils, tools, food, music, money, roles of men and women, schools, religion, sports, living quarters and dress. Much of the information on these questions may be available in the library and files at the historic site, however, no concentrated source on these subjects has been compiled. It is likely that additional information would come from archeological investigations at the historic site. Material such as artifacts, fauna and flora remains, and architecture may provide information about the diet, economy, and social life of frontier inhabitants. There remains a need for a single publication bringing together information on the post social life.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

The history of the social life at Fort Bowie will be compiled by an experienced historian who has funding, time, sources and skill not readily available to the on-site park interpreter. Upon receipt of this work, park interpretation will have the single volume in the park library for study and reference. Funding is needed to support this historical research.

BUDGET AND FTEs:

----------FUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-CR-MTN | RES | 12.50 | 0.0 |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 12.50 | 0.0 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. Under present conditions, the interpreter must search through a variety of volumes and consume considerable time in order to acquire information on this subject. A no action alternative will continue the present management system and perpetuate the problems of lack of information.

B. Conduct research and prepare a report on the social life-ways at Fort Bowie. This alternative would provide a single volume of information concerning the various components of social life at Fort Bowie. In addition, new information would probably be uncovered by the researcher for use in park interpretation. The research could be performed by a university history graduate student or by a research historian from the Denver Service Center with assistance from park interpreters, the Southern Arizona Group interpretive specialist and the regional historian.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM6 App. 7.4 B

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-C-006.000

TITLE: CONDUCT A HISTORIC ROUTES STUDY

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 22.00

SERVICEWIDE ISSUES: C02 INADEQUATE INV C01 INADEQUATE DOC

CULTURAL RESOURCE TYPE CODE: SITE

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

For nearly 300 years non-Indian travelers have passed through Apache Pass using the natural corridor as an east-west route. The nearby Apache Springs provided water at any season of the year. Spanish journals documented travel through the area as early as 1695 and 1767. Additional passages included the U.S.-Mexico boundary survey party in 1851, the Southern Railroad Survey in 1854, the Butterfield Overland Mail route in 1858 and many others after the establishment of Fort Bowie. Over the years, many routes that were spurs of the main Apache Pass route were established. These routes have been placed on a historic base map of major roads and trails in the Fort Bowie Historic Structures Report by Jerry Greene. With the exception of the Butterfield Overland Trail and the Army routes marked by the Fort Bowie staff in 1978, many other spur routes have not been traced in the field or correlated with Greene's base map. These routes, still visible in places, continue to erode and will vanish if not permanently marked for the future.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

Routes will be physically located using the existing historic base map and other references. Permanent markers will be placed to identify the routes and improvements will be made in the base map as necessary. Funding is needed to support historical research, a physical historic routes survey, permanently marking the routes, and recording the work in narrative reports, in maps and in the historic site's GIS.

BUDGET AND FTEs:

| FUNDED | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

| UNFUNDED | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-CR-MTN | RES | 19.00 | 0.5 |
| Year 2: | RG-CR-MTN | MIT | 1.00 | 0.0 |
| Year 3: | RG-CR-MTN | MIT | 1.00 | 0.0 |
| Year 4: | RG-CR-MTN | MIT | 1.00 | 0.0 |
| | | Total: | 22.00 | 0.5 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. Since the Historic Structures Report has identified all major roads and spurs on the historic base map, no action could be taken and reliance on the base map could be the final management action. This would have the impact of permitting the identified routes to become lost. The historic routes at Fort Bowie will be permanently lost in the future.

B. Locate and mark existing historic routes. This would provide for the location on the ground of identified historic routes and permanently marking them for future reference. The impacts would be positive since the sites would not be lost. Negative impacts would be minimal since the only disturbance would be a series of permanent route markers placed in inconspicuous places.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

## Integrated Resource Project Statements: Funded Program

The following project statements are a description of the integrated (natural and cultural) resource protection and information program currently funded at Fort Bowie National Historic Site.

-- none --

## Integrated Resource Project Statements: Unfunded Program

The following project statements are a description of the integrated (natural and cultural) resource protection and information program currently unfunded at Fort Bowie National Historic Site.

| Prk Pri | Project Number | Project Name |
|---|---|---|
| 1. | FOBO-I-1 | Administer the Resource Management Program |
| 2. | FOBO-I-2 | Construct and Maintain Cattle Exclusion Fence |
| 3. | FOBO-I-5 | Develop the Geographic Information System |
| 4. | FOBO-I-6 | Develop the Integrated Pest Management Program |
| 5. | FOBO-I-3 | Develop the Vegetation Management Program |
| 6. | FOBO-I-4 | Develop a Bibliographic Database and Assessment |
| 7. | FOBO-I-8 | Conduct a Visitor Survey and Visitor Impact Study |
| 8. | FOBO-I-7 | Evaluate Air Quality Impacts |

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-001.000

TITLE: ADMINISTER THE RESOURCE MANAGMENT PROGRAM

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 60.00

SERVICEWIDE ISSUES: N20 BASELINE DATA C12 PRESERVE MGMT

CULTURAL RESOURCE TYPE CODE: CULL

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

The complexity of resource management issues at Fort Bowie National Historic Site requires active administration in an organized program assisted by a Resource Management Specialist. This requires funding, FTE, recruitment, training, support, equipment, supplies and materials, overview, supervision, transportation, telephone, and office space. The Resource Management Division covers both natural and cultural resources at both Fort Bowie NHS and Chiricahua NM. It has only one park base funded FTE, and very minimal support for project implementation.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

The Resource Management Division will be able to respond in a pro-active way to issues of highest priority following this plan. The staff will be adequate to coordinate and plan the resource management programs, manage data, and also effectively implement actions in the field which are of high priority but which are too sudden in their appearance to have approved project statements.

A short staff training course will be developed to orient new employees to resource management. Time will be devoted to park specific issues, responsibilities, and problems. Handout materials will be included. A short course will be developed annually as a refresher for all employees. It will include a brief overview of the resource management program of NPS and of Fort Bowie but will concentrate on major national and regional policy changes and on major park issues. Employees will be encouraged to become active observers for the protection of cultural and natural resources in the park.

Planning will be accomplished which supports other integrated resource projects, such as a Vegetation Management Plan, Integrated Pest Management Plan, and Geographic Information System Plan.

Cooperative agreements, planning, compliance, giving training, conducting field work, monitoring resource conditions, vehicle rental, small equipment purchase, and computer equipment upgrade are examples of basic resource management functions in need of additional staff and funding support through this project.

BUDGET AND FTEs:

| FUNDED | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | Total: | | 0.00 | 0.0 |

| UNFUNDED | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | RG-RM-NAT | MIT | 15.00 | 0.5 |
| Year 2: | RG-RM-NAT | MIT | 15.00 | 0.5 |
| Year 3: | RG-RM-NAT | MIT | 15.00 | 0.5 |
| Year 4: | RG-RM-NAT | MIT | 15.00 | 0.5 |
| | Total: | | 60.00 | 2.0 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No action. If the status quo is allowed to continue, important resource management problems will continue to go unaddressed. Administrative planning and coordination will continue minimally from the Resource Management Division office in Chiricahua National Monument, but little will be accomplished in a pro-active sense on field projects. Even the division's planning and coordination effectiveness will dwindle as needed supplies and materials are not sustained.

B. Increase the funding for the Resource Management Division to provide for (1) a thorough and consistently professional program, with adequate staff and supplies for addressing issues of too sudden onset to be covered by individual project statements, (2) adequate support to maintain a resource management office as a center of coordination, data collection,

compliance and protection, and (3) an adequate amount of support for resource management workshops and training annually.

COMPLIANCE CODE(s): 106 EXCL

EXPLANATION: 516 DM6 App. 7.4 E(2)

Proposal Date: 93

## PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-002.000

TITLE: CONSTRUCT AND MAINTAIN CATTLE EXCLUSION FENCES

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 119.00

SERVICEWIDE ISSUES: C23 CONFLICT ACTVS C15 CONSERV TREAT

CULTURAL RESOURCE TYPE CODE: COMB

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Cattle grazing has been an authorized land use at Fort Bowie National Historic Site. However, the National Park Service has authority and responsibility to protect sensitive cultural and natural resources from undesirable impacts due to grazing. Therefore, portions of the historic site have been closed to grazing. To effectively exclude cattle from these areas requires more than an administrative pronouncement, it also requires fencing. Some fencing at Fort Bowie is old and in need of replacement. Trespass cattle often broach weak stretches of fence. Furthermore, a recent expansion of the cattle exclusion area has required the construction of additional fence. This project involves the maintenance and construction of needed fencing.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

Aging fence will be replaced where needed. Old interior fence which is no longer needed will be removed. New fence will be constructed in boundary areas currently unfenced or where the cattle exclusion area is not yet fenced. Boundary areas will be accurately surveyed before they are fenced.

BUDGET AND FTEs:

| | FUNDED | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| Total: | | | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | REG-OTHER | MIT | 86.00 | 3.0 |
| Year 2: | REG-OTHER | MIT | 11.00 | 0.5 |
| Year 3: | REG-OTHER | MIT | 11.00 | 0.5 |
| Year 4: | REG-OTHER | MIT | 11.00 | 0.5 |
| | | Total: | 119.00 | 4.5 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. Continue to manage Fort Bowie with the current level of fencing, not bothering to repair the aging fence or to build needed new fencing. Staff will attempt to drive trespass cattle out of the protected zones whenever they are encountered. The Service will speculate that little lasting damage is done to the cultural resources by trespass cattle before they are removed.

B. Construct New Fencing and Replace Aging Sections of Present Fence. This option would fully address the adequate protection of the cultural resources within the no-grazing areas of the historic site.

COMPLIANCE CODE(s): 106 EXCL

EXPLANATION: 516 DM6 App. 7.4 C(20)

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-005.000

TITLE: DEVELOP THE GEOGRAPHIC INFORMATION SYSTEM

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 173.20

SERVICEWIDE ISSUES: C01 INADEQUATE DOC N20 BASELINE DATA

CULTURAL RESOURCE TYPE CODE: COMB

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Currently there is no automated system for creating, managing, analyzing, and displaying mapped information about the historic site's resources. The historic site's resources are in a continual state of change which makes it difficult to predict future resource conditions and quantify the effects from external or internal threats. A significant challenge is faced by management when traditional methods are utilized to integrate thematic data composites derived from natural and cultural resource information data bases. Resource Management Plans are by their nature limited in illustrating long-term, inconspicuous, and subtle changes in the health of natural and cultural resources. External threat pressures from urbanization, conflicting land use practices, demographic changes, and environmental pollution are increasing at an alarming rate. Primary internal threats result from a wide range of anthropogenic factors. A working Geographic Information System (GIS) would be instrumental in detecting changes, analyzing trends, and projecting possible future conditions resulting from these external and internal resource pressures.

There is presently a hodgepodge of reports, maps, and location descriptions for cultural resources in the historic site. A GIS would allow overlays to be made of a standard scale for different cultural and natural resource categories. It would make a single visual impression of where resources are located and thereby better protect them from inadvertent damage.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

The following GIS themes will be digitized: boundaries, adjacent land use, land ownership and ownership history, park zoning, fire history, vegetation communities, slope, aspect, view-shed, rare or sensitive species location records and habitats, roads, trails, historic sites, pre-historic sites, ruins stabilization

work completed and planned, LCS and National Register properties and information, demographic influences on cultural and natural resources, and other external impacts from the surrounding area.

At least two scales of resolution will be initially created to represent and generate the thematic composites. Boundaries will be selected to include natural or cultural features that influence the historic site's resources. The CPSU/UA GIS office will assist in digitizing the necessary data, thematic and composite manipulations, archive storage, and producing final products for use by the historic site's staff. The CPSU/UA will also provide training to historic site staff to familiarize the staff with GIS software and hardware. A base map will be created.

BUDGET AND FTEs:

| | FUNDED | | | |
|---|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

| | UNFUNDED | | | |
|---|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | GIS | RES | 101.20 | 2.0 |
| Year 2: | GIS | RES | 24.00 | 0.8 |
| Year 3: | GIS | RES | 24.00 | 0.8 |
| Year 4: | GIS | RES | 24.00 | 0.8 |
| | | Total: | 173.20 | 4.4 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. This alternative entails maintenance of the status quo. Historic site staff would be forced to rely on traditional techniques and methods that do not illustrate long term resource changes as effectively as a GIS. Visual patterns and conditions of resources will not be generated. Thematic composites and

subsequent derived products could not be effectively produced or compared.

B. Develop a GIS for Fort Bowie National Historic Site. This would provide management with an effective tool to analyze existing trends and predict future changes. Digitizing photographic and cartographic information would increase the speed that the historic site's staff could collect, prepare, retrieve and manipulate data from different thematic data composites. Cartographic and subsequent data analysis would significantly increase management's ability to document, demonstrate, illustrate and predict long-term changes in the historic site's resources. In addition, the automated GIS would produce support materials such as maps, tables, charts and graphs which would illustrate the resource problems or simply describe park resources to interested parties. Also, this project would develop a base map to be used in a GIS which would indicate all known cultural resources in Fort Bowie National Historic Site.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-006.000

TITLE: DEVELOP THE INTEGRATED PEST MANAGEMENT PROGRAM

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 57.00

SERVICEWIDE ISSUES: N03 T&E PLANTS N01 NAT ANML OVPOP

CULTURAL RESOURCE TYPE CODE: COMB

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Pests are a problem at Fort Bowie NHS. Certain insects, mammals, and plants cause problems that require constant, periodic, or cyclic control measures. Integrated Pest Management, IPM, techniques have been used and will continue to be used as treatment for household, structural, and museum pests and for non-native species. Currently known pest problems are cited below.

Feral European honeybees are common in the warmer months and pose a hazard when they sting visitors or staff. A more serious threat is the Africanized honey bee. This is an aggressive non-native bee strain that has migrated northward since its accidental escape in Brazil in the 1950's.

Spiders occasionally are pests when they enter dwellings. Ants are occasionally in structures, especially in water damaged wood, or undermining sidewalks. Monitoring needs to be conducted for museum pests.

Mice and ground squirrels burrow in and around the historic ruins of Fort Bowie and undermine structures. Rattlesnakes in or near the visitor use areas are safety hazards. Non-native birds (i.e., pigeons) may roost in the canyons. These are periodic problems inherent to the locality and available habitat.

A lists of non-native plants has been made the historic site. Fleabane, horehound, and Russian thistle are a few. Some of these species are aggressive invaders. Following the completion of an non-native plant inventory and assessment, action needs to be taken to control non-native plants.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

An IPM Plan and species specific IPM action plans will be written. Rodents will be trapped and removed to prevent damage to historic

ruins. Non-native species will be assessed to determine the affect to resources and will be managed as practicable.

BUDGET AND FTEs:

FUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

UNFUNDED

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | REG-OTHER | MIT | 18.00 | 0.5 |
| Year 2: | REG-OTHER | MIT | 13.00 | 0.4 |
| Year 3: | REG-OTHER | MIT | 13.00 | 0.4 |
| Year 4: | REG-OTHER | MIT | 13.00 | 0.4 |
| | | Total: | 57.00 | 1.7 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. If no action is taken to control pests, then problem plants and animals will continue to be troublesome. For example, visitors and staff will continue to be stung by honey bees, rodents will continue to mine in historic adobe structures, and non-native species will continue to thrive in areas where they could have been controlled.

B. Conduct IPM for Pest Species. Integrated pest management is the decision making process and action used by the National Park Service to deal with pest species. Staff will use IPM techniques to manage pests.

COMPLIANCE CODE(s): 106 EXCL

EXPLANATION: 516 DM6 App. 7.4 E(2)

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-003.000

TITLE: DEVELOP THE VEGETATION MANAGEMENT PROGRAM

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 61.40

SERVICEWIDE ISSUES: N08 CULT LANDSCAPE N17 BIODIVERSITY

CULTURAL RESOURCE TYPE CODE: CULL

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Fort Bowie National Historic Site is a 1,000-acre cultural park unit of grassland, desert scrub, woodland, and riparian corridor. The semi-arid region has been used for cattle grazing, both within and adjacent to the historic site, for over a century. It is not known what the native vegetation mix and general landscape was like. Significant landscape alteration took place during the period in which Fort Bowie was active. This was due to fuel woodcutting, grazing, gardening, and trampling.

There is a need to determine, through old photographs and written accounts, what the vegetation and landscape were like in the historic period being interpreted. Only then can we proceed with an appropriate vegetation management program in the historic site. Since the historic site is managed and interpreted as a ruin, in a state of historic abandonment, a historic Landscape Plan must consider to what extent we want to restore the landscape, if at all, to reflect old fort photographs. Significant land disturbance occurred during the time of the fort's activity and the landscape is now undergoing serial stages of succession.

Another historic landscape consideration which needs to be addressed is the aesthetic presentation of the grounds for interpretation, that is, how to most appropriately keep the old and new fort sites visible to visitors. We may consider, for example, the use of mowing or prescribed burning to maintain the grasslands and push back the encroaching shrub lands, but such treatments might increase the presence of non-native plants.

Historic cultivars (cultivated plants) may be present in the fort's garden area or in areas of Indian habitation, but the subject has not been approached. The historic cultivars and the historic landscape needs to be cared for in the same manner as the historic ruins.

The natural vegetation of Fort Bowie National Historic Site is both the boon and bane of the manager. On the one hand it provides the proper visual background for the historic structures, and on the other it causes destruction of their fabric and underpinnings. Some non-native species such as Russian thistle, bull-head, and other pandemic weeds have invaded the native ecosystems. Judicious management is restricting the occurrence of Russian thistle on the parade ground and elsewhere.

Since the fort was abandoned in 1894, woody vegetation, particularly mesquite, has become rooted in and beneath adobe structures. As the roots grow, penetrate, and increase in diameter, the fragile adobe is fractured, penetrated by water, and melted. Effective control of mesquite and other vegetation is needed where they cause structural damage.

Several areas on the historic site are actively eroding. Routing of historic roads has caused some of this, but cattle trampling and trailing is another cause. Cattle exclusion and revegetation of trampled areas should be considered as corrective measures.

Another kind of vegetation control is required where plants overgrow or obstruct the view of historic structures, i.e. where mesquite, tall grasses, or shrubs on the parade grounds obstruct the view of the fort ruins from the contact station.

The historic site has recorded the presence of non-native species. Less is known, however, about abundance, distribution, and population trends for these species. Lacking an inventory, it is likely that additional non-native species occur in the historic site but have not yet been detected. Some problems likely have not yet been identified because of their subtlety. For example, a non-native insect might compete with and replace a native insect which is essential (as a symbiotic partner) in pollinating a native plant.

Non-native plants displaying differing aggressiveness on a case-by-case basis include Russian thistle, Russian olive, horehound, wooly mullein, puncture vine, filaree, red brome, and Bermuda grass. Several of these non-native plant species have been introduced to the historic site as a result of past settlement, grazing, farming, excavation, and construction in and around the area. Cheat-grass, wild barley, and foxtail invade from grazed to ungrazed lands. Arizona Department of Transportation has seeded non-native Lehman lovegrass along highways. It now occurs in the area.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A Vegetation Management Plan will be written. It will include several chapters, including a guide to maintaining historic landscape, a guide to controlling non-native plants, and a guide to

protecting the fort ruins from vegetation, especially mesquite and other woody vegetation. The plan will be instituted. Research will be conducted, mitigation measures initiated, monitoring protocols defined and monitoring programs initiated.

Control measures will be instituted against the proliferation of selected mesquite areas and to prevent re-sprouting. Suitable techniques will be determined to suppress plant growth near the walls. Various types of grass cutters will be evaluated for use in the parade ground area, near trails, etc. Revegetation methods will be developed and instituted for erosion control. Monitoring protocols will be written to document the effectiveness of treatments.

An inventory and assessment of non-native plants and animals will be completed. Management guidelines will be developed which consider feasibility and cost of control for the highest priority and most threatening non-native species. Basic information will be included on distribution, rate of spread, etc. Historic aerial and ground photographs may be useful for these determinations. Literature will be reviewed to determine what is known about the ecology of these species. Control techniques will be recommended. Such techniques might include physical removal experiments, prescribed burns, use of herbicides or insecticides, biological control, or some combination of these. Monitoring will assess the success or failure of the treatment methods during the course of the study. NPS personnel will be trained to carry out our long-term monitoring.

A report will be prepared to provide results from the inventory and evaluations. Also written management plans and protocol manuals for removing the most crucial non-native plant and animal species will be written. Written briefings will be provided to the interpretive program of the historic site.

Funding is needed to write the Vegetation Management Plan, to implement the plan, and conduct field searches for the occurrence of non-native species and historic cultivars.

BUDGET AND FTEs:

| | FUNDED | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| Total: | | | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | REG-OTHER | MIT | 30.50 | 1.0 |
| Year 2: | REG-OTHER | MIT | 10.30 | 0.5 |
| Year 3: | REG-OTHER | MIT | 10.30 | 0.5 |
| Year 4: | REG-OTHER | MIT | 10.30 | 0.5 |
| | | Total: | 61.40 | 2.5 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. The status quo will cause a continued lack of knowledge about the appropriate historic landscape and the vegetation of the historic period. The shrublands may encroach on the grasslands and eventually eliminate them. Historic cultivars will eventually die and be replaced by native species.

B. A Historic Landscape Plan will be written to guide the research, rehabilitation and maintenance of the historic landscape and historic cultivars. A study will be made of the existing historic cultivars. These will be encouraged and maintained in a way appropriate to the time period being interpreted, and they will be actively interpreted. The landscape of the entire historic site will be studied to determine the historic period appearance. Appropriate options for vegetation management will be set forth.

A Vegetation Management Plan will be written. Vegetation will be manipulated so as to preserve the historic structures and ruins, but at the same time protecting visual and ecological values. Various types of grass cutters will be evaluated for use in the parade ground area, near trails, etc. Revegetation methods will be developed to encourage annual grasses and discourage woody vegetation. The appropriateness of prescribed burning for this purpose will be evaluated. Experts will be consulted to find a means suitable for treatment of vegetation in the vicinity of the ruins. The damage caused by plant growth will be mitigated by replacing lost adobe. Protocols will be written to formalize treatment and monitoring methods selected.

A non-native vegetation control program will be conducted. An inventory of non-native plants, their distribution, abundance, and seasonal occurrence, will be conducted to understand the extent of these plants and to assess any problems. With this information, management will determine which species need to be controlled and which may be tolerated. Some species may be very abundant and widespread--characteristics that make removal more difficult.

Staff will also become aware of potential introductions outside the historic site which could affect lands under their jurisdiction, e.g., roadside seeding, farming, grazing.

COMPLIANCE CODE(s): EXCL 106

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-004.000

TITLE: DEVELOP A BIBLIOGRAPHIC DATABASE AND ASSESSMENT

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 37.60

SERVICEWIDE ISSUES: N20 BASELINE DATA C02 INADEQUATE INV

CULTURAL RESOURCE TYPE CODE: COMB

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Intermittent studies have been conducted since Fort Bowie National Historic Site was established in July 1972. Sociological, physical and natural changes at Fort Bowie are occurring at accelerated rates. Numerous impacts, generated by a host of external and internal pressures, are currently being investigated. The rate and amount of information that has to be processed prior to a management decision of action is consistently increasing. Existing informational resources are fragmented and scattered. Currently, the staff does not have the ability to efficiently utilize the wealth of historic, technical and ecological information that has already been generated. Without the development of an adequate information system and bibliographic assessment, NPS cannot efficiently manage the resource or respond to developing resources problems systematically without duplication of effort or the loss of time. In addition, public interest groups, environmental groups, and state and federal agencies frequently request information upon which management actions were based. Researchers and others routinely depend upon and utilize the Fort Bowie's information base to produce written works or popular articles. The development of a computerized bibliographic system and assessment will place the historic site in a better position to review and assess past actions and evaluate current programs.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A computerized bibliographic system will be developed to track the historic site's information resources. The bibliographic system will enable management to retrieve, store, and sort information by date, author, title, subject, or key words. The historic site currently has the PC-XT hardware necessary to operate the software. Software and data entry will require the expenditure of some funds. This system will increase the effectiveness and efficiency of all management programs. A comprehensive review of the literature and analysis of previous studies in the historic site and in other relevant areas will be

performed. The bibliographic assessment will summarize and evaluate the strength of the informational base. This information will provide baseline references and may permit a number of knowledgeable management decisions without further studies.

BUDGET AND FTEs:

----------FUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

----------UNFUNDED----------

| | Source | Act Type | Budget ($1000s) | FTEs |
|---|---|---|---|---|
| Year 1: | REG-OTHER | RES | 21.10 | 0.5 |
| Year 2: | REG-OTHER | RES | 5.50 | 0.3 |
| Year 3: | REG-OTHER | RES | 5.50 | 0.3 |
| Year 4: | REG-OTHER | RES | 5.50 | 0.3 |
| | | Total: | 37.60 | 1.4 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. With this alternative the historic site will not have adequate access to current or past informational resources. This will increase the time and reduce the cost effectiveness of management's ability to evaluate and compare past and present resource actions and issues. All information will have to be processed and cross referenced by manual techniques which increases demands upon limited personnel.

B. Develop Computerized Bibliographic Information System. This will increase management's ability to respond effectively to cultural and natural resource issues. An adequate information base will prevent duplication of effort and prevent costly mistakes. Adequate and effective access to informational resources are a mandatory prerequisite for efficient and cost effective management. Time frames in examining resource issues will be significantly

reduced with the creation of an information tracking system. Information management is a critical first step in developing cost effective solutions.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-008.000

TITLE: CONDUCT A VISITOR SURVEY AND VISITOR IMPACT STUDY

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 17.00

SERVICEWIDE ISSUES: C18 CTRL VIS IMPAC N18 VIS USE-BCTRY

CULTURAL RESOURCE TYPE CODE: COMB

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

Fort Bowie National Historic Site is a popular area. Heavy use of the hiking trails and ruins areas has prompted concern about potential impacts on the natural and cultural resources of the historic site. Such things as trail widening, establishment of social trails, accidental introduction of non-native species, and damage to cultural resources are all matters of concern.

More than 9,000 visitors (1992) hike the 1.5 mile one-way trail annually, walk around the fort ruins, picnic, watch birds, take photographs, etc. in the historic site. Such visitation is generally confined to relatively small use corridors, and has the potential to greatly alter park resources.

A general review of resource conditions throughout the historic site is needed to understand what, if any, impacts visitor use is having at Fort Bowie NHS.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A study of visitor impacts will be conducted, as a complement to the visitor survey by Zube, et al. (1987). A general survey of all heavy use areas of the historic site will be conducted to record conditions and to look for obvious signs of negative impact. Any such impact found will be analyzed and recommendations formulated to solve the problems.

Once combined with the visitor use data, the results of this study will be used to determine the physical, biological, environmental, and social conditions that define the historic site's recreational use. Once the use conditions have been determined, they will be continuously updated via the institution of a long-term monitoring program.

BUDGET AND FTEs:

| FUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

| UNFUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | REG-OTHER | RES | 17.00 | 0.2 |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 17.00 | 0.2 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. This option would assume that current visitor use is not having a negative impact on historic site resources. No documentation would be gathered that could show impact.

B. Conduct a study of visitor impacts. A study of visitor impacts on Fort Bowie resources, both current and anticipated, would provide staff with a definitive tool with which to more effectively manage visitation. The historic and natural resources, the staff, and the visitors would all benefit.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

PROJECT STATEMENT SHEET

PROJECT NUMBER: FOBO-I-007.000

TITLE: EVALUATE AIR QUALITY IMPACTS

FUNDING STATUS: FUNDED: 0.00 UNFUNDED: 38.50

SERVICEWIDE ISSUES: N14 AIR POLLUTION C17 CTRL ENV IMPAC

CULTURAL RESOURCE TYPE CODE: STRC

10-238 PACKAGE NUMBER:

PROBLEM STATEMENT:

"When you breathe, you inspire. When you do not breathe, you expire." -- Lederer, 1989

Atmospheric deposition (acid rain) has caused harmful effects on cultural resources in many areas of the world. No information is available on the effects of atmospheric deposition on the cultural resources of Fort Bowie National Historic Site.

Air quality degradation is suspected to be affecting the biotic resources and visibility at Fort Bowie. No information is available as to the visibility baseline, nor the biotic elements of the historic site which are or may be affected.

Lack of this knowledge prevents an evaluation of present and future impacts to cultural resources. Lack of knowledge also prevents action to prevent or mitigate damage to cultural and natural resources. Failure to understand the impact of atmospheric deposition could result in eventual destruction of the primary resources of the park.

DESCRIPTION OF RECOMMENDED PROJECT OR ACTIVITY:

A study of the possible harmful effects of atmospheric deposition will begin as soon as possible in order to determine whether there are such effects at present and to provide a baseline for determining changes in the future. Any harmful effects that result from continuation of the present conditions, or as a result of increased atmospheric deposition, and any improvements that might result from emission reductions will be reported.

Funding is needed for consultation with the Air Quality Division and with Cultural Resource Specialists to evaluate impacts and to set up a monitoring system.

BUDGET AND FTEs:

| FUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | | | | |
| Year 2: | | | | |
| Year 3: | | | | |
| Year 4: | | | | |
| | | Total: | 0.00 | 0.0 |

| UNFUNDED | | | |
|---|---|---|---|
| | Source | Act Type | Budget ($1000s) | FTEs |
| Year 1: | AIR-QUAL | RES | 20.50 | 0.3 |
| Year 2: | AIR-QUAL | MON | 6.00 | 0.3 |
| Year 3: | AIR-QUAL | MON | 6.00 | 0.3 |
| Year 4: | AIR-QUAL | MON | 6.00 | 0.3 |
| | | Total: | 38.50 | 1.2 |

(OPTIONAL) ALTERNATIVE ACTIONS/SOLUTIONS AND IMPACTS:

A. No Action. Failure to evaluate and monitor effects of atmospheric deposition will result in a lack of baseline data. Lack of this data will prevent action being taken to mitigate any harmful effects.

B. Initiate a long-term study of the effects of acid rain and other air pollutants on cultural and natural resources. A long range study, done under contract with a university or other agency would be initiated at key locations within the park to monitor deterioration of stone masonry, adobe walls, wooden beams, galvanized steel and other mineral elements of both prehistoric and historic structures known to be vulnerable to acid rain or other air pollutants. The study would also include a literature search for information on materials found in the area, which are sensitive to atmospheric deposition. This study would help satisfy the site's existing air quality related management objectives.

COMPLIANCE CODE(s): EXCL

EXPLANATION: 516 DM2 App. 2, 1.6

Proposal Date: 93

# APPENDIX 1

## CULTURAL RESOURCES DOCUMENTATION CHECKLIST

## CULTURAL RESOURCES DOCUMENTATION CHECKLIST

| TITLE | CURRENT AND APPROVED | INCOMPLETE; NEEDS REVISION OR UPDATING | NEEDED |
|---|---|---|---|
| PLANNING DOCUMENTS | | | |
| Preauthorization and Authorization | X (8/64) | | |
| Statement for Management (SFM) | (4/78) | X | |
| Outline of Planning Requirements (OPR) | | | X |
| General Management Plan (GMP) [Master Plan] | (11/75) | X | |
| Development Concept Plan (DCP) | | | |
| Resource Management Plan (RMP) | (9/86) | X | |
| Interpretive Prospectus (IP) | | | X |
| SERVICEWIDE INVENTORIES, LISTS, CATALOGS, AND REGISTERS | | | |
| Cultural Resource Bibliography (CRBIB) | | | X |
| Cultural Sites Inventory (CSI) | X | | |
| List of Classified Structures (LCS) | | X | |
| National Catalog of Museum Objects | | X | |
| National Register of Historic Places | X | | |
| BASIC CULTURAL RESOURCE DOCUMENTS | | | |
| Archeological Overview and Assessment | | | X |
| Archeological Identification Studies | | | X |
| Archeological Evaluation Studies | | | X |
| Ethnographic Overview and Assessment | | | X |
| Ethnographic Oral Histories & Life Histories | | | X |
| Ethnographic Program | | | |

## CULTURAL RESOURCES DOCUMENTATION CHECKLIST

| TITLE | CURRENT AND APPROVED | INCOMPLETE; NEEDS REVISION OR UPDATING | NEEDED |
|---|---|---|---|
| BASIC CULTURAL RESOURCE DOCUMENTS (cont.) | | | |
| Historical Base Map | | | X |
| Historic Resource Study (HRS) | | | X |
| Park Administrative History | | | X |
| Scope of Collections Statement | (1987) | X | |
| SPECIAL RESOURCE STUDIES AND PLANS | | | |
| Archeological & Ethno. Collections Studies | | | X |
| Archeological Data Recovery Studies | | | X |
| Collection Management Plan | | | X |
| Collection Storage Plan | | | |
| Collection Condition Survey | | | |
| Cultural Landscape Report (CLR) | | | X |
| Ethnohistory | | | X |
| Exhibit Plan | | | |
| Historic Furnishings Report | | | |
| Historic Structure Preservation Guide (HSPG) | (1983) | | |
| Historic Structure Report | | | |
| Social Impact Study | (6/87) | X | |
| Special History Study | | | X |
| Traditional Use Study | | | |

## APPENDIX 2

### PARK CULTURAL RESOURCES STATUS SUMMARY CHARTS

Found on the following pages are these three cultural resources status summary charts:

1. Summary Chart for Sites

2. Summary Chart for Structures

3. Summary Chart for Objects

4. Summary Chart for Cultural Landscapes

FORT BOWIE NATIONAL HISTORIC SITE

SUMMARY CHART FOR SITES

| Significance | | | Condition | | | | | Impacts | | | | Documentation | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Acreage | Good | Fair | Poor | Des. | Unk. | Sev. | Mod. | Low | Unk. | Good | Fair | Poor |
| National | 5 | 1,000 | | 1 | | | 4 | 1 | | 4 | | 5 | | |
| State and Regional | | | | | | | | | | | | | | |
| Local | | | | | | | | | | | | | | |
| Not Evaluated | | | | | | | | | | | | | | |
| TOTALS | 5 | 1,000 | | 1 | | | 4 | 1 | | 4 | | 5 | | |

Total number of Sites 5
Number of Prehistoric Sites Unknown - An archeological survey has never been accomplished.
Number of Historic Sites 5 -

1. Site of the 1862 Battle of Apache Pass.
2. Site of the 1850 Tevis Rock Wagon Train Massacre.
3. Site of the 1854 Lt. John G. Parke Railroad Survey Campsite.
4. Site of the 1861 Col. John Bascom Campsite, the Bascom Affair.
5. Site of the 1861 Apache Pass Wagon Train Massacre.

Number of National Register of Historic Places Nominations 1 - There is one National Register Form (or Nomination) which lists the entire property. Each LCS structure is listed as a contributing structure and NPS structures are listed as non-contributing.

FORT BOWIE NATIONAL HISTORIC SITE

SUMMARY CHART FOR STRUCTURES

| Significance | | Condition | | | | Impacts | | | | Documentation | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Level | Total | Good | Fair | Poor | Unk. | Sev. | Mod. | Low. | Unk. | Good | Fair | Poor |
| National | 96 | | 10 | 70 | 16 | | | | 96 | 96 | | |
| National Cont. | | | | | | | | | | | | |
| State | | | | | | | | | | | | |
| Local | | | | | | | | | | | | |
| Undetermined | | | | | | | | | | | | |
| TOTALS | 96 | | 10 | 70 | 16 | | | | 96 | 96 | | |

Total number of Structures 96 - on the List of Classified Strictures.
Number of Prehistoric Structures 0
Number of Historic Structures 96 ; all 96 structures are on the National Register of Historic Places.

FORT BOWIE NATIONAL HISTORIC SITE

SUMMARY CHART FOR OBJECTS

| Documentation* | ARCH | ETHN | HIST | ARCHV | BIOL | PALEO | GEOL | Total |
|---|---|---|---|---|---|---|---|---|
| Registration Date Only | | | | | | | | 0 |
| Registration & Catalog Data | | | | | | | | |
| Total Items Cataloged | 2 | | 120 | | | | | 122 |
| Backlog to be Cataloged | 8 | | 30 | | 150 | | | 188 |
| Total Collection Summary | 10 | | 150 | | 150 | | | 310 |

* Form 10-254 Submitted to National Catalog at Harpers Ferry
Note: Approximately 2,700 cataloged historic items have been sent to WACC.

| Condition** | ARCH | ETHN | HIST | ARCHV | BIOL | PALEO | GEOL |
|---|---|---|---|---|---|---|---|
| Excellent | | | | | | | |
| Good | 100% | | 65% | | 50% | | |
| Fair | | | 20% | | 50% | | |
| Poor | | | 15% | | | | |
| Unknown | | | | | | | |

**The Percentage of Collection in the Following Categories.

FORT BOWIE NATIONAL HISTORIC SITE

SUMMARY CHART FOR CULTURAL LANDSCAPES

| Significance | | Condition | | | | Impacts | | | | Documentation | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Good | Fair | Poor | Unknown | Sev. | Mod. | Low | Unk. | Good | Fair | Poor |
| National | | | | | | | | | | | | |
| State and Regional | | | | | | | | | | | | |
| Local | | | | | | | | | | | | |
| Not Evaluated | 1 | | | | 1 | | | | 1 | | | 1 |
| TOTALS | 1 | | | | 1 | | | | 1 | | | 1 |

The Fort Bowie National Historic Site has never been evaluated for cultural landscapes.

## APPENDIX 3

### LIST OF RELATED ACTION PLANS

National Park Service. 1986. Natural and Cultural Resource Management Plan, Fort Bowie NHS. Approved by the Regional Director September 16, 1986.

_____. 1982. Natural and Cultural Resource Management Plan, and Environmental Assessment, March 1982, Fort Bowie National Historic Site. Approved by the Acting Regional Director June 4, 1982.

_____. 1978. Statement for Management, Fort Bowie National Historic Site. Approved by the Regional Director March 7, 1978.

_____. 1975a. Final Master Plan, November 1975, Fort Bowie National Historic Site, Arizona. Approved by the Regional Director September 15, 1975.

_____. 1975b. Final Environmental Assessment, Master Plan, November 1975, Fort Bowie National Historic Site, Arizona. Approved by the Regional Director September 15, 1975.

_____. 1975c. Environmental Assessment, March 1975, Master Plan, Fort Bowie National Historic Site, Arizona. Denver Service Center, National Park Service, United States Department of the Interior.

## APPENDIX 4

### ANNUAL PROJECT STATUS AND ACCOMPLISHMENTS REPORT

List of Completed Projects:

Water Resources, FOBO-W-1
-- settled by litigation.

Stage Station/Indian Agency Identification
-- funded and completed.

Off-trail Visitor Use, FOBO-N-2
-- a visitor survey for Chiricahua and Fort Bowie was completed in 1987.
-- an analysis of physical impacts of visitors on park resources, however, was not completed.
-- this project statement issue has been revised and included in FOBO-I-8.

## APPENDIX 5

### BIBLIOGRAPHY


Axelrod, D.I. 1958. Evolution of the Madro-Tertiary Geoflora. Bot. Rev. 24:433-509.

Bennett, P.S. and M.R. Kunzmann. 1987. Organ Pipe Cactus National Monument Biosphere Reserve Sensitive Ecosystems Program. U.S.D.I., National Park Service, Cooperative National Park Resources Studies Unit, Tucson, Arizona. Special Report No. 7.

Brown, B.T., et. al. 1984. Checklist of the Birds of Grand Canyon National Park. Grand Canyon Natural History Association.

Davis, W.A. and S.M. Russell. 1984. Birds in Southeastern Arizona. Tucson Audubon Soc., Tucson. vii, 169 pp.

Green, Jerome. 1980. Historic Structures Report; Historic Data Section, Fort Bowie National Historic Site, Its Physical Evolution 1862-1894. Denver Service Center, National Park Service, United States Department of the Interior. 520 pp.

Hoy, M. 1975. Checklist of the Vascular Flora of Fort Bowie National Historic Site. Report on file at Fort Bowie NHS.

Lane, J.A. 1986. A Birder's Guide to Southeastern Arizona. L&P Press, Denver.

Lederer, R. 1989. Anguished English. Wyrick & Company, Charleston. 177 pp.

Lowe, C.H. and T.B. Johnson. 1976. A Survey of the Reptiles and Amphibians of the Fort Bowie National Historic Site. In: Survey of the Vertebrate, Fauna Fort Bowie National Historic Site. NPS/CPSU/UA Technical Report No. 2. pp. 77-120.

Lowe, C.H. and T.B. Johnson. 1963. The Vertebrates of Arizona: With Major Section on Arizona Habitats. Univ. Ariz. Press, Tucson.

Murray, R.Y. 1951. The History of Fort Bowie. Unpublished masters thesis. Copy on file at Fort Bowie NHS.

National Park Service. 1989. Resource Management Plan Guideline: March 13, 1989. 11 pp. + Technical Supplement.

National Park Service. 1988a. Resource Management Plan Guidelines. Approved by the Director May 3, 1988.

National Park Service. 1987. History and Prehistory in the National Park Service and the National Historic Landmarks Program. History Division, NPS. 125 pp.

National Park Service. 1986. Natural and Cultural Resource Management Plan, Fort Bowie NHS. Approved by the Regional Director September 16, 1986.

National Park Service. 1982. Natural and Cultural Resource Management Plan, and Environmental Assessment, March 1982, Fort Bowie National Historic Site. Approved by the Acting Regional Director June 4, 1982.

National Park Service. 1978. Statement for Management, Fort Bowie National Historic Site. Approved by the Regional Director March 7, 1978.

National Park Service. 1975a. Final Master Plan, November 1975, Fort Bowie National Historic Site, Arizona. Approved by the Regional Director September 15, 1975.

National Park Service. 1975b. Final Environmental Assessment, Master Plan, November 1975, Fort Bowie National Historic Site, Arizona. Approved by the Regional Director September 15, 1975.

National Park Service. 1975c. Environmental Assessment, March 1975, Master Plan, Fort Bowie National Historic Site, Arizona. Denver Service Center, National Park Service, United States Department of the Interior.

Phenicie, C.K. and J.R. Lyons. 1973. Tactical Planning in Fish and Wildlife Management and Research. U.S.D.I., Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Washington, D.C. Resource Publication 123.

Post, D.F. 1978. Soil Survey of Fort Bowie National Historic Site with Special Emphasis on Soils Having Potential for Adobe Production. Unpublished report in Chiricahua National Monument Library. 30 pp. with color photographs.

Robbins, John. 1983. Historic Structures Report; Ruins Stabililzation, Archeological Data, Fort Bowie National Historic Site, Cochise County, Arizona. Denver Service Center, National Park Service, United States Department of the Interior. 158 pp. with photographs and drawings.

Roth, E.L. and E.L. Cockrum. 1976. A Survey of Mammals of the Fort Bowie National Historic Site. In: Survey of the

Vertebrate, Fauna Fort Bowie National Historic Site. NPS/CPSU/UA Technical Report No. 2. pp. 1-40.

Russell, S.M. and T.B. Johnson. 1976. A Survey of the Birds of the Fort Bowie National Historic Site. In: Survey of the Vertebrate, Fauna Fort Bowie National Historic Site. NPS/CPSU/UA Technical Report No. 2. pp. 41-76.

U.S. Forest Service. n.d. Birds of the Chiricahua Mountains, Checklist. USDA, U.S. Forest Service, and the Southwest Research Station of the American Museum of Natural History.

Warren, P.L., C.H. Hoy and W.E. Hoy. 1992. Vegetation and Flora of Fort Bowie National Historic Site, Arizona. 78 pp.

Zube, E.H., C. Kennedy and D. Simcox. 1987. Fort Bowie National Historic Site and Chiricahua National Monument Visitor Survey. NPS/CPSU/UA Special Report No. 6. 60 pp.