

Walnut Canyon Special Study

Under
Omnibus Public Land Management Act of 2009 (Public Law 111-11)



Prepared By:

Department of the Interior, National Park Service
Flagstaff Area National Monuments
and
Department of Agriculture, U.S. Forest Service
Coconino National Forest
Under Interagency Agreement (10-1A-11030411-014)
and
City of Flagstaff and Coconino County, Arizona

Final: January 2014



EXECUTIVE SUMMARY

The U.S. Forest Service / Coconino National Forest; National Park Service / Walnut Canyon National Monument (monument); City of Flagstaff, Arizona; and Coconino County, Arizona, cooperated in preparation of this congressionally mandated study to explore management options for the Walnut Canyon Special Study Area (Study Area). The Study Area encompasses 27,914 acres of federal (25,413 acres), state (2,036 acres), and private (465 acres) land surrounding Walnut Canyon National Monument. The federal lands in the Study Area are presently managed by the U.S. Forest Service as part of Coconino National Forest (figures 1 and 2).

The Omnibus Public Land Management Act of 2009 (Public Law 111-11) directs the “Secretary of the Interior and the Secretary of Agriculture, acting jointly, to conduct a study of the Study Area to assess:

- the suitability and feasibility of designating all or part of the Study Area as an addition to Walnut Canyon National Monument in accordance with section 8(c) of Public Law 91-383 (16 *United States Code* [USC] 1a-5[c])
- continued management of the Study Area by the U.S. Forest Service, Coconino National Forest
- any other designation or management option that would provide both protection of resources within the Study Area and continued access to and use of the Study Area by the public”

The ensuing study examines: (1) current uses and federal management actions; (2) a range of alternative management and designation options, including evaluation of potential tradeoffs on Study Area resources, recreational opportunities, and social and

economic values; and (3) natural and cultural resources. The study also summarizes public participation and the input received during the study process.

A number of management options and designations were explored through public involvement and an agency workshop. A total of seven options were initially developed. Four of those options subsequently were dismissed as nonviable. Three management options were considered viable, including:

- continuation of current management by the U.S. Forest Service
- congressional action establishing a special designation to the Study Area
- congressional action that prohibits the exchange of federal lands to other than federal land management agencies

As specified by the act, the National Park Service conducted an independent national significance assessment of cultural resources in the Study Area to determine the suitability and feasibility of designating all or part of the Study Area as an addition to Walnut Canyon National Monument. The assessment concluded that, while important cultural resources exist outside the current monument boundary, they do not meet the level of national significance under the national historic landmark guidelines (see appendix C). The assessment identified cultural resources contiguous to the current monument boundary that, while not nationally significant separately or collectively, would contribute to the interpretive value of Walnut Canyon National Monument.

According to *NPS Management Policies 2006*, boundary adjustments may be necessary or desirable to carry out the purposes of the

national park system unit. Boundary adjustments may be recommended if they fulfill one or more of three criteria. The criteria address significant resources or opportunities for public enjoyment related to purposes of the monument that are currently outside the monument boundaries, operational and management issues such as access and boundary identification by topographic or other natural features or roads, and if the expansion is necessary to protect monument resources essential to fulfilling the monument's purposes. The boundary expansion criteria are consistent with management direction for boundary expansion set forth in the Walnut Canyon National Monument General Management Plan.

A proposed boundary expansion requires an assessment of impacts on local communities

and surrounding areas and is documented in the preparation of environmental assessments or impact statements as outlined in the National Environmental Policy Act (NEPA) guideline (NPS-12). An estimate of acquisition costs, basis for the estimate, and a statement on relative priorities within the park is also required. Preparing a NEPA document and cost estimate is outside the scope of this Special Study process.

This final report contains no recommendations from the U.S. Forest Service and National Park Service with respect to a preferred management option for the entire Study Area. Rather, the final report will be forwarded to the secretaries of the Department of Agriculture and Department of the Interior. The secretaries may forward the report's findings and any departmental recommendations to Congress.



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(Public Law 111-11)**

APPENDIX B: Acronyms and Abbreviations

**APPENDIX C: Conclusions from an Assessment of the National Significance of Cultural
Resources for the Walnut Canyon Special Resource Study, Ted Neff et al.**

APPENDIX D: Walnut Canyon National Monument Special Study Comments through August 2010

**APPENDIX E: Walnut Canyon National Monument Special Study Comments May 2011 through
July 2011**

**APPENDIX F: Walnut Canyon Special Study Draft Report Comments May 10 through July 10,
2013**

APPENDIX G: Tribal Consultation

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INTRODUCTION

The U.S. Forest Service (USFS) and National Park Service (NPS), together with Coconino County and the City of Flagstaff, completed this congressionally mandated special study to explore management options for the Walnut Canyon National Monument (monument) special Study Area (figure 1). This special study examines: (1) current land use and management actions and direction; (2) a range of alternative management and designation options; (3) natural and cultural resources; (4) analysis of management options and tradeoffs for resources, recreational opportunities, social values, and local economic resources; and (5) describes the public input process.

STUDY OVERVIEW

In the late 1980s, the National Parks and Conservation Association and Friends of Walnut Canyon (a local organization) began promoting increased protection of Walnut Canyon National Monument through congressional action. This initiative was to extend increased protection for cultural and other resources to a broader area surrounding the existing monument boundaries. The objective of that initiative was partially achieved through a 1996 boundary expansion. Subsequent to that expansion, the support groups favored further expansion of current monument boundaries to the proposed Study Area boundaries. The Study Area boundaries were designed to extend protection to portions of the Walnut Creek watershed and include important riparian, old growth, and endangered species habitats; protect the area from future commercial and residential development; preserve the natural scenery; reduce or eliminate motorized access; and address fire management and forest restoration.

In 2002, responding to continued public interest to further protect the monument and recommendations outlined in the Coconino County / Flagstaff Regional Land Use and Transportation Plan (2001), the Coconino County Board of Supervisors and Flagstaff City Council initiated a forum to fully engage the public in discussions regarding the monument's long-term protection. The year-long process included three public open house events, a poll taken at one of these events, distribution of an educational brochure, and a phone survey that was conducted by Northern Arizona University. Results of the survey indicated public support to enhance measures to conserve additional land of the Walnut Canyon area from future development. Public opinion was divided regarding the preferred mechanism to achieve the conservation goal. In addition, the survey revealed some reservation as to whether a monument boundary expansion was desired.

Based on the above efforts and results, the Coconino County Supervisors and Flagstaff City Council independently passed resolutions on unanimous votes in late 2002, requesting assistance from Congress to authorize a special study of land surrounding the monument. In May 2004, U.S. Senator John McCain (Arizona) and Congressman Rick Renzi (Arizona) introduced federal legislation addressing and providing for a study of the Walnut Canyon area, as discussed in the public law section. The defined purpose of the special study was to: (1) evaluate the national significance of the natural and cultural resources of the Walnut Canyon area, (2) evaluate the general public's desire for recreational access to and economic benefit from the area, and (3) to identify which features and resource values require protection and preservation.

INTRODUCTION

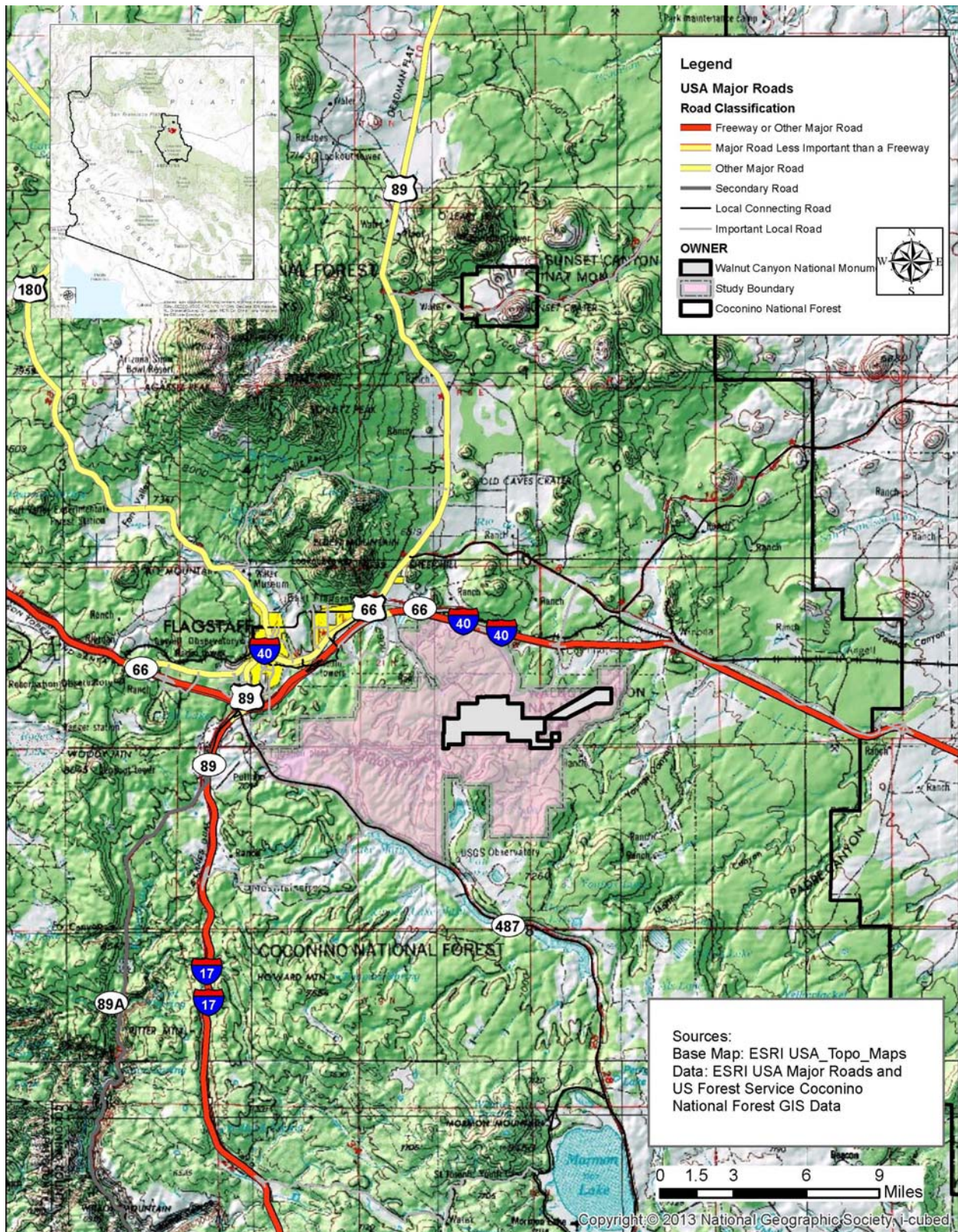


FIGURE 1. LOCATION MAP FOR SPECIAL STUDY AREA

PUBLIC LAW 111-11 (2009): TITLE VII (NPS AUTHORIZATIONS); SUBTITLE C (SPECIAL RESOURCE STUDIES); SECTION 7201 (WALNUT CANYON STUDY)

On March 30, 2009, President Obama signed the Omnibus Public Land Management Act of 2009, which had been as passed by Congress after consideration by several Congresses, including hearings and markups. The act includes section 7201 (see appendix A) directing the Secretary of Agriculture and the Secretary of the Interior to jointly conduct a special study of management options for an area encompassing 27,914 acres of federal (25,413 acres), state (2,036 acres), and private (465 acres) land to the south and east of Flagstaff, Arizona (see figures 1 and 2) and within the Flagstaff Ranger District of Coconino National Forest surrounding the existing monument.

SPECIAL STUDY OBJECTIVES

The objectives for this study regarding future management of the Walnut Canyon Study Area is to assess potential land management designations described in the act, including:

- Suitability and feasibility of designating all or part of the Study Area as an addition to Walnut Canyon National Monument in accordance with section 8(c) of Public Law 91-383 (16 *United States Code* [USC] 1a-5[c]).
- Continued management of the Study Area by the U.S. Forest Service, Coconino National Forest.
- Another designation or management option that would provide both protection of resources within the Study Area and continued access to

and use of the Study Area by the public.

In order to accomplish the objectives, the study process includes the following tasks:

- An assessment of natural and cultural resources, current land use, and management actions and direction.
- Meaningful engagement with stakeholders, including the City of Flagstaff and Coconino County governments, American Indian tribes, other local and state agencies, and the general public to determine their desires and ideas for future management.
- Development and evaluation of the full range of management alternatives and designation options.
- Analysis of the impacts, both adverse and beneficial, to natural and cultural resources, recreational opportunities, the local economy, and the social values of any change in management or agency authority.
- Provide the results and findings in this special study report.

REPORT TRANSMITTAL TO SECRETARIES

This final report contains no recommendations from the U.S. Forest Service and National Park Service with respect to a preferred management option for the entire special Study Area. Rather, the final report will be forwarded to the secretaries of the Department of Agriculture and Department of the Interior. The secretaries may forward the report's findings and any departmental recommendations to Congress.

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STUDY AREA, PROCESS, AND RELATED PLANS

COCONINO COUNTY

Coconino County is in north-central Arizona, encompassing approximately 18,617 square miles (nearly 12 million acres). Elevations within the county range from 1,350 feet above mean sea level (msl) at the bottom of the Grand Canyon to 12,633 feet msl on the volcanic San Francisco Peaks (Mount Humphreys). Forests and woodlands are characterized by mixed conifers and ponderosa pine (*Pinus ponderosa*) that cover approximately 15% of the county in areas generally above 7,000 feet elevation; pinyon-juniper woodlands have become established county-wide on the approximately 40% occurring between 6,000 and 7,000 feet msl elevation. The remainder of Coconino County, generally lying between 5,000 and 6,000 feet msl, is characterized by xeric grasslands and shrubland vegetation types. Landforms supporting regional plant communities include canyons, plateaus and mesas, cliffs, slopes, cinder cones, mountains, valleys, floodplains, and relatively flat expanses.

The 2000 U.S. Census reported a resident population of 116,320 in Coconino County with the 2010 U.S. Census recording a population of 134,418; a 16% increase. Of the total resident population in 2010, about 88,400 residents (66% of the entire county population) live in the Flagstaff area, with much of the remaining population living in unincorporated rural areas.

Although Coconino County is the largest county in Arizona and the second-largest in the United States in terms of land area, it is also among the most sparsely populated. Only 13% of the county is privately owned. American Indian reservations (Navajo and Hopi, including the Kaibab-Paiute, Havasupai, and Hualapai) comprise 38% of

the land area. Federal and state agencies manage the remaining land (U.S. Forest Service [28%], Bureau of Land Management [BLM] (5%), State Land Department [9%], and the National Park Service [7%]) (Flagstaff Regional Plan 2011).

The population distribution between urban and rural areas in the county has not changed significantly since the 1960s, although substantial residential and commercial development has occurred in the southeast quadrant of the Flagstaff urban area, including the area south and east of I-40/I-17, which borders the Study Area.

County-wide, American Indians comprised 27.4% of the county population in 2010 and 11.7% of Flagstaff's resident population. The median age of residents was 25, with 6% of the population over 65 years old (Flagstaff Regional Plan 2011).

Planners in the region forecast net population growth of 15% within the regional planning area in the coming decade; a rate that would result in a population of about 103,850 by 2020, with further growth to 116,600 foreseen by 2030 (Flagstaff Regional Plan 2011).

Study Area

The Study Area encompasses 27,914 acres south and east of Flagstaff, Arizona. Land within the Study Area is administered primarily by the U.S. Forest Service in the Coconino National Forest (91%), but the overall Study Area boundary encompasses more than three sections of Arizona State Land Department trust lands and some private land. The Study Area surrounds Walnut Canyon National Monument (figure 2).

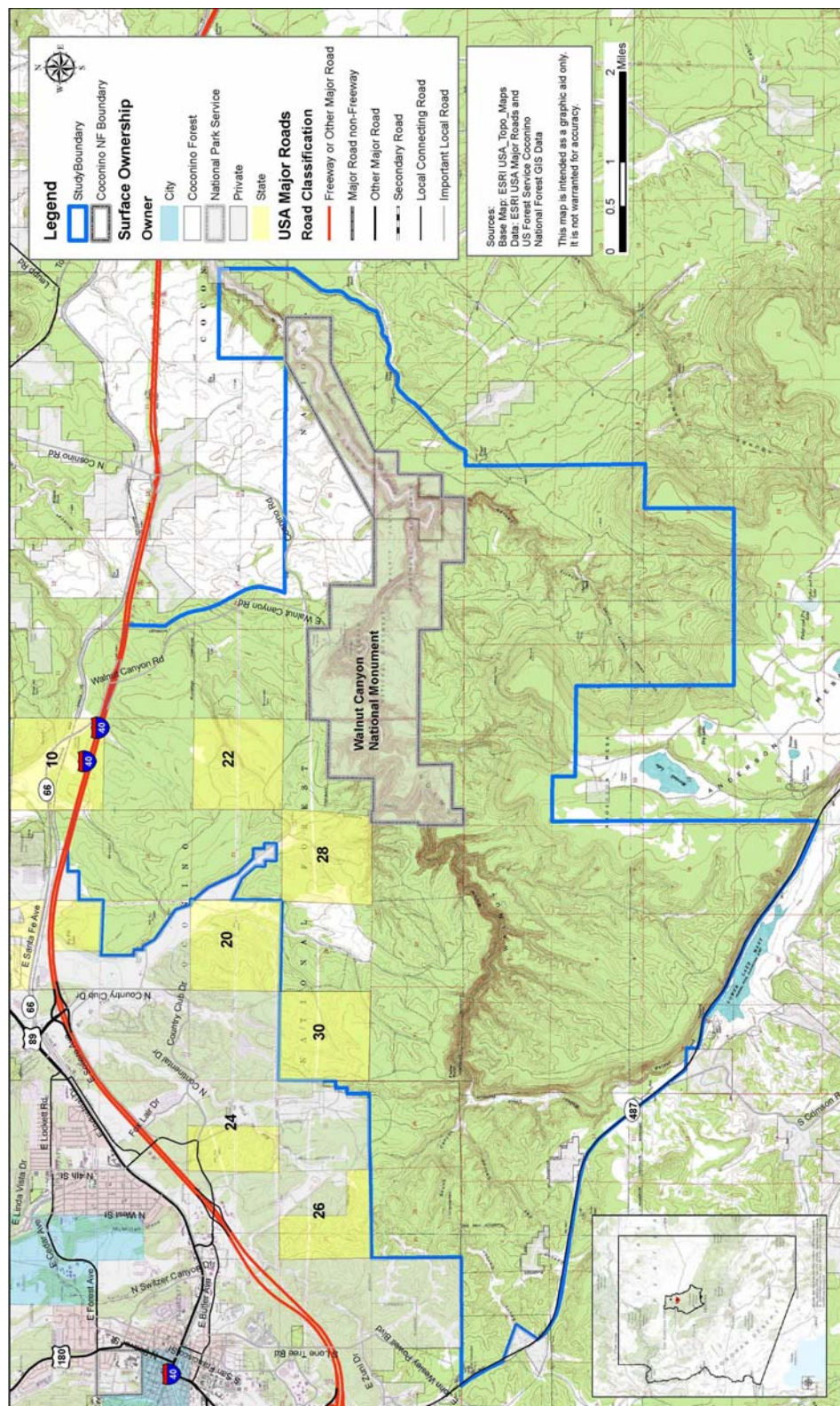


FIGURE 2. LAND OWNERSHIP AND SPECIAL STUDY AREA BOUNDARIES

Walnut Canyon National Monument was established by President Woodrow Wilson through Presidential Proclamation No. 1318 on November 30, 1915, to preserve the prehistoric ruins of ancient cliff dwellings. The monument has since been enlarged on three occasions: (1) by Presidential Proclamation No. 2300 in 1938, (2) by Public Land Order 1269 in 1965, and (3) in 1996 when Congress expanded the boundaries of the monument by 1,292 acres through Public Law 104-333. The most recent expansion was specifically intended to protect additional natural and cultural resources contributing to the monument's purpose and significance. The monument presently comprises approximately 3,600 acres (NPS 2007).

The Arizona State Land Department is the trustee for over 9 million acres of state trust land under the mission to manage trust land to enhance value and optimize economic return for 13 public beneficiaries. The Arizona State Land Department can sell or lease land at auction. While public use of trust land is not prohibited, it is regulated to ensure compensation to the beneficiaries for its use and protection. Within the Study Area, sections 20 (adjacent to) and 30, T21N R8E (within) the Study Area boundary have high development potential due to the proximity to Flagstaff, accessibility, and proximity to infrastructure (see figure 2).

There are existing cooperative agreements between the Arizona State Land Department and other agencies including: (1) a multiagency agreement for wildfire management, (2) an agreement with the Coconino National Forest and Coconino County Sheriff's Office for joint law enforcement activity, and (3) a cooperative program with Coconino National Forest for educational activities on both forest and park lands.

The Arizona Game and Fish Department's (AGFD) mission is to conserve, enhance, and restore the diverse wildlife resources and habitats throughout the state using protection and management programs.

AGFD personnel provide law enforcement relative to hunting activities under a legal mandate to manage all Arizona wildlife. The Study Area is within Game Management Units 11M and 5B, the latter being further subdivided into Unit 5B-N and Unit 5B-S (AGFD 2012a); however, the agency does not manage any land within the Study Area. The Arizona Game and Fish Department also manages the Watchable Wildlife project, which strives to increase public awareness of, and support for, wildlife through managed wildlife viewing-related recreational and educational opportunities, while not lessening existing hunting and fishing opportunities. The department wildlife biologists plan for habitat linkages to identify areas of concern for wildlife movement throughout the county.

The following infrastructure occurs within the Special Study Area (figure 3):

- City of Flagstaff water treatment facilities including the treatment plant (22 acres), 5 miles of water line, four or five wells, and access roads
- Arizona Public Service electrical lines
 - distribution lines near Lake Mary Road (~6.5 miles, plus service to private inholdings)
 - 69kV line (Flagstaff to Winslow east-west ~6 miles)
 - 230kV/69kV (north-south 1.5 miles)
- CenturyLink Communications
 - local service lines (~4 miles near Lake Mary Road)
 - east-west corridor (~6 miles)
- Coconino County water line service to Fort Tuthill
- UniSource Gas Lines (minor service lines to private lands)
- North Ranch homeowners access road (~0.2 miles)
- Campbell Mesa private road (~1.1 miles)
- private water pipeline (~2.3 miles)

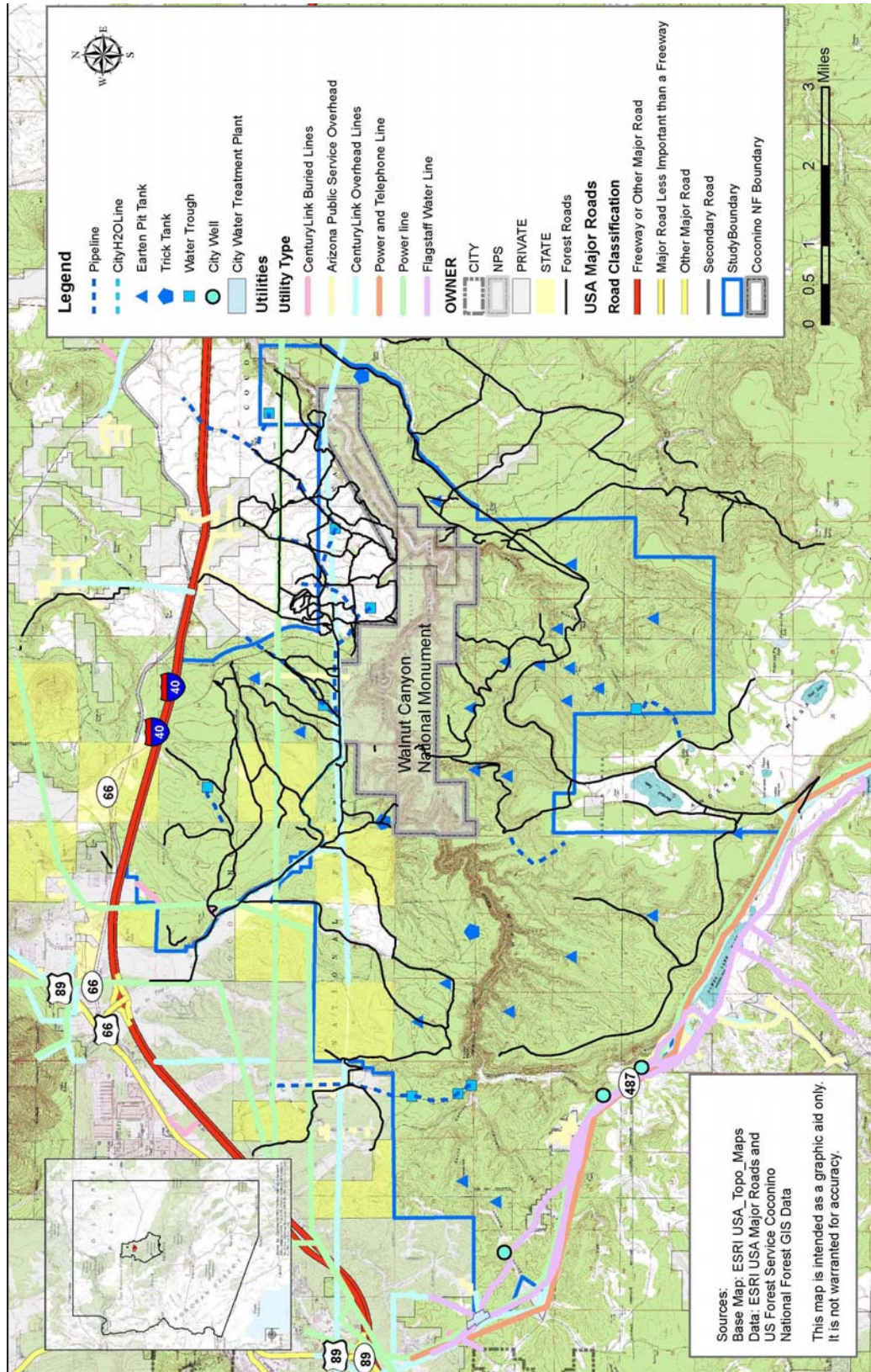


FIGURE 3. EXISTING INFRASTRUCTURE

Note: Graphic is based on currently available data, and may not illustrate the latest road closures and removed infrastructure.

SPECIAL STUDY PROCESS AND PLANNING TEAM

The U.S. Forest Service and the National Park Service jointly initiated this study in February 2010 to explore management options for the Study Area, per the Omnibus Public Land Management Act of 2009. The City of Flagstaff and Coconino County subsequently signed on as cooperating partners and have been participants throughout the process. A third-party contractor coordinated the interagency efforts for public involvement and took a lead role in preparing this special study report.

Major steps of the study effort included:

- **Public Involvement and Consultations.** The public, stakeholders, tribes, organizations, and other agencies were engaged throughout the study. A study website was established and meetings were held in the Flagstaff vicinity. Meetings were held and public comments solicited during three phases of the project—at the beginning, when draft options were developed, and when the draft report was released. All comments were reviewed and considered throughout the process. During the final phase, comments received on the draft report were incorporated into the final report as appropriate to the scope of this study. Summaries of public comments were made available via the website at the conclusion of commenting periods, and are included in appendixes D, E, and F.
- **Data Collection and Analysis.** Resource data were collected, including natural and cultural resources, existing management and land use, recreational uses and trends, the surrounding social and economic environment, and regional and state plans and initiatives affecting the Study Area.

- **An Assessment of the National Significance of Cultural Resources for the Walnut Canyon Special Study.** On-the-ground surveys were conducted by the Museum of Northern Arizona, of known and new areas within the Study Area (conclusion in appendix B).
- **Development and Assessment of Management Options.** Based on data and public input, the study team developed management options that would achieve desired goals and resource conditions. Management options were then assessed for the meeting criteria and environmental effects.
- **Draft Study Document.** The study team prepared a draft study document describing the management options and potential effects. A draft report was prepared for public review.
- **Final Document.** Following public and government review, this final study document was prepared for submittal to the two department secretaries.

PUBLIC INVOLVEMENT

The Omnibus Public Land Management Act of 2009 directed the lead federal agencies to “meaningfully engage stakeholders, City of Flagstaff and Coconino County governments, American Indian tribes, other agencies, and the general public at local and national levels to determine their desires for future management of this area.”

The study team formulated and implemented a public involvement plan that included compiling an initial project mailing list from databases supplied by the National Park Service, U.S. Forest Service, the City of Flagstaff, and Coconino County. Additional stakeholders were identified in response to contact information provided in newsletters, a project-specific website, press releases, and

open house events. (See “Management Options Assessment” for more details.)

Public comments received during the first phase of the project centered on the following topics:

Resource Protection

- natural resources including wildlife and birds, scenic and natural qualities, watershed and water quality, forested canyon, old-growth pine, geology, and solitude
- historic, archeological, and American Indian resources
- urban development resulting in encroachment to the monument

Uses and Access

- recreational opportunities including hiking, biking, camping, climbing, horseback riding, hunting, birding, cross-country skiing, and firewood gathering
- open space near Flagstaff and as a buffer around the monument
- educational and interpretative opportunities
- free access
- livelihood and economics – grazing, concessions, hunting, property values
- off-road vehicles
- existing trails
- fire – as a management tool for forest health

Other

- preserve in perpetuity
- no development or land swap
- private inholdings and access roads to them
- wildland fire – urban interface

Tribal Consultation

There are 13 tribes that claim cultural associations with lands within the monument, including:

Fort McDowell Yavapai Nation
Havasupai Tribe of the Havasupai Reservation
Hopi Tribe of Arizona
Hualapai Indian Tribe of the Hualapai Indian Reservation
Kaibab Band of Paiute Indians of the Kaibab Indian Reservation
Navajo Nation
San Carlos Apache Tribe of the San Carlos Reservation
San Juan Southern Paiute Tribe of Arizona
Tonto Apache Tribe of Arizona
White Mountain Apache Tribe of the Fort Apache Reservation
Yavapai-Apache Nation of the Camp Verde Indian Reservation
Yavapai-Prescott Indian Tribe
Zuni Tribe of the Zuni Reservation

Six groups, including Apaches, Hopis, Navajos, Pais, Paiutes, and Zunis were involved in an ethnographic study in 2004 by Toupal and Stoffle. The Hopi, Navajo, and Zuni tribes conducted field research and identified ethnographic resources within the monument.

The Study Area has not been surveyed for ethnographic resources and is outside the scope of this Special Study process. Approximately 48% of the Study Area has been surveyed for cultural resource sites, including 775 acres surveyed by the Museum of Northern Arizona for this study. Museum research included a review of information including places of ethnographic significance (traditional cultural properties, traditional use areas, shrines, etc.) that have been identified through previous fieldwork, literature searches, and/or through consultation with affiliated tribes. The National Park Service and U.S. Forest Service

have been jointly communicating and consulting the 13 tribes that are traditionally associated with the Walnut Canyon area throughout this project.

RELATED PLANS AND STUDIES

The National Park Service, City of Flagstaff, Coconino County, and Coconino National Forest have completed various planning efforts over the past 15 years addressing aspects of land use, development and management, and resident population on lands near and in the Study Area. A summary of these plans follow.

Walnut Canyon National Monument General Management Plan (2007). The *Walnut Canyon National Monument General Management Plan* (GMP), finalized in 2007, provides management guidance for the monument for the next 10 to 15 years. The plan stresses preservation of untrailed expanses, unfragmented natural systems, and relatively pristine conditions throughout much of the monument. Visitation is to be managed with the goal of providing quality educational opportunities in an intimate atmosphere while striving to maintain the health of the canyon ecosystem and Walnut Canyon as a critical wildlife corridor. Visitation to the monument is to remain day use only, with no recreational use except on designated trails near the visitor center in order to protect cultural and natural resources. Efforts will be pursued to provide a broader range of educational offerings and to open additional archeological sites to general visitor use. The general management plan also addresses boundary expansion, stating:

During the course of this planning process and as specified in Section 604 of the National Parks and Recreation Act of 1978 (16 *United States Code* [USC] 1a-5 et seq.) an assessment for expanding the boundaries of the monument was conducted.

A boundary expansion assessment initially determined that both natural and cultural resources that contribute to the purpose and significance of the monument still remain outside current monument boundaries. However, further expansion of the existing boundaries at Walnut Canyon was not recommended at the time because of current planning efforts and proposed actions by adjoining and neighboring land managing agencies. Specific planning efforts that were taken into consideration in this assessment included the following:

- The Coconino National Forest Flagstaff / Lake Mary Ecosystem Analysis (USFS 2003), which addresses public uses and recreation, wildlife habitat management, and fire risk reduction on national forest land immediately surrounding the monument and along the wildland urban interface.
- The City of Flagstaff Open Space and Greenway Plan (1998), which serves as a guide for the future protection of open spaces and greenways surrounding Flagstaff and adjacent communities, including lands administered by the U.S. Forest Service and the National Park Service, while also considering the demands for growth in residential, commercial, and recreational uses.
- The City of Flagstaff and Coconino County's joint Flagstaff Area Regional Land Use and Transportation Plan (2001) that applies to 460 square miles surrounding Flagstaff and addresses population growth issues adjacent to the park on the west side.
- Coconino County's Comprehensive Plan (2003), which addresses ways to protect natural landscapes throughout the county from the adverse effects of unmanaged development.
- The City of Flagstaff and Coconino Country filed an application (35-

107300) to have Arizona State Trust land sections 22, 28, and 30 included under the Arizona Preserve Initiative. It was felt that residential or commercial development could result in an adverse impact on park resources and negatively influence the health of the Walnut Canyon ecosystem. The application was later withdrawn and these efforts were not continued.

With these planning efforts and existing commitments by city, county, and federal agencies to work with the National Park Service to manage lands adjacent to the monument in a compatible manner, further expansion was deemed unnecessary in 2007. The general management plan identifies circumstances that would compel a reevaluation of the need for a boundary expansion. The circumstances include:

- Changes in land use management by Coconino National Forest affecting the use of land along the interface of U.S. Forest Service land with the City of Flagstaff.
- A softening in the City of Flagstaff's commitment to limit development within the existing urban growth boundary and to effectively manage the density of development along that boundary.
- A change in land use or the sale or exchange of state trust lands that could result in the potential residential or commercial development of these adjacent lands.

Coconino National Forest Management Plan, as Amended (1987–2008) Revision.

The Coconino National Forest Land and Resource Management Plan defines management direction for the forest. The plan was prepared pursuant to the Renewable Resources Planning Act of 1974 (RRPA), as amended by the National Forest Management Act of 1976 (NFMA), and provides integrated multiple use and sustained yield of goods and services from

the forest in a way that maximizes long-term net public benefits in an environmentally sound manner. A plan revision is underway, with completion expected in 2013.

The current forest plan was adopted in 1987, but has undergone several updates and amendments. The latter includes Amendment 17, adopted in 2002, a major revision to address the Flagstaff / Lake Mary Ecosystem Analysis (FLEA), which includes the Study Area. The amendment provided:

- closing drainages to motorized vehicles
- promoting recreation opportunities for the community emphasizing daytime uses, primarily nonmotorized
- managing a portion of the area for a quiet, almost primitive recreation experience
- balancing recreational demands with protection of soil, water, vegetation, and sensitive species
- protecting monument values
- maintaining scenic quality
- maintaining the wildfire-urban interface
- maintaining and improving condition and watershed function
- maintaining sensitive species habitat

The FLEA amendment also provides that “...no land exchanges will occur unless the purpose is to acquire land within this Management Area (MA 37) through exchange of national forest lands elsewhere.” Any subsequent amendment of the FLEA outside of a forest plan revision would require a separate public process under the National Environmental Policy Act of 1969, as amended (NEPA), with the forest supervisor being the decision maker of record.

It is anticipated that the provisions and language in the FLEA amendment will be incorporated into the ongoing forest plan revision. The existing MA 37 boundaries are depicted in figure 6. The revised forest plan is

expected to adjust the MA 37 boundary to include a small portion of the Study Area to the east of the entrance road and north of the monument.

Coconino County Comprehensive Plan (2003). The Coconino County Comprehensive Plan (2003) provides a vision and guidelines for development and land use in the county, while providing county officials with guidance for making decisions about zone changes and developments. The plan also sets policies for actions related to capital improvements, road construction and maintenance, environmental protection, land use, and energy use in buildings. The comprehensive plan applies to all areas of the county except American Indian reservations and incorporated cities and towns. Although the county has no jurisdiction over public lands managed by the U.S. Forest Service, National Park Service, and Bureau of Land Management, many policies support the collaborative efforts necessary to protect the integrity of these lands. The Coconino County vision extends to the next two decades while the goals and policies are intended to serve for 10 years.

Flagstaff Area Regional Land Use and Transportation Plan (2002). The Flagstaff Area Regional Land Use and Transportation Plan (Flagstaff Regional Plan) was adopted by the Flagstaff City Council and the Coconino County Board of Supervisors in 2001 and approved by Flagstaff voters in May 2002. The plan provides guidance for local land use and transportation over the next 30 years. In 2010, the planning region had approximately 88,000 residents, with forecasts of an additional 38,000 residents and 9,000 additional dwelling units by 2030. The Flagstaff Regional Plan applies to the city and about 460 square miles of area surrounding the city, comprising the Flagstaff Regional Planning Area. Like the Coconino County Comprehensive Plan, the Flagstaff Regional Plan seeks to promote compact growth and limit urban sprawl and contains goals and policies to guide growth, density, infrastructure, and open space protection. The plan

policies included measures to protect natural and cultural resources around the monument outlining efforts to formalize various land use and management commitments by federal, state, and local government agencies. The city and county are currently developing a revised Flagstaff Regional Plan.

Flagstaff Urban Trails System Plan and Flagstaff Loop Trail. The Flagstaff Urban Trails System (FUTS) is a citywide network of nonmotorized, shared-use pathways used by bicyclists, walkers, hikers, and runners, both for recreation and transportation purposes. The overall master plan presently includes 130 miles of trails; just over 50 miles presently exist. The overall FUTS system plan will connect neighborhoods, shopping, places of employment, schools, parks, open space, and the surrounding national forest, and allow users to combine transportation, recreation, and contact with nature. According to the City of Flagstaff Citizen Survey 2009, 78% of Flagstaff residents had used the urban trails system in the preceding year. A more recent survey reported that more than 75% of urban trails users used the trails at least once per week.

The goal of the Flagstaff Loop Trail would be to complement the urban trails system by providing a multiuse, nonmotorized recreational experience near the urban fringe. The vision is for a 42-mile-long route that would circumnavigate Flagstaff, with linking trails acting as spokes into the city. Future trails could also link to the communities outside the city limits and to the network of USFS trails. The Flagstaff Loop Trail will use a variety of USFS trails, abandoned roads, the Flagstaff Urban Trail System, state land department trail easements, and the Arizona Trail.

An Assessment of the National Significance of Cultural Resources for the Walnut Canyon Study Area (2011).

Congress specifically included the suitability and feasibility of designating all or part of the Study Area as an addition to Walnut Canyon National Monument as an option.

Consequently, the National Park Service must provide decision makers and legislators with information regarding whether lands within the Study Area satisfy NPS criteria for national significance. A new national monument area or additions to existing national park system units must meet criteria for national significance, suitability, and feasibility. The National Park Service is responsible for screening proposals for new national park system units or adding land to existing units to assure that only the most outstanding resources are added to the national park system.

Units of the national park system are managed under mandates that are fundamentally different from those guiding many other federal land management agencies. Rather than managing resources for multiple use or commodity production as are many federal lands, the National Park Service is responsible for managing areas to provide for public enjoyment in such a way that leaves resources “unimpaired for the enjoyment of future generations.” To be eligible for favorable consideration as a unit of the national park system, an area must possess nationally significant natural, cultural, and or recreational resources. A proposed unit will be considered nationally significant if all of the following four standards are met:

1. It is an outstanding example of a particular type of resource.
2. It possesses exceptional value or quality illustrating or interpreting the natural or cultural themes of our nation’s heritage.
3. It offers superlative opportunities for recreation for public use and enjoyment or for scientific study.
4. It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of the resource.

In 2011, the National Park Service completed an assessment to determine whether cultural resources existed outside the current monument that are directly related to the

purposes of the monument and the addition of which would be eligible in order to contribute to the purposes of this national park system unit. The assessment concluded that, while important resources exist outside the current monument boundary, they do not rise to the level of national significance by meeting all four criteria listed above.

The assessment report also states that none of the revisited/recorded sites are experiencing detrimental impacts. Per the report, all documented sites above the rim of Walnut Canyon are in good condition and show little evidence of disturbance other than the nonspecific impacts of natural erosion processes.

Wildlife Linkages – Arizona Game and Fish. In 2009 and 2010, stakeholders representing a broad range of organizations and interests participated in workshops to identify and map the sites of important wildlife linkages across Coconino County. Participants included biologists, land managers, planners, and other professionals from federal, state, tribal, private, and nongovernmental organizations. The workshops were supported by a partnership between the Arizona Game and Fish Department, Coconino County, and the Arizona Wildlife Linkages Workgroup known as the Coconino County Wildlife Connectivity Assessment. The goal of this partnership is to encourage biologists and nonbiologists alike to incorporate information about wildlife linkages and strategies for their conservation into land use decisions. The workshops provided a forum in which stakeholders shared and discussed their knowledge, outlined the general locations of wildlife linkages on large maps, and provided descriptive information about each linkage on datasheets. According to the Coconino County Wildlife Connectivity Assessment: Report on Stakeholder Input March 2011, a large portion of the Study Area has important linkage for mountain lion, elk, mule deer, black bear, northern goshawk, Mexican spotted owl, neotropical migratory birds, turkey, northern leopard frog, bats,

bald eagle, peregrine falcon, tarantula, gray fox, raccoon, coyote, small mammals, cull snakes, pronghorn, and white-tailed deer. Participants also identified the locations of barriers such as highways and railroads that

can interfere with wildlife movements (www.azgfd.gov). This involvement does not represent the interests of Arizona State Land Department.

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MANAGEMENT OPTIONS

MANAGEMENT OPTIONS DEVELOPMENT PROCESS

The Omnibus Public Land Management Act of 2009 directs the agencies to look at options that: (1) protect resources within the Study Area, and (2) provide for continued public access to and use of the Study Area. Representatives of the four partner agencies for the special study and the Arizona State Land Trust participated in a two-day workshop to develop preliminary management options in March 2011.

The workshop objectives were to:

- establish common understanding of existing resources, uses, and management of the Study Area
- review all public and stakeholder comments received to date
- define management options for the Study Area based on this understanding, public input, preliminary research on land designation options, and discussion between the agencies
- discuss the merits and tradeoffs of each of the preliminary management options

Following development of an initial series of management options, individual options were discussed based on the following issues developed from public interest and input:

Does the management option:

- Fall within the range of options listed in the act?
- Preserve the area from development in perpetuity (all or part)?
- Protect resources (all, which ones)?
- Allow for continued public uses (all, which ones [recreation, commercial,

education and interpretation, research, etc.]?)

- Allow for continued public access (all, limited, type, etc.) and in what format (fee-based, free, etc.)?
- Could the management option be extended to encompass other areas, e.g., Arizona State Land Department or private lands if such lands were acquired by the federal government in the future?

The outcomes of the workshop were distilled into seven options

1. continuation of current management by the U.S. Forest Service
2. congressional action establishing a special designation to the Study Area
3. congressional action that prohibits the exchange of federal lands to other than federal land management agencies
4. transfer of the Study Area as a new unit in the national park system
5. transfer management responsibility of a selected portion of the Study Area to Walnut Canyon National Monument, with continuation of current management of the remaining areas by the U.S. Forest Service
6. a recommendation for congressional designation of the Study Area as wilderness
7. joint agency management

The first three of these were carried forward for further assessment and include continued management by the U.S. Forest Service. The latter four options were considered but not carried forward. The basis for the decisions are summarized in the following section.

MANAGEMENT OPTIONS NOT CARRIED FORWARD IN THIS STUDY

Transfer of Entire Study Area to the National Park System

Congress specifically defined designation of all or part of the Study Area as an addition to Walnut Canyon National Monument as a management option. The National Park Service is responsible for screening proposals for new national park system units or adding land to existing units to assure that only nationally significant resources are added to the national park system. As also noted, the national park system and individual park units are managed under mandates that fundamentally differ from those guiding many other federal land management agencies. The National Park Service is responsible for managing areas to provide for public enjoyment in such a way that leaves resources “unimpaired for the enjoyment of future generations.” Authority to modify park unit boundaries is included within the Land and Water Conservation Fund Act amendments of June 10, 1977 (Public Law 95-42).

As discussed previously, an area must possess nationally significant natural, cultural, or recreational resources to be eligible for favorable consideration as a unit of the national park system. National significance requires that the proposed unit or area meet *all* four of the following standards are met:

1. It is an outstanding example of a particular type of resource.
2. It possesses exceptional value or quality illustrating or interpreting the natural or cultural themes of our nation’s heritage.
3. It offers superlative opportunities for recreation, for public use and enjoyment, or for scientific study.
4. It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of the resource.

In 2011, the National Park Service contracted to the Museum of Northern Arizona to conduct a literature search and an archeological assessment of the cultural resources in the Study Area, outside the existing monument boundaries. The assessment concluded that even though critical and significant cultural resources exist within the Study Area, they did not rise to the level of national significance by meeting the four criteria listed directly above. Consequently, the Study Area as a whole does not meet the criteria for inclusion in the national park system (Neff et al. 2011).

Transfer Management Responsibility of a Selected Portion of the Study Area to Walnut Canyon National Monument

As noted above, the National Park Service conducted an archeological survey and an assessment of the national significance of the cultural resources in the Study Area. The assessment identified cultural resources contiguous to the current monument boundary that, while not nationally significant separately or collectively, would contribute to the interpretive value of Walnut Canyon National Monument.

According to *NPS Management Policies 2006*, boundary adjustments may be necessary or desirable to carry out the purposes of the national park system unit. Boundary adjustments may be recommended if they fulfill one or more of the following three criteria:

1. Significant resources or opportunities for public enjoyment related to purposes of the monument. This criteria addresses areas or resources that are “integral” to the existing park unit and are needed to fully carry out the purposes of the monument as established by Congress. It focuses on resources that were omitted from the

original monument boundary, inadvertently or intentionally.

2. Address operational and management issues such as access and boundary identification by topographic or other natural features or roads. This criterion addresses lands needed for operational purposes and the advantages of having park boundaries correspond to natural and human-made features that are readily identifiable in the field. Many park boundaries are drawn along section lines or property ownerships that do not correspond to rivers, watersheds, ridges, roads, canyon rims, and other similar features that can facilitate cost-effective administration of the monument for both law enforcement and resource management responsibilities.
3. To protect monument resources essential to fulfilling the monument's purposes. This criterion concerns adjustments to prevent harm caused by activities on adjacent lands where these activities pose a direct and substantial threat to the continued existence of the monument's primary resources and values. This criterion addresses boundary changes that are essentially to protect resources within the monument. "Critical to fulfilling the park's purpose" should be interpreted to focus on the resources that were the reason for the park being established. For purposes of this criterion, monument purposes should be defined by the specific resources referenced in the authorizing legislation, subsequent amendments, and related planning documents interpreting park unit purposes.

The purpose for Walnut Canyon National Monument is to protect ancient cliff dwellings and associated resources that are of great ethnographic, scientific, and

educational interest and to properly care for and manage the cultural and natural resources of historic, social, and scientific interest within Walnut Canyon National Monument.

The first three criteria focus on the quality and character of the resources within or adjacent to the current monument boundary. Boundary adjustments may be appropriate for any one of these conditions; all three do not have to be satisfied. However, both of the next two criteria would have to be satisfied before the National Park Service would recommend a boundary adjustment.

1. The added lands will be feasible to administer considering size, configuration, ownerships, costs, and other factors. This criterion requires an assessment of the practical ability of the National Park Service to manage and operate the revised monument boundary.
2. Other alternatives for management and resource protection are not adequate. This criterion recognizes the roles of other federal, state, and local agencies and private sector partners in the protection of monument resources. Boundary expansions justifiable under any of the previous criteria would not be recommended if alternatives are adequate to protect resources and make them available for public enjoyment consistent with NPS standards.

A proposed boundary expansion requires an assessment of impacts on local communities and surrounding areas and is accomplished within the NPS planning process. The process and findings are documented in the preparation of environmental assessments or impact statements as outlined in NEPA guideline—NPS-12. An estimate of acquisition costs, basis for the estimate, and a statement on relative priorities within the monument is also required. Preparing a

NEPA document and cost estimate is outside the scope of this Special Study process.

A Recommendation for Congressional Designation as Wilderness

With passage of the 1964 Wilderness Act (16 USC 1131 et seq.), Congress declared it to be national policy to secure for present and future generations the benefits of enduring wilderness resources. The purpose of wilderness designation, which is accomplished solely by congressional action, is to preserve and protect wilderness characteristics and values over the long term, while providing opportunities for solitude or primitive and unconfined recreation.

The U.S. Forest Service completed an inventory of potential wilderness areas for Coconino National Forest in 2009. The Study Area was not carried forward for wilderness evaluation because it does not meet the criteria for inventory in U.S. Forest Service Handbook 1909.12, chapter 71.1. The handbook states that areas considered for potential wilderness must meet the following criteria:

- areas that do not contain forest roads, or other permanently authorized roads
- areas that are at least 5,000 acres in size or less than 5,000 acres but meet one or more of the following criteria:
 - area can be preserved due to physical terrain and natural conditions
 - area is a self-contained ecosystem, such as an island, that can be effectively managed as a separate unit of the National Wilderness Preservation System
 - area is contiguous to an existing wilderness, primitive area, administration-endorsed wilderness, or other potential

wilderness in other federal ownership, regardless of size.

Additional information on the process can be found at <http://www.fs.usda.gov/detail/coconino/landmanagement/planning/?cid=stelprdb5335067>.

Joint Agency Management

A joint management structure involving the two federal agencies, and possibly the City of Flagstaff and Coconino County, had been suggested by the public and was discussed at the management options workshop in 2011 and subsequently dismissed by consensus among the four partner agencies. The federal agencies, the city, and county currently cooperate on many planning and management concerns. Formalizing this management structure for the Study Area through congressional concurrence and the subsequent administrative requirements for compliance with the Federal Advisory Committee Act, creating yet another layer of bureaucracy, was the major drawback for this option. Concerns were voiced by all of the partner agencies that joint management would require increased commitment of staff and other resources at a time when resources are stretched thin. In addition, joint management would require implementation of special management procedures by the Coconino National Forest since U.S. Forest Service personnel are generally not currently assigned to a specific management area.

MANAGEMENT OPTIONS CONSIDERED FURTHER

Under the three management options carried forward for further assessment, the U.S. Forest Service retains management of the lands and current uses are relatively stable. Special designation could result in more visitation or use restrictions depending on the type of designation and legislation.

During the management option workshop, the boundaries of the Study Area were discussed. It was determined by the team that altering or adjusting the Study Area boundaries was outside the scope of this special study. Therefore, all management options include the Study Area in its entirety. It is acknowledged that Congress could alter the Study Area boundaries if a new management option is authorized.

Option 1: Continued Management by U.S. Forest Service

The U.S. Forest Service currently manages the majority of the federal land within the Study Area boundary. USFS management balances resource protection with a multiple-use mission. Under the umbrella of the forest plan, the U.S. Forest Service plans and implements a wide variety of site-specific activities and projects, including fire hazard reduction, forest health, grazing allotments, firewood cutting, trail and recreational facility development, materials quarries, wildlife habitat management, riparian restoration, invasive vegetation management, and off-road recreation management.

Recreational Use, Access, Use Fees, and Aesthetic Qualities.

Recreational Uses—Traditional and current forest uses by residents and visitors to the Flagstaff area include horseback riding, recreational vehicle uses, hiking, camping, rock climbing, hunting, birding, woodcutting, shooting, and mountain biking. Recreational facilities include the Canyon Vista Campground (concessioner operated); the Arizona National Scenic Trail; several trails connecting to the Flagstaff Urban Trail System; approximately 32 miles of USFS-managed hiking, biking, and equestrian trails; and an approximately 8-mile segment of the future Flagstaff Loop Trail is planned within the Study Area. A section of the Arizona Trail passes by the northwest corner of the monument (see figure 4). There are currently two special uses permits for horseback riding

and sleigh riding (in the winter), and rock climbing. There are also special events in the Study Area, which include Boy Scout jamborees, a benefit walk hosted by a local elementary parent-teacher organization, and a bike race sponsored by the Flagstaff Athletic Club. Other special events may be permitted by request.

Fisher Point is a popular destination for hikers, mountain bikers, and outfitter/guided horseback riding trips. Canyon Vista is popular for climbing. North and west of Walnut Canyon, the area provides dispersed recreation opportunities and receives heavy use adjacent to private land and Lake Mary Road. The areas south and east of Walnut Canyon provide more remote dispersed recreation opportunities.

Recent management projects in the area include changing the management of travel access by motorized vehicles. A firearm discharge order that closed areas to firearms discharge for recreational shooting has expired, although signs in the area still reflect firearm restrictions. Hunting is allowed in designated areas and managed in consultation with the Arizona Game and Fish Department.

Forest resources include ponderosa pine, pinyon pine, and Utah juniper, which attract woodcutters seeking firewood. Wildlife resources in the area include pronghorn, elk, deer, black bear, mountain lion, turkey, and waterfowl, exemplifying the diverse habitat so close to city development and attracting hunters and wildlife viewers.

Woodcutting, shooting/hunting, and off-road vehicle activities are evident throughout the Study Area. Although the monument has a fenced boundary, occasionally, these incompatible activities occur on monument property (NPS 2007).

Access and Roads—In 2005, the U.S. Forest Service published a rule for providing motor vehicle access to national forests and grasslands. The rule requires each national

forest and grassland to designate those roads, trails, and areas open to motorized use. The Coconino National Forest signed a Record of Decision on the travel management plan on September 28, 2011. The decision and final environmental impact statement are available on the Coconino National Forest website: (<http://www.fs.usda.gov/detail/coconino/landmanagement/projects/?cid=stelprdb5263010>). Implementation of these new rules went into effect on May 1, 2012, and, since that time the U.S. Forest Service has been closing many miles of informal and two-track roads throughout the forest including some within the special Study Area. This plan does not preclude the U.S. Forest Service from constructing temporary roads to address resources and fuel issues, but these temporary roads would not expand transportation routes in the forest.

The Study Area has a system of roads and trails maintained primarily by Coconino National Forest see (figure 3). Walnut Canyon Monument Entrance Road (NF 622) is maintained by the National Park Service and owned by the U.S. Forest Service¹; other named roads north of the monument and south of I-40 include East Old Walnut Canyon Road, South Cosnino Road, South Tall Tales Road, and East Wapia Trail. U.S. Forest Service road and trail segments within the Study Area include: B 301, NF 128, NF 303, NF 790, NF 9121, NF 9125, NF 9129, NF 9135, NF 9160, NF 9169, NF 9170, NF 9172, NF 9475, NF 9481, NF 9482, NF 9483, NF 9484, and NF 9489. No paved roads or utility corridors occur except on the boundaries. Road maps are available on the Coconino National Forest website. The travel map is expected to be revised in April 2013, and each year the U.S. Forest Service will revisit the travel management plan. Walnut Canyon and its major side drainages are closed to motorized vehicles.

The principal access to the monument is via I-40, approximately 5 miles southeast of the

city of Flagstaff and a paved 3.0-mile entrance road (2.1 miles long before entering monument boundaries). The entrance road was constructed in 1963 and was built specifically to provide access from I-40 to the monument. The entrance road provides the primary access to the north rim and to the residential area and maintenance complex. The road terminates at a loop parking lot immediately adjacent to the visitor center. Three small turnouts with picnic areas were constructed along the roadway; two are on the west side of the road and one is on the east side (NPS 2007).

Forest Road 128 is accessed via I-40 at the Townsend/Winona exit, approximately 6 miles east of the Walnut Canyon exit. Forest Road 128 accesses Anderson Mesa and Marshall Lake, terminating at Lake Mary at the intersection of Forest Highway 3 (Lake Mary Road) (USFS 2011a).

The National Park Service maintains the entrance road (NF 622); use of the entrance road and Forest Road 303 is not restricted; however, the entrance to the monument is gated just beyond the entrance station and locked at night. There are two official USFS roads (303 and 622) to the west and northwest of the monument boundary (USFS 2011a).

Trails within the monument are minimal and include the 0.9-mile-long Island Trail, 0.7-mile-long Rim Trail (plus a short spur), and a short trail to the picnic area (NPS 2007). The Island Trail is paved and includes 240 steps to traverse the 185-foot elevation gain, which allows interpretation and observation of Sinagua structures. A section of the Arizona Trail passes the northwest corner of the monument and is used by local and regional visitors for recreational purposes. Because of this proximity, occasional inappropriate uses occur on monument property, including trespass, shooting, and hunting.

Public access via U.S. Forest Service roads on the south rim of Walnut Canyon and the lack of NPS presence make protection of

¹ Final determination of the administrative jurisdiction of the entrance road is outside the scope of this study.

managed resources difficult. The extensive travel time (approximately one-hour via Forest Road 128) to the south rim poses difficulties in responding to emergencies in a timely fashion. The inability to regulate the use of Coconino National Forest roads adjacent to monument boundaries makes protection of resources difficult and unauthorized access often occurs (NPS 2007).

General access and use of USFS lands within the Study Area is currently at no charge. Per the Recreation Enhancement Act, fees may be charged for developed sites (including trailheads), however, there is currently no authority to charge fees for general access to forest-managed lands. There are overnight camping fees for Canyon Vista Campground. There are day use fees for the monument for users who do not have annual or lifetime National Parks Service or Federal Recreational Lands pass.

Aesthetic Quality—The scenery is described by the U.S. Forest Service as spectacular. The canyon itself supports a multitude of vegetation types and habitats from steep north-facing mixed conifer, to riparian vegetation at the canyon bottom. Lands outside the canyon are populated by ponderosa pine with Gambel oak understory, and some pinyon and juniper. Developments such as roads, trails, camping, day-use sites, and trailheads mimic local materials and landscape characteristics to blend with the adjacent natural-appearing landscape.

Current Study Area Management and Other Land Uses. The west and northwestern portion of the Study Area is a checkerboard pattern of sections of Coconino National Forest and Arizona State Trust Lands, while the southern boundary adjacent lands are managed by Coconino National Forest. The easily accessible forests adjacent the north canyon rim were heavily

logged between 1880 and 1925 and a series of salvage cuts was conducted during the 1960s. Terrain south of the canyon rim is much less accessible and was not extensively logged until the 1970s.

In addition to federal regulations and USFS management policies, the primary management guidance is presented in the *Coconino National Forest Land and Resource Management Plan*. Under the umbrella of the forest plan, the U.S. Forest Service plans and implements a wide variety of site-specific activities and projects, including fire hazard reduction, forest health, grazing allotments, firewood cutting, trail and recreational facility development, materials quarries, wildlife habitat management, riparian restoration, invasive plant management, and off-road recreation management. As federal agencies, the U.S. Forest Service and the National Park Service routinely communicate and participate in planning activities that mutually affect resources and agency missions. Forest resources include ponderosa pine, pinyon pine, and Utah juniper, which attract woodcutters seeking firewood. There are pronghorn, elk, mule deer, black bear, mountain lion, and Merriam's turkey that attract big-game hunters and wildlife viewers (NPS 2007).

There are portions of three grazing permit allotments administered by Coconino National Forest and used by local ranchers in the Study Area (see figure 5). A number of Flagstaff, Coconino county, and private water wells and waterlines are in the Study Area, as are numerous stock watering tanks with the associated water rights claims pending adjudication. Other infrastructure within the Study Area includes the City of Flagstaff water treatment facilities, Arizona Public Service electrical lines, telecommunication lines, gas lines, home owner access and private roads.

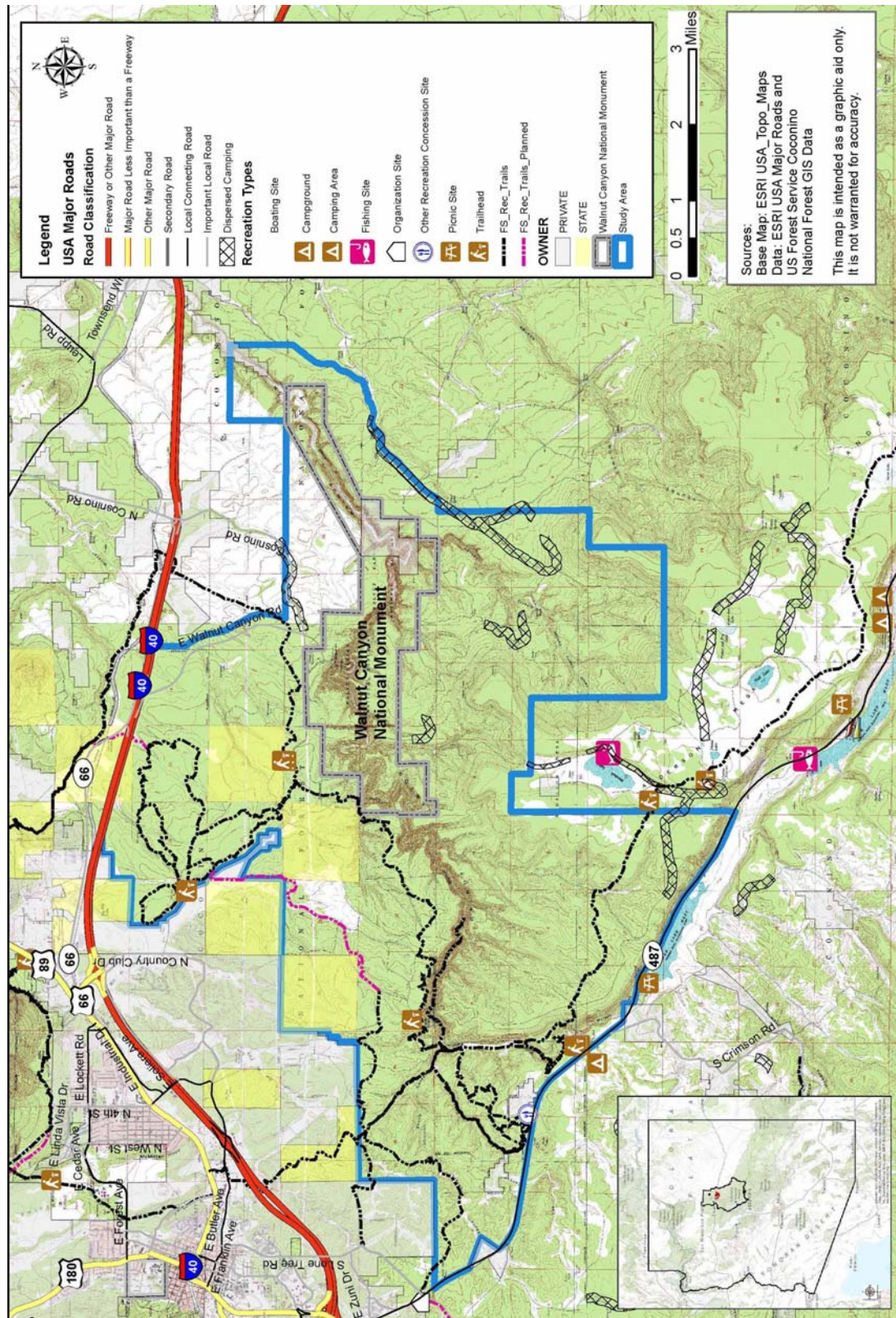


FIGURE 4. WALNUT CANYON STUDY AREA – RECREATION MANAGEMENT

Note: Graphic is based on currently available data and may contain errors.

Information from the U.S. Geological Survey (USGS) indicates that some lands in the Study Area have geological deposits for oil and coal; however these resources are not to be of an industrial scale (Haines, USFS 2013). Geothermal resources have been identified outside the Study Area near Sunset Crater, and are currently being studied by the U.S. Geological Survey and private corporations for potential geothermal development. Minerals, including cinder, pumice, gypsum, miscellaneous clays, sulfur, and uranium, are reported in the Study Area. There are no active mineral rights in the Study Area (Haines, USFS 2013), and it is unknown to what extent these minerals exist at commercially valuable levels in the Study Area (NPS 2007).

The northwestern boundary of the monument coincides with the incorporated boundary of Flagstaff and is currently within 2 miles of the present limit of residential development on the edge of the city. In addition, unincorporated neighborhoods are spreading outside the city limits to the north and northwest of the monument. USFS and NPS staff are cooperating in the long-range land use planning efforts of the City of Flagstaff and Coconino County. User activities and resource protection needs occasionally involve U.S. Forest Service, Arizona Department of Game and Fish, City of Flagstaff, Coconino County, and other units of the national park system (NPS 2007). As the City of Flagstaff continues to grow additional residential and commercial development would occur along the western edge of the Study Area. Recreational use in the area would also be expected to increase, along with the potential for human-wildlife interactions, including with mountain lions.

The Coconino National Forest developed the Marshall fuels reduction and forest restoration treatments on approximately 12,000 acres southeast of Flagstaff, roughly between Lake Mary Road and Walnut Canyon (USDA 2010). The Marshall project is to reduce the risk of uncharacteristic wildfire and to improve the health of the

forest and associated habitats in the Marshall project area. The ponderosa pine forests of northern Arizona were primarily adapted to a low intensity, high frequency fire regime that burned the forest floor every 2 to 12 years and left most large trees alive. However, fire suppression during the last 125 years has resulted in a lack of low intensity, high frequency fires. Many stands are at high risk for severe, stand-replacing wildfires that are not natural to this ecosystem, have long term ecological impacts, and pose threats to human safety and property. This project is on hold pending the outcome of this study (Haines, USFS 2013).

Four national forests (Kaibab, Coconino, Apache-Sitgreaves and Tonto) are actively engaged in a collaborative, landscape-scale initiative designed to restore fire-adapted ecosystems in the Southwestern Region. The overall goal of the Four Forest Restoration Initiative (4FRI) is to restore the structure, pattern and composition of fire-adapted ecosystems to provide for fuels reduction, forest health, and wildlife and plant diversity (USDA 2011a).

In 2012, the City of Flagstaff purchased 480 acres near the water treatment plant in a state land auction which it has wanted to protect from development for 30 years. Picture Canyon holds ancient petroglyphs and lush vegetation that hosts wildlife.

The current Coconino National Forest Management Plan for Management Area 37 (MA 37), which includes the Study Area, states that no land exchanges will occur unless the purpose is *to acquire land within* MA 37 through exchange of lands of national forest elsewhere (figure 6). Under this policy, the U.S. Forest Service could possibly trade lands elsewhere to acquire inholdings within MA 37, but no USFS lands within the management area would be exchanged in order to acquire lands or resource interest outside MA 37. This limitation on exchanges represents the strongest management policy that can be made at the individual forest level.

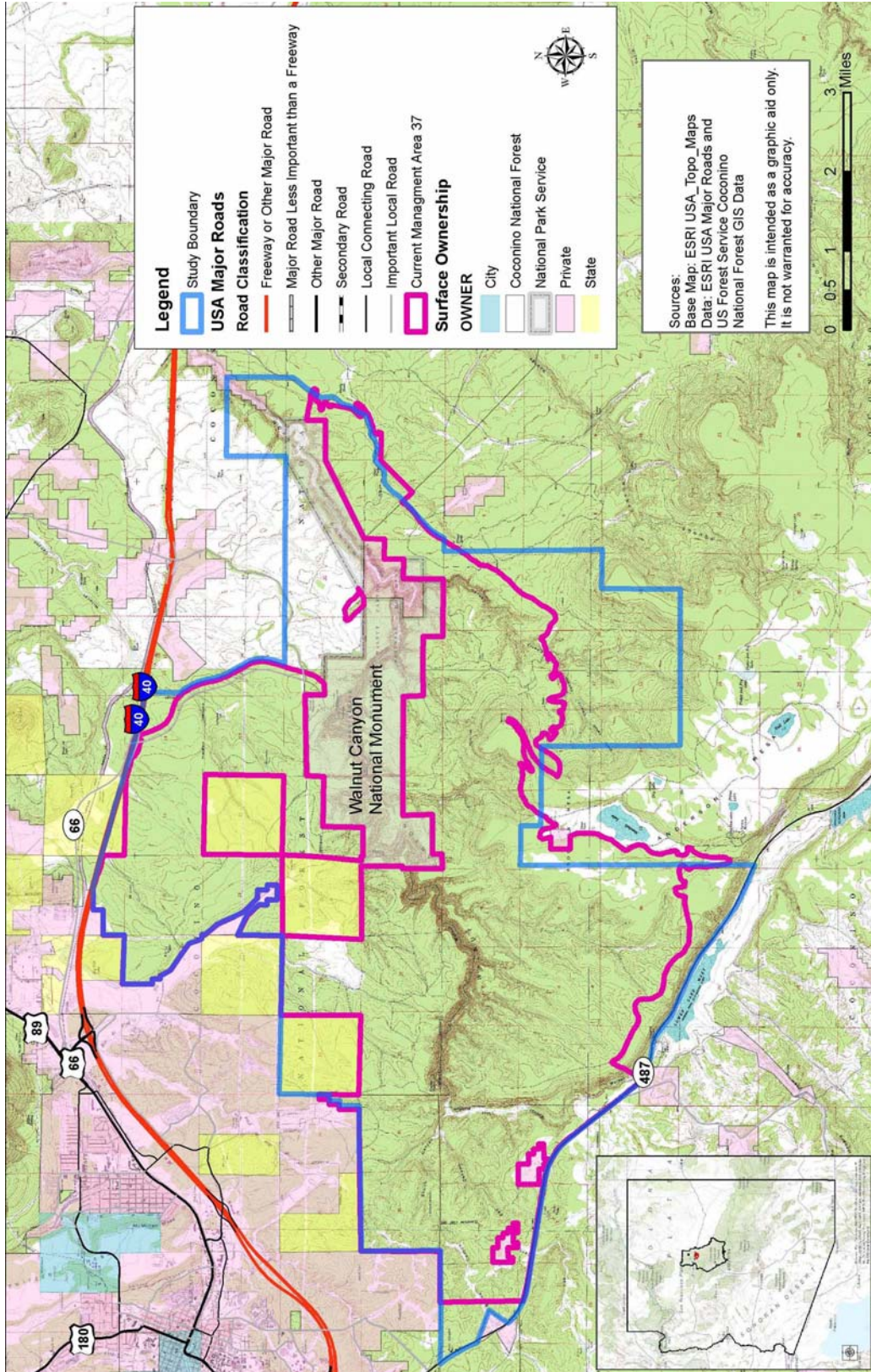


FIGURE 6. CURRENT MANAGEMENT AREA 37

Forest plans, significant amendments, and forest plan revisions are approved by the regional forester. This policy language is expected to be carried forward in the forest plan revision currently being developed; with a draft to be available during the fall/winter of 2012–13. (For more information on the forest plan revision, see the Coconino National Forest website: <http://www.fs.usda.gov/detail/coconino/landmanagement/planning/?cid=stelprdb5334655>).

Once a “no exchange” policy using lands in MA 37 has been adopted, a future change is technically possible; however, in practical terms, future changes are unlikely and could be implemented only through a management action subject to public involvement. Final decisions regarding changes to the forest plan, following public involvement, are under the authority of the forest supervisor, while actual land exchanges can only be authorized at a higher level by the regional forester. Anything more restrictive with respect to limitations on land exchanges or disposal would require congressional action.

Regional Forester Special Area Designation. Under 36 *Code of Federal Regulations* (CFR) section 294 *Special Areas*, the U.S. Forest Service can designate special areas to recognize special values of certain areas and to tailor land uses to interpret, maintain, and enhance those special features. Special areas can be designated for scenic, geologic, botanic, zoologic, paleontologic, archeologic/historic, or recreation values, or combinations of these values.

Of the regional forester special area designations, recreation area would be the most appropriate designation.

During review of existing special areas, a USFS responsible official may determine that an area no longer fits the desired conditions and/or designation applied to it. In this case, the designation should be removed. If the area is within the designation authority of the responsible official, then removal of the

designation may proceed where the designation could only be removed by an official occupying the same position or higher as the one who designated it.

A regional forester special area designation could heighten the current forest plan direction to the next level; however, the U.S. Forest Service does not currently have plans to manage this area as a designated special area.

Option 2: Congressional Special Management Designation

Congress can designate special management areas within the national forest system and other public lands. Nearly 100 special management areas have been established on federal lands. The legislation establishing each special management area is unique, but the designations generally are assigned to one of the following categories: national monuments, game refuges, scenic areas, recreation areas, and other protected areas.

Relationships between regional federal, state, and local agencies are strong and cooperation is excellent. Emergency responses in the Walnut Canyon area originate from the various land management agencies and public safety organizations. The National Park Service provides assistance with law enforcement, search and rescue, emergency medical assistance, and wildfire management in the immediate area. Coconino County deputizes NPS rangers and members of the NPS staff serve as crew on national forest fire-fighting teams. Coconino County also provides law enforcement and search and rescue services. The U.S. Forest Service provides law enforcement relative to recreation, consumptive uses, grazing, and wildfire suppression. Arizona Department of Game and Fish provides law enforcement relative to hunting activities. The Arizona Department of Public Safety provides law enforcement (traffic) on primary roads and air support in search and rescue operations

(NPS 2007). The City of Flagstaff (Guardian Ambulance) provides medical emergency responses (ground and air).

There are several cooperative agreements with other agencies. There is a multiagency agreement for wildfire management. There is an agreement (updated in 2012) with the National Park Service, Coconino National Forest, and Coconino County Sheriff's Office for joint law enforcement activity. The National Park Service and Coconino National Forest have a cooperative program for educational activities on both forest and park lands. There is also an annual contract between the National Park Service and the City of Flagstaff for structural fire suppression (NPS 2007).

Permanent Protection. Nonfederal lands adjacent to and within the Study Area are managed by the Arizona State Land Department and within the planning framework of the Flagstaff and Coconino County. The City of Flagstaff has annexed all lands adjacent to the northern and western boundaries of the Study Area. Flagstaff is rapidly expanding and residential development is also occurring on private lands to the northeast of the Study Area near the communities of Cosnino and Winona.

The planning frame work recognizes the potential for future residential and commercial development in the southeast portion of urban area adjacent to the Study Area, but discourages development across most of the area. State land section 20 is within a long-term planning reserve area defined in the Flagstaff Regional Plan and has high development potential such that it is generally anticipated that they will be developed within the next 10 to 30 years. Recognizing local interest in compact development, and also open space conservation and limiting impacts on public lands, the state, county, and city hope to achieve internal buffering of lands adjacent to the national forest. State land section 30 was assigned first priority for retention as open space in the Flagstaff Open Spaces and

Greenways Plan, which has been incorporated into the Flagstaff Regional Plan. Other Arizona State Land Department lands are less developable and thus would have lower value, raising the possibility for future conservation through sale, exchange, or placement of a conservation easement or other mechanism.

Legislation establishing special management areas asserts the importance of the area. While most acts creating special management areas express similar purposes for designation, there are subtle differences between specific designations. For example, preservation of scenic and natural resources is prioritized in the designation of scenic and other protected areas. Recreation is protected, but not prioritized. On the other hand, legislation setting aside recreation areas usually includes specific provisions to protect appropriate recreational uses within the area while also asserting resource protections. Most of the focus in the legislation is to consolidate lands within the special management area. An area-specific land management plan may outline the circumstances for retention or exchange of land within or adjacent to the special management area.

A National Conservation Area (NCA) is a BLM designation for lands that feature "exceptional scientific, cultural, ecological, historical, and recreational values." The first National Conservation Area was established in California in 1970 (Kings Mountain NCA). Currently there are 16 National Conservation Areas. Most are in the West (Alaska, California, Utah, Nevada, Colorado, Arizona, New Mexico, and Idaho), including four established in 2009.

Legislation establishing a National Conservation Area typically defines a site's core values and general management guidelines. For example, recent National Conservation Areas have been established to protect "cultural, economic, ecological, and social health" of the Steens Mountain area in Oregon and "protect, conserve, and enhance the unique

and nationally important historic, cultural, scientific, archeological, natural, and educational resources” of caves in Lincoln County, New Mexico.

To protect against loss of land by exchange, Congress frequently incorporates the statement, “Subject to valid existing rights, all Federal lands within [the specific entity] are hereby withdrawn from all forms of entry, appropriation, or disposal under the public land laws.” For example, those words were used to protect both Black Canyon of the Gunnison National Park and Gunnison Gorge National Conservation Area in 1999. Congress has used that statement when establishing all national conservation areas except the first two (14 out of 16 national conservation areas). Thus, the legislation that created an overwhelming majority of these areas contains the highest level of protection against loss of land by exchange that Congress can confer.

There is precedent for Congress establishing National Conservation Areas with a provision that federal lands not be exchanged or subdivided unless such an action will serve the public interest. The legislation establishing Steese National Conservation Area in Alaska, for example, specifies that “no public lands within the national conservation area shall be transferred out of Federal ownership except by exchange pursuant to §206 of the Federal Land Policy and Management Act.” Public Law 96-487, Title IV Section 402 (b), Section 206 of the Federal Land Policy and Management Act, however, provides considerable leeway for determining “public interest,” including community expansion. Nonetheless, there does not appear to be any reason that Congress cannot include a stronger proscription on land exchanges.

Many National Conservation Areas encompass wilderness (including Red Cliffs and Beaver Dam Wash, Utah; El Malpais, New Mexico; and Sloan Canyon, Nevada). Extant recreation and grazing activities however are protected in all National

Conservation Areas, when such uses do not undermine the purposes for which the National Conservation Area was established.

While all established National Conservation Areas have been primarily on BLM-managed lands, there are National Conservation Areas that contain National Park Service (El Malpais, New Mexico; Gunnison Gorge, Colorado), U.S. Forest Service (Red Cliffs, Utah), and other federal lands (Snake River Birds of Prey National Conservation Area, Idaho). Almost all National Conservation Areas encompass some nonfederal lands. Legislation establishing most National Conservation Areas stresses that they are to be managed cooperatively with applicable federal, state, and local agencies and/or be advised by an interagency advisory panel.

There does not appear to be a prohibition preventing Congress from establishing a National Conservation Area encompassing primarily USFS lands. Based on public input to conserve and preserve the natural environment and maintain existing recreational activities, the most appropriate special management designations for the lands considered in this Study Area are “National Conservation Area” or “National Scenic Area.”

It is important to note that the U.S. Forest Service is not a current lead agency on any National Conservation Area and that a designation such as a National Conservation Area would require policy and operational guidance development at the agency level to manage the area.

Option 3: Congressional Restriction on Exchange of Federal Lands

Congress could write legislation for focused specifications for land management, i.e., restriction on federal land disposal. No concrete examples for this scenario were discovered during the research phase of this

study. Under this scenario, it is assumed that the U.S. Forest Service would continue to manage the land as described under option 1.

NONFEDERAL LANDS IN THE STUDY AREA

The Study Area includes Arizona trust lands and other private lands and inholdings. Because the act did not suggest acquisition of additional lands, management options couldn't be incumbent on the acquisition of nonfederal lands, nor could such acquisition be factored into the evaluation. Therefore, the options presented above would not be applied to private lands or Arizona State Trust lands unless these lands are acquired by the federal government.

Arizona State Trust Lands

The Arizona State Land Department is the trustee for over 9 million acres of state trust land. Its mission is to provide management to maximize revenues for 13 beneficiaries—a responsibility that distinguishes Arizona State Land Department management and land use from permitted use of public land such as parks or national forests. While public use of state trust land is not prohibited, it is regulated to ensure compensation to the beneficiaries for use and land protection. The value of state trust land is established by appraisal and approved by the State Land Department Board of Appeals. The Arizona State Land Department would work cooperatively with the federal government for acquisition of state trust land and to reach an agreement on the appraised value. The Arizona State Land Department is also working with the City of Flagstaff Regional Plan to address proposed land use on state lands.

Arizona State Trust Lands within Study Area Boundary – Sections 22 and 28. The Arizona State Land Department has acknowledged that sections 22 and 28 are appropriate for acquisition by the federal

government due to the conservation value and a low likelihood for development. Because the congressional legislation did not indicate an intent or disposition to direct procurement, that option was not explored as part of this study. Furthermore, the location, resource values, and access of these lands led the study group to determine that their inclusion or exclusion would not substantively alter the assessment of the management options.

Arizona State Trust Lands Adjacent to and within the Study Area Boundary – Sections 20, 30, and 10. Section 20 (adjacent to the Study Area), section 30 (within the Study Area) and section 10 (north of I-40, outside the Study Area) are viable for development. The Arizona State Land Department and the City of Flagstaff are working cooperatively on the regional plan update to address land uses, including open space, on state trust land. The Arizona State Land Department considers a buffer zone on the east and south sides of sections 20 and 30 as a viable condition of sale for development. The Arizona State Land Department also would consider designating the area in section 10, south of I-40 as open space subject to density considerations in subsequent general plan / zoning actions.

Given current pressures on budgets and the location of these lands relative to existing monument boundaries, acquisition through purchase of these lands by the U.S. Forest Service is not considered a foreseeable option. Proposition 119 – Arizona State Trust Land Amendment, passed November 2012, could allow the exchange of Arizona state lands to the federal government (<http://www.azsos.gov/election/2012/Info/PubPamphlet/english/Prop119.htm>). At this time, however, there are no policies on how this legislation will be implemented. Acquisition strategies are beyond the scope of this Special Study due to the wide range of variables and lack of policies. Since the Arizona State lands are not within the legislative boundaries of the monument, purchase or exchange would not occur with the National Park Service,

however, a land exchange may be possible with the U.S. Forest Service in the future. If the U.S. Forest Service acquires the State Trust Lands, these lands would be managed under the same plans and regulations as the surrounding national forest lands.

None of the options or management strategies presented in this report would be directly applicable to the Arizona State Trust Lands. For example, the Coconino National Forest Transportation Management Plan addressing road closures does not apply to state trust lands. If the Study Area were to receive a special management designation, state trust lands would become inholdings within the designated boundary. (Currently, the state trust lands can be viewed as inholdings within Coconino National Forest.) The rights of the State Land Department would be preserved. Options, land and resource management strategies and designation, and federal agency policies would apply to these state lands only, if and when they have been transferred to federal agency management.

The boundaries of any special management area would be defined so that any state trust lands within the Study Area that may be acquired subsequently by purchase, exchange, or donation are retained within the boundaries of the special management area. Otherwise, a subsequent act of Congress would be required to incorporate the purchased, exchanged, or donated areas into the special management area.

Options for Private Inholdings

None of the management options presented earlier in this report would be directly applicable to the private land, surface or mineral inholdings within the Study Area. Options, land and resource management strategies and plans, and federal agency

policies would only apply to these lands if they were acquired and became subject to federal management.

The national forest lands within the Study Area are primarily reserved lands that are open for mineral location and entry under current management. This includes minerals that are considered under the locatable minerals regulations (metals and those minerals that have unique characteristics). Mining claims could be filed on the lands that are not withdrawn or segregated from mineral entry.

There are two areas of national forest system lands within the Study Area boundaries that are currently segregated from mineral entry. These are the roadside zone along Forest Highway 3 (under PLO 3584) and 1,000 feet either side of the Walnut Canyon Access road (Executive Order 10355).

Most of Coconino National Forest, including within the Walnut Canyon Study Area, has been identified as low mineral favorability according to the Bureau of Mines Mineral Availability System / Mineral Industry Location System (MAS/MILS database). In addition, a review of the Bureau of Land Management (BLM) LR2000 website indicates there are no active mining claims within the Study Area. Mining claims have been filed within the Study Area in the past but are identified as closed in the BLM database. There is also no record of interest or previous exploration for other leasable minerals such as oil and gas in the Study Area.

Saleable mineral activities, which are characterized as common variety minerals such as sand and gravel, decorative rocks, and other common-use materials, are at the discretion of the U.S. Forest Service. There is evidence of material sites in the project area, but there is no activity occurring within the Study Area



Cliff Dwelling

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CULTURAL AND NATURAL RESOURCES

Throughout the study and during the public involvement periods, certain resources were identified by the public as important aspects to consider for this special study. This section provides a brief description of those resources, but not an exhaustive discussion of all resources of the area.

GENERAL

The Study Area is within the southern portion of the Colorado Plateau biotic province; within the Mogollon Highlands-Coconino Plateau region surrounding the Study Area, elevations vary from 2,400 feet msl at the bottom of the Grand Canyon to 12,670 feet above msl at the crest of the San Francisco Peaks (NPS 2007). The region has been shaped by erosion to expose geologic outcrops of red sandstone and white limestone. The Study Area surrounding the monument is also characterized by an extensive volcanic field, the San Francisco Volcanic Field, which includes the basalt-capped Anderson Mesa and some cinder deposits. Soil types vary within the Study Area depending on whether they are derived from weathered limestone, sandstone, shale, cinders, or volcanic bedrock.

The Study Area lies within a semiarid, continental climate typified by a moderately hot and moist summer, cool and dry spring and fall, and cold, periodically wet, winter (Hansen et al. 2004). Monsoon-like precipitation events, often in the form of violent thunderstorms, occur principally from July through September. The regional climate varies with elevation above msl. The monument (6,900 feet [2,103 meters [m]] msl elevation) receives approximately 18 inches (45.7 centimeters [cm]) of precipitation per year, and temperatures typically range from near 0 degrees Fahrenheit (°F) in winter to mid-90°F in summer. Thirty miles to the northeast, the Little Colorado River basin at

4,500 feet (1,372 m) msl elevation typically receives fewer than 7.0 inches (17.8 cm) of precipitation per year. Winter daytime temperatures are typically 10°F to 15°F warmer than Flagstaff—summer temperatures often exceed 100°F. Above 10,000 feet (3,048 m) msl elevation on the adjacent San Francisco Peaks, annual precipitation exceeds 40.0 inches (101.6 cm), temperatures are considerably cooler, and the growing season is remarkably shorter (NPS 2007).

Climate records from the monument and applicable to the Study Area have been recorded since 1910 (WRCC 2012) (accessed online at <http://www.wrcc.dri.edu/>). As summarized by Neff et al. (2011), the mean annual temperature for the Study Area is approximately 50.3°F, while the mean of the average monthly maximum temperatures is 65°F. The mean of the average monthly minimum temperatures is approximately 35.7°F. The hottest month is July, with a mean of 72.4°F. The coldest months are January and December, both averaging 31.8°F. Neff et al. (2011) determined that all of the high monthly extreme temperatures have occurred in the past decade, with the exception of December 1910.

Precipitation data recorded within the monument establish the mean annual precipitation total of 18.12 inches (46.0 cm). There is a bimodal precipitation pattern, with the summer season receiving an average of 5.52 inches (14.0 cm) and the winter season precipitation averaging 4.93 inches (12.5 cm); the highest monthly average precipitation occurs in August in response to monsoon weather patterns and the lowest average precipitation occurs in June. Snowfall during the 1972–1973 winter season was 129.0 inches (327.7 cm)—the deepest on record. Recently, the 2009–2010 season recorded 100 inches (254 cm) of snow within the monument;

average annual snowfall is 55 inches (140 cm) (WRCC 2012).

CULTURAL RESOURCES

Archeological Resources

The Coconino National Forest land surrounding the monument contains thousands of archeological sites. Most of the sites and associated artifacts are the physical remains of a prehistoric farming culture that flourished in what is now the Flagstaff region from about AD 600 until AD 1400. This culture is referred to by archeologists as “Sinagua” in reference to the early Spanish name for the highland region “Sierra Sinagua” meaning a mountain range without water (NPS 2007). Sinagua families cultivated the Study Area uplands around Walnut Canyon for centuries growing primarily small gardens of corn, squash, and beans. The Sinagua lived in subterranean pit structures initially, but by the early 1100s most habitations included at least some aboveground structures. During the 1100s in the Walnut Canyon area, there was also a notable shift toward living in cliff alcoves (NPS 2007).

By the mid-1100s, a large segment of the local Sinagua population moved into the limestone alcoves below the canyon rim, constructing substantial dwellings with locally available stone and clay. The Walnut Canyon community thrived for about 150 years, growing crops on scattered plots in the surrounding forest, raising children, making stone tools and other implements, and likely following the ancient ceremonial cycles that had been passed down for generations (NPS 2007).

The Sinagua population in the Flagstaff region peaked in the mid-1100s through the early 1200s, coincident with the peak occupation of Walnut Canyon, but declined precipitously in the following century. By the early 1300s, the Sinaguas had moved out of Walnut Canyon, presumably to Anderson Mesa or farther south and east; their descendants continued to

visit the area for hunting, gathering, and ceremonial purposes. During the following centuries, the area around Walnut Canyon was visited by ancestors of the Yavapais and Havasupais, and after the 1700s by Apaches and Navajos for seasonal hunting and gathering activities (NPS 2007).

Archeological surveys had previously been conducted on 12,815 acres of the Study Area. An archeological inventory was conducted on a 734-acre portion of the Study Area in 2010/2011 (Neff et al. 2011). The recent inventory included four survey areas; one survey in the west portion of the canyon, and three areas to the west of the entrance road. The survey team recorded or re-recorded 68 sites and 72 components (Neff et al. 2011). Analysis of the newly recorded sites and an additional 3,015 Sinagua sites in a 292,552-acre area surrounding the monument documents several archeological surveys near the monument including large areas to the south and additional areas to the west. The evaluation found the majority of known sites to be east and north of the monument. The report concludes that the sites within the Study Area do not form a coherent cluster associated with the Elden Phase Walnut Canyon Village cluster in the monument and that the sites do not meet the criteria to be individually or collectively eligible for national historic landmark status thus not nationally significant (Neff et al. 2011).

The Assessment of the National Significance of Cultural Resources for the Walnut Canyon Study Area (Neff et al. 2011) also concluded that none of the revisited/recorded sites are experiencing detrimental impacts. Per the report, all documented sites above the rim of Walnut Canyon are in good condition and show little evidence of disturbance other than the nonspecific impacts of natural erosion processes.

Ethnographic Resources

The Study Area is part of a region lying between extensive high-altitude national forest lands to the southwest and semidesert mesas of the Hopi and Navajo reservations to the northeast; the reservations represent the largest block of American Indian tribal lands in the United States (more than 25,000 square miles). These contemporary reservations represent a small portion of the land occupied aboriginally and historically by the tribes and to which the tribes retain deeply rooted traditional associations. The three Flagstaff Area National Monuments (Walnut Canyon, Wupatki, and Sunset Crater Volcano) are an integral part of this larger traditional landscape (NPS 2007).

Within the three monuments many geographic features and natural and cultural resources identified by the tribes as culturally significant are historically or ceremonially interconnected with other landscape features and archeological sites throughout the tribes' entire customary land base. In addition to the Hopi and Navajo tribes, who currently occupy the tribal lands adjacent or near the monuments, many of the other tribes originally consulted by the National Park Service retain customary associations with many of the same resources and places throughout the region (NPS 2007).

The literature documents up to 13 tribes who claim cultural associations with lands within the monument, including the White Mountain Apache Tribe, Yavapai-Apache Nation, Zuni Tribe, Yavapai-Prescott Tribe, Hualapai Tribe, Havasupai Tribe, Hopi Tribe, Kaibab Band of Paiute Indians, Navajo Nation, San Carlos Apache Tribe, San Juan Southern Paiute Tribe, Tonto Apache Tribe, and Fort McDowell Yavapai Nation. Six groups, including Navajos, Hopis, Apaches, Paiutes, Zunis, and Pairs, were involved in an ethnographic study in 2004 by Toupal and Stoffle. All six groups identified plants and the archeological sites as culturally significant. Plants are the primary resource of concern; however, wildlife, minerals, the archeological

sites, and other signs of previous use are important as well. Traditional uses of the area centered on ceremonial activities including star observation, spiritual experiences and teachings, plant gathering, hunting, and farming (Toupal 2004).

The Hopi, Zuni, and Navajo tribes conducted field research to identify ethnographic resources within the monument. The Navajo Nation has identified 14 culturally significant plant species within Walnut Canyon, in addition to white clay, a culturally significant mineral. The Hopi Tribe and Pueblo of Zuni identified the archeological resources in Walnut Canyon, including pre-Columbian architectural remains and petroglyphs, as part of their traditional histories and contemporary cultural identities (NPS 2007).

The Study Area has not been surveyed for ethnographic resources. However, the existence of so many ethnographic resources within the monument boundary and the number of recorded archeological resources within the Study Area indicates that there is a high probability for ethnographic resources within the Study Area.

NATURAL RESOURCES

Wildlife, Ecosystem, and Wildlife Habitats

The Study Area provides important wildlife habitats and migration corridors that have remained relatively undisturbed under historic regional management plans and applications (NPS 2007). The relative lack of disturbance is largely attributed to the ruggedness of the canyon terrain, characteristic vegetation cover, and reliable precipitation. The long-term closure of the backcountry area within the monument has also minimized human presence and noise disturbance to a variety of wildlife species. Observations by the National Park Service, Arizona Game and Fish Department, and USFS biologists and managers confirm that Walnut Canyon is a locally important wildlife

habitat and movement corridor for elk, pronghorn, mule deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), and Merriam's (wild) turkey (*Meleagris gallopavo*).

The proximity of the Study Area to suburban development is of management concern; however, large mammals are diverse and occasional-to-common, including mountain lion (*Puma concolor*), black bear, elk, and mule deer in the canyons and surrounding forest/woodland habitats. Collared peccaries or javelina (*Pecari tajacu*) are uncommon and important because the Study Area represents the northern edge of their range. Common to abundant small-to-medium-sized mammals include Abert's or tassel-eared squirrel (*Sciurus aberti*), gray-collared chipmunk (*Tamias cinereicollis*), little brown myotis bat (*Myotis lucifugus*), big brown bat (*Eptesicus fuscus*), deer mouse, brush mouse, and pinyon mouse (*Peromyscus maniculatus*, *P. boylii*, and *P. truei*), Stephens' woodrat (*Neotoma stephensi*), porcupine (*Erethizon dorsatum*), ringtail (*Bassariscus astutus*), hog-nosed skunk (*Conepatus mesoleucus*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), and coyote (*Canis latrans*). A small number of pronghorn inhabit Coconino National Forest lands adjacent to the northeastern and southeastern boundary of the monument (NPS 2007). Domestic cattle graze on national forest and Arizona State Trust lands of the Study Area, as permitted.

The Study Area supports a variety of raptors including the winter migrant bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), northern goshawk (*Accipiter gentilis*), peregrine falcon (*Falco peregrinus*), Mexican spotted owl (*Strix occidentalis*), turkey vulture (*Cathartes aura*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*A. cooperii*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), prairie falcon (*F. mexicanus*), flammulated owl (*Otus flammeolus*), and great horned owl (*Bubo virginianus*). Birds that are common to several area habitats include the wild turkey, band-tailed pigeon (*Columba fasciata*), and common raven (*Corvus corax*).

Birds characteristic of the coniferous forest/woodland and canyon habitats include Lewis' woodpecker (*Melanerpes lewis*), pinyon jay (*Gymnorhinus cyanocephalus*), Steller's jay (*Cyanocitta stelleri*), pygmy nuthatch (*Sitta pygmaea*), black-throated gray warbler (*Dendroica nigrescens*), Grace's warbler (*D. graciae*), red-faced warbler (*Cardellina rubrifrons*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), hairy woodpecker (*Picoides villosus*), western wood-pewee (*Contopus sordidulus*), ash-throated flycatcher (*Myiarchus cinerascens*), violet-green swallow (*Tachycineta thalassina*), mountain chickadee (*Poecile gambeli*), rock wren (*Salpinctes obsoletus*), and canyon wren (*Catherpes mexicanus*).

Amphibians are uncommon within the Study Area because of the general scarcity of surface water and wetland habitat.

Generally, vegetation of the Study Area is diverse and ecotonal in species composition (Hansen et al. 2004). It ranges from low elevation grasslands to high elevation woodland and forest communities. Tree species that often intermix (are codominant) in the habitats (on other areas on the Colorado Plateau these species are dominant on the landscape) and form a broad transition zone include pinyon pine (*Pinus edulis*), Gambel oak (*Quercus gambelii*), Utah juniper (*Juniperus osteosperma*), and ponderosa pine (*Pinus ponderosa*). High elevation species, riparian obligates, and more mesic species occur in abundance due to north-facing slopes and mesic canyon walls and canyon bottoms. These mesic and cooler environments support species that typically occur at higher elevations such as dense patches of Rocky Mountain juniper (*Juniperus scopulorum*), Douglas-fir (*Pseudotsuga menziesii*), and New Mexican locust (*Robinia neomexicana*). The canyon floor supports a diverse community with the overstory composed mainly of deciduous trees and shrubs, primarily box-elder (*Acer negundo*), dogwood (*Cornus stolonifera*), New Mexican olive (*Forestiera pubescens*), Arizona walnut

(*Juglans major*), New Mexican locust (*Robinia neomexicana*), Arizona rose (*Rosa arizonica*), and snowberry (*Symphoricarpos rotundifolius*).

Woodlands are the most common vegetation type in the Study Area and range from dense stands of trees on north-facing canyon walls, canyon bottoms, and in fire-suppressed areas to open stands of sparse trees in meadow-like areas. The most common trees in the upland environments of mid- to high-elevations are ponderosa pine in Black Canyon NP and Curecanti NRA and pinyon pine and Utah juniper occurring mainly on the mid- to low-elevation sites. In the early 1900s, large ponderosa pine trees were logged and the natural fire regime was altered, allowing ponderosa pine to regenerate quickly and change the vegetation community from open meadows with low densities of ponderosa pine to areas of high density of ponderosa pine with a sparse understory community (Covington and Moore 1994). Much of the Study Area supports a dense ponderosa pine stand structure due to these activities; however, some larger ponderosa pines have withstood these management activities. In the more mesic areas, Douglas-fir (*Pseudotsuga menziesii*) and Rocky Mountain juniper are the most common tree species, occurring in forest vegetation types or stands. A wide range of tree species occur in smaller patches in the linear corridors of the canyon bottom, including willow, box-elder, narrowleaf cottonwood (*Populus angustifolia*), and Arizona walnut. Many of these tree species are restricted to mesic sites and require intermittent water flow. These community types typically have high cover and diversity of shrubs and understory species due to the additional water flow and moist soils. Riparian obligate species include sedges (*Carex* sp.) and willows, among others.

Potential Important Ecological Sites

Three local plant assemblages were identified as being unique to the Study Area (Hansen et al. 2004); these assemblages require further

sampling on the Colorado Plateau to determine if they represent local vegetation types unique to the Study Area and possibly considered ecologically critical or if they are more widely distributed across the landscape. The assemblages are: (1) *Chamaebatiaria millefolium* – *Forestiera pubescens* Shrubland (Fernbush – New Mexico Privet Shrubland); (2) *Acer negundo* / *Forestiera pubescens* – *Symphoricarpos rotundifolius* Temporarily Flooded Shrubland (Box-elder – New Mexico Privet – Roundleaf Snowberry Temporarily Flooded Shrubland); and (3) *Ericameria nauseosa* – *Gutierrezia sarothrae* Shrubland (Rubber Rabbitbrush – Snakeweed Shrubland).

Of the regional rare plant species, several are endemic to the Mogollon Highlands and San Francisco Mountains and their habitat may be considered under ecological critical areas. Included are the San Francisco Peaks groundsel (*Senecio franciscianus*), listed as federally threatened and occurring above timberline, and Bebb's willow (*Salix bebbiana*). The Sunset Crater penstemon (*Penstemon clutei*) and cinder lady's tresses (*Phacelia welshii*) are endemic to the volcanic cinder deposits surrounding the San Francisco volcanic field. Riparian areas support numerous plant species of concern, such as Navajo sedge (*Carex specuicola*) and alkali grass (*Puccinella parishii*), which occur at lower elevations in wetter sites north of the Little Colorado River, and alcove bog orchid (*Platanthera zothecina*). A number of species inhabit ponderosa pine forests and may depend on fire to maintain an open forest canopy so that sunlight penetrates to the ground. Many species within the cactus family occupy specific habitats and are sensitive to disturbance, including livestock grazing. Because of their popularity with horticulturists, all native cactus species within Arizona are protected under state law (NPS 2007). The U.S. Forest Service conducts surveys on an as-needed basis for specific projects.

Invasive Species

The spread of invasive species is recognized as one of the major factors contributing to ecosystem change and instability throughout the world (NPS 2007). An invasive species is “a nonnative species whose introduction does, or is likely to cause, economic or environmental harm or harm to human, animal, or plant health” (Executive Order 13112, 1999). Invasive species may include all organisms ranging from microscopic insects to large mammals, which can invade any ecosystem. These species have the ability to displace or eradicate native species, alter fire regimes, damage infrastructure, and threaten human livelihoods. Almost all national park system units have incorporated invasive species management into long-range planning goals for natural and cultural landscapes, as well as day-to-day operations.

At least 31 species of noxious plants, invasive plant species, and nonnative plants have become dispersed into the Study Area (table 1). Noxious plants are invasive, mostly nonnative species identified by the U.S. Department of Agriculture and the State of Arizona to be of particular concern (CCCCP 2012). Invasive, nonnative plants must be addressed on a parcel-by-parcel and large-scale basis by land management agencies, roadway maintenance staff, private property owners, and developers. Coconino County policies focused on noxious and invasive plant species, include: (1) promoting the protection of threatened and endangered vegetation species and encouraging the preservation of native, noninvasive vegetation and retention of other significant vegetation features for all new development proposals; (2) to the extent possible, revegetation and restoration of disturbed areas with native species shall be required; and (3) Coconino County shall require appropriate action to prevent the spread of noxious plants prior to implemen-

tation of a development project or roadway maintenance.

Nonnative species may rapidly colonize areas where the ground surface is heavily disturbed by equipment, constant foot traffic, burning, burrowing small mammal activity, etc. Within the Study Area, stands and populations of cheatgrass (*Bromus tectorum*), mullein (*Verbascum thapsus*), filaree (*Erodium cicutarium*), common horehound (*Marrubium vulgare*), and Dalmatian toadflax (*Linaria dalmatica*) have infested disturbed areas along road and trail corridors, developed areas, areas of heavy visitation, or prairie dog towns. Although these species are commonly observed, the National Park Service conducts limited, yet annual treatment, mainly in the visitor use areas. Coconino National Forest conducts annual noxious weed control programs in the Study Area and treats when located.

Success in controlling invasive plants is predicated on early detection of infestations before they become established across the landscape and on the availability of ecologically sound and affordable technology. The best measures to control these plant species are proactive planning of access routes and ground-disturbing activities to minimize the potential for establishment and spread. USFS management of the Walnut Canyon watershed has the greatest potential to affect natural systems and processes within the monument. The U.S. Forest Service provided noxious weed control in various locations, including the Study Area, in Coconino National Forest each year to improve habitat for native plants and animals by removing nonnative plant competition, and improved native community resiliency for all species including threatened, endangered, and sensitive plants and animals (USFS 2010). The National Park Service addresses interagency concerns through monitoring ecosystem conditions and participating in the USFS planning process.

TABLE 1. WALNUT CANYON NATIONAL MONUMENT VICINITY NONNATIVE AND INVASIVE PLANT SPECIES

Scientific Name	Common Name
<i>Agropyron desertorum</i>	desert wheatgrass
<i>Bassia scoparia</i>	Kochia
<i>Bromus rubens</i>	red brome
<i>Bromus tectorum</i>	cheatgrass
<i>Centaurea diffusa</i>	diffuse knapweed
<i>Centaurea maculosa</i>	spotted knapweed
<i>Centaurea solstitialis</i>	yellow star-thistle
<i>Centaurea virgata</i>	squarrose knapweed
<i>Cirsium vulgare</i>	bull thistle
<i>Convolvulus arvensis</i>	field bindweed
<i>Dactylis glomerata</i>	orchardgrass
<i>Descurainia sophia</i>	herb sophia
<i>Elaeagnus angustifolia</i>	Russian-olive
<i>Eragrostis lehmanniana</i>	Lehmann lovegrass
<i>Erodium cicutarium</i>	redstem stork's bill
<i>Euphorbia esula</i>	leafy spurge
<i>Lactuca serriola</i>	prickly lettuce
<i>Linaria genistifolia</i>	Dalmatian toadflax
<i>Malva neglecta</i>	common mallow
<i>Marrubium vulgare</i>	common horehound
<i>Medicago sativa</i>	alfalfa
<i>Melilotus officinalis</i>	yellow sweetclover
<i>Onopordum acanthium</i>	Scotch thistle
<i>Plantago lanceolata</i>	narrowleaf plantain
<i>Polygonum aviculare</i>	prostrate knotweed
<i>Portulaca oleracea</i>	little hogweed
<i>Salsola tragus</i>	prickly Russian thistle
<i>Tamarix</i> spp.	salt-cedar, tamarisk
<i>Tragopogon dubius</i>	yellow salsify
<i>Verbascum thapsus</i>	common mullein
<i>Verbena bracteata</i>	bigbract verbena

Source: Hansen et al. 2004; USFS 2012; San Francisco Peaks Weed Management Area 2012

Old-growth Ponderosa Pine Forest Stands

Stands of mature forest and woodland types within the Study Area include associations of Douglas-fir (mesic slopes within canyons and on canyon floor sites), ponderosa pine, and pinyon pine sampled and described for the monument and adjacent Study Area (Hansen et al. 2004). Within Coconino National Forest, existing and potential old growth is evaluated at the project level to provide habitat; there are approximately 2,042 acres of developing old growth and 648 acres of existing old growth in the Study Area (USFS 2010).

During sampling to create the vegetation classification, the largest ponderosa pine tree measured 52 inches (132 cm) diameter-breast-height. In the early 1900s, large ponderosa pine trees were logged and the natural fire regime was altered, allowing ponderosa pine to regenerate quickly and change the vegetation community from open meadows with low densities of ponderosa pine to areas of high density ponderosa pine with a sparse understory community (Covington and Moore 1994). Much of the monument supports a dense ponderosa pine stand structure due to historic logging activities; some ponderosa pines remain.

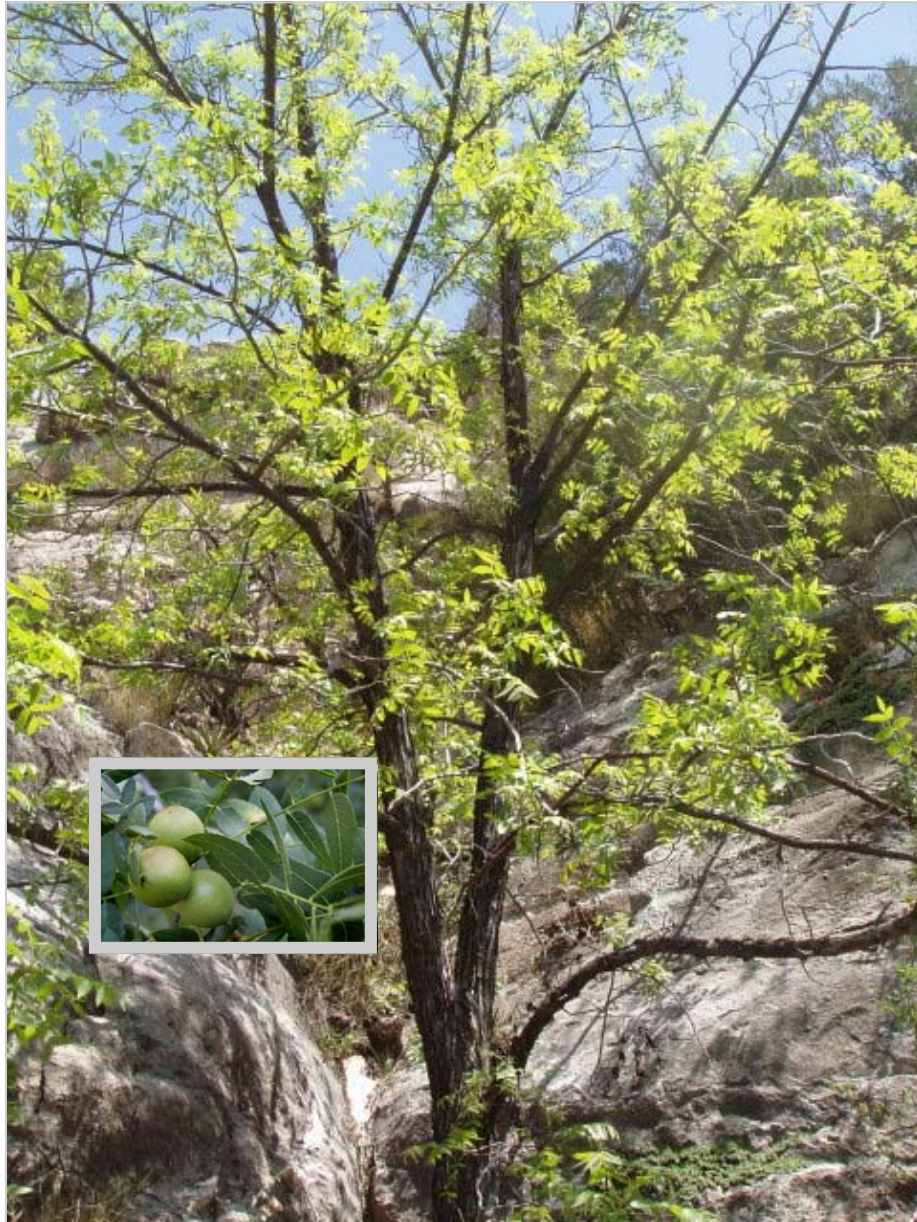
Threatened and Endangered Species and Species of Special Concern

Old-growth coniferous forests and woodlands, shrublands, and herbaceous vegetation communities in the region, combined with physiographic features including canyons, cliffs, bluffs, and mountains, provide habitat for a number of threatened, endangered, and sensitive species. The Arizona Heritage Data Management System (AGFD 2012b) was consulted via the Internet to generate a list of threatened and endangered species, and other species of concern for Coconino County, Arizona. Within Coconino County, there are six plant, nine animal (including fish), and one

invertebrate species that are formally listed as threatened or endangered. There are another 54 plant, 51 animal (including fish), and 5 invertebrate species that may be exceedingly rare and are being monitored by the U.S. Fish and Wildlife Service, Arizona Game and Fish Department, U.S. Forest Service, the National Park Service, and Navajo Natural Heritage Program (AGFD 2012). The U.S. Forest Service does not officially monitor for species in the Study Area; however, Northern Arizona University students have monitored for species over the years.

Many rare, threatened, and endangered plant, vertebrate animal, and invertebrate species require perennial streams, wetlands, or riparian habitats, which are uncommon in the Study Area. Most of these habitats have been altered for urban or livestock water supply and forage production (Hansen et al. 2004). On grazing allotments that support threatened or endangered species and their habitat, mitigation measures are required and may include: (1) livestock management activities such as salting, herding, and construction actions associated with grazing operations within the allotment (fencing, etc.), which will not occur within a certain distance of roosts, nest sites, den sites, etc.; (2) monitor grazing use in specified habitats by cattle and wildlife; (3) follow best management practices associated with watershed protection; and (4) specified placement and management of salt, mineral block, or supplements (USFS 2012).

Plants. The Study Area supports eight sensitive plant species habitats determined following the comparison with summary floristic checklists compiled by the National Park Service (2001) and Hansen et al. (2004). In addition, a survey for special status plant individuals and populations within the Flagstaff Area National Monuments, including Walnut Canyon, was completed by Huisinga and others (2000). Currently, no federally listed threatened or endangered plant species are known to occur in the monument (NPS 2007).



Arizona Black Walnut

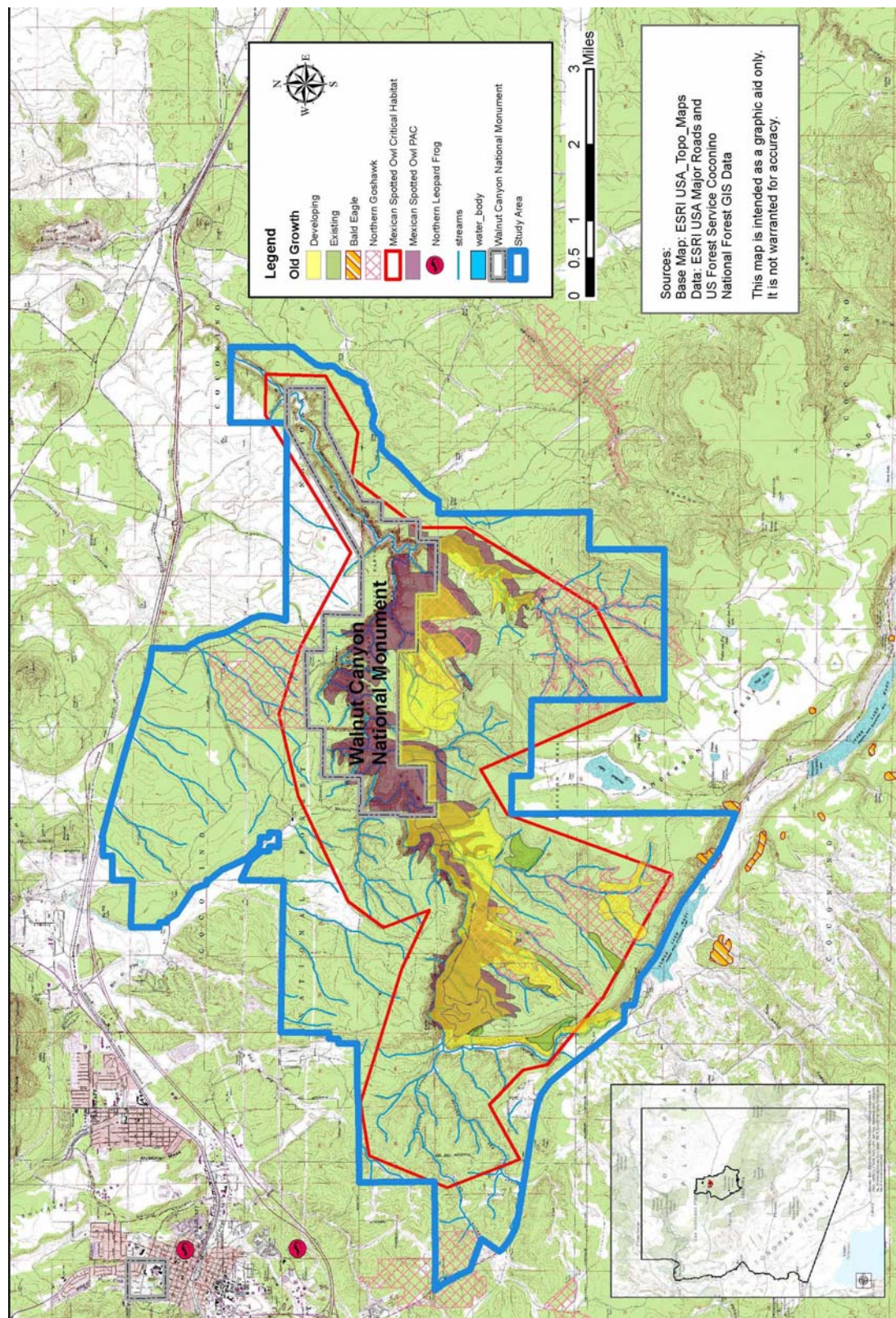


FIGURE 7. SENSITIVE SPECIES

Coconino National Forest monitors several sensitive plant species and an agreement was established between Coconino National Forest and the Arboretum at Flagstaff to update a management plan in the Verde Valley for an area with a number of sensitive plant species (USFS 2010). The plant species of concern that are known to be in the Study Area includes Flagstaff false pennyroyal (*Hedeoma diffusum*). Other species of special concern that may occur in the Study Area include Arizona bugbane (*Actaea [Cimicifuga] arizonica*), Arizona leather-flower (*Clematis hirsutissima* var. *arizonica*), Chiricahua (Blumer's) dock (*Rumex orthoneurus*), Arizona (desert) columbine (*Aquilegia desertorum*), rock fleabane (*Erigeron saxatilis*), Rusby milkvetch (*Astragalus rusbyi*), and Arizona cliffrose (*Purshia subintegra*).

Birds. The Mexican spotted owl (*Strix occidentalis lucida*) is listed as threatened under the Endangered Species Act, ranked G3T3/S3S4, is considered vulnerable under the NatureServe (2012) global/state ranking, and occurs as a breeding species within the Study Area, including Walnut Canyon and adjacent rim habitats. In southern Arizona and New Mexico, Mexican spotted owls use the mixed conifer, Madrean pine-oak, Arizona cypress, encinal oak woodlands, and associated riparian forests in addition to canyon habitat dominated by vertical-walled rocky cliffs within complex watersheds, including tributary side canyons. Canyon habitat may include small isolated patches or stringers of forested vegetation including stands of mixed-conifer, ponderosa pine, pine-oak, pinyon-juniper, and/or riparian vegetation in which Mexican spotted owls regularly roost and forage. Mexican spotted owls usually occur in areas with some type of water source (i.e., perennial stream, creeks, and springs, ephemeral water, small pools from runoff, reservoir emissions). Mated pairs are territorial and breeding season activity centers tend to be smaller than the nonbreeding season activity centers (with considerable overlap between the two). Adults may or may not leave the territory during the

winter, and most adults remain in the same territory year after year. Actions that open up or remove mature or old-growth forests (timber harvest, wildfire, road or site construction that results in fragmentation of the forest) are detrimental to the local Mexican spotted owl population; human activity (hiking, shooting, off-road vehicle activity) in or near nesting, roosting, or foraging sites may result in abandonment of an area and indirectly may affect habitat parameters from trampling, vegetation removal, or increased fire risk.



Mexican Spotted Owl

Mexican spotted owl breeding activity has been monitored at various times between 1989 and 1998; the U.S. Fish and Wildlife Service recently designated the entire monument as critical habitat for the species. The National Park Service is cooperating with the U.S. Fish and Wildlife Service and U.S. Forest Service to implement the management actions identified in the Mexican spotted owl Recovery Plan (USFWS 1995). Specific actions include monitoring nesting activity and breeding success, protecting critical habitat from wildfire, and managing forest vegetation to conserve specific microhabitat attributes (NPS 2007). The Study Area contains five Mexican spotted owl protected activity centers.

The U.S. Forest Service limits activities in the protected activity centers during the breeding

season and do not permit groups greater than 12 people. To date, the U.S. Forest Service has not determined season closures are needed in the area.

Bald eagles (*Haliaeetus leucocephalus*), previously listed as threatened (status is currently delisted due to recovery) under the Endangered Species Act, routinely occur during the winter in the Mogollon Highlands area. Although bald eagles are not known to regularly use winter roost sites within the Study Area, individuals are occasionally observed perching in dead tree snags and feeding on elk carrion. The nearest active bald eagle nesting sites are in the lower Lake Mary area within the Coconino National Forest; there are several regularly used winter roosting sites on forested lands (NPS 2007).

The peregrine falcon (*Falco peregrinus anatum*) is delisted due to recovery and occurs within Walnut Canyon and other portions of the Study Area. Peregrine falcons nest on steep cliff ledges and erosional features within the study region. Within the monument, one known aerie is in the backcountry closure area; another occurs within the 1996 western boundary expansion area and is on a cliff that has been subject to recreational climbing activity historically. No NPS management activities, including visitor activities, are currently occurring or are proposed on or above cliffs known to support peregrine falcon aeries (NPS 2007).

The northern goshawk (*Accipiter gentilis*) is ranked G5/S3 and is considered secure under the NatureServe (2012) global/state ranking and uses habitats within the Study Area. Northern goshawks are relatively solitary raptors that prefer forest interior habitats and nest in a wide variety of forest types including deciduous, coniferous, and mixed forests, but typically nests in mature or old-growth forests and generally will select larger tracts of forest over smaller tracts. In the western United States, the northern goshawk characteristically nests in coniferous forests including those composed of ponderosa pine. The nests are generally in the largest trees of dense,

mature stands with high canopy closure (60%–95%) and sparse ground cover near the bottom of moderate slopes and near water.

Forest-wide northern goshawk monitoring continued under a cost-share agreement with the Rocky Mountain Bird Observatory with 49 transects (grids) completed in habitats forest-wide. Vegetation data were collected at the beginning of each transect. No northern goshawks were detected. Additionally, the Flagstaff Ranger District conducted 15,655 acres of presence and absence surveys, but no northern goshawks were found. The amount of suitable habitat and population trends are managed at appropriate levels to prevent the northern goshawk from being listed as a threatened or endangered species (USDA/USFS 2010). There are six northern goshawk post-fledging areas in the Study Area.



Mountain Lion

Mammals. The mountain lion (*Puma concolor*) is a year-round resident within habitats of the Study Area including Walnut Canyon. As a game species, a season is set by the Arizona Game and Fish Department in which hunting with use of dogs and other methods is allowed outside monument boundaries (mostly on Coconino National Forest land) to licensed individuals. This species is of concern for the public and resource management agencies because it is a large predator with an important ecological role and with the potential to attack humans or pets on public lands within and around the monument. Mountain lions have expansive

home ranges that include the entire project area. The National Park Service currently has little information on the distribution and abundance of mountain lions within the Walnut Canyon area, but suspects the canyon provides good denning sites—they have been spotted in the monument.

Bat species are considered to have specialized habitat requirements and sensitivity to environmental impacts. Thirteen bat species are listed as present or probably present in the monument (NPSpecies Database 2011) and 12 species are currently monitored within Coconino County as species of concern. Old/mature trees, large dead snags, and the fractured limestone faces of Walnut Canyon provide bat habitat. The National Park Service has little information on bat fauna, but is inventorying them within the monument (NPS 2007).

On the Coconino National Forest, 20 sites were mist-netted to determine bat species composition (USFS 2010). At known and suspected roost sites, nine emergence counts were conducted (using infrared binoculars and infrared videography); five roosts were inspected for the presence of bat species. In total, 18 bat species were identified, of these, 3 species are sensitive, e.g., Allen's big-eared bat (*Idionycteris phyllotis*), pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*), and western red bat (*Lasiurus blossevillii*).

Additional species of note present in the Study Area, although not threatened and endangered, include the golden eagle, deer, elk, and pronghorn.

The U.S. Forest Service has not completed site-specific surveys in the Study Area. Habitat is present for several sensitive bat species such as spotted bat (*Euderma maculatum*), Allen's lappet-browed bat (*Idionycteris phyllotis*), pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*) and western red bat (*Lasiurus blossevillii*). Studies have been conducted within Walnut Canyon National

Park with several species documented (Drost 2009).

WATERSHED AND WATER RESOURCES

Surface water within the Study Area flows into the Little Colorado River watershed (Hydrologic Unit Code 15020015 – Canyon Diablo Drainage Area) (AZDEQ 2012). The Walnut Creek watershed (Hydrologic Unit Code 1502001502) encompasses approximately 124,160 acres (194 square miles) within the approximately 26,794-square-mile Canyon Diablo Drainage Area (USDA/NRCS 2011b). The headwaters of Walnut Creek occur in the Mormon Mountain-Mormon Lake area more than 20 miles south of the monument. Prior to 1900, the creek is believed to have ephemerally flowed through the bottom of Walnut Canyon on a bi-annual cycle driven by snowmelt and seasonal thunderstorm and monsoon rain activity.

The entire watershed is defined by the Little Colorado River from the headwaters to the Colorado River and tributaries to the San Juan River, which flow north and east into New Mexico and Utah. Elevations range from 12,600 feet on Humphreys Peak to 2,700 feet near the Colorado River; most of the watershed is above 5,000 feet elevation. The region is characterized by horizontally stratified sandstone and limestone that have eroded to form canyon and plateau landforms; in a few areas, igneous rocks have deposited on sedimentary formations due to volcanic activity (AZDEQ 2012). Land ownership is divided approximately as: 60% tribal, 12% federal, 12% private, and 6% state for the entire watershed and 92% U.S. Forest Service, 2% National Park Service, 5% private, and <1% Arizona State Trust Lands for the Walnut Creek watershed (USDA/NRCS 2011). The entire watershed is sparsely populated outside the City of Flagstaff (total of 236,500 people,

2000 census). Land use is primarily livestock grazing, forestry, recreation, and mining. The watershed supports four national monuments, four wilderness areas, and two national forests with varying levels of use restrictions (AZDEQ 2012).

The surface drainage patterns of the Study Area are directly related to the underlying geologic framework (Neff et al. 2011). North of Walnut Canyon, the dominant drainage direction is toward the north and northeast, away from the canyon. Only the area immediately along the rim drains into the canyon. To the west, the headwaters of Skunk and Fay canyons drain into Walnut Creek below Fisher Point. At some time in the past, perhaps prior to about 800,000 years ago, Walnut Creek did not flow through the Lake Mary graben (linear feature that shows downward movement of bedrock relative to its sides), but more likely emanated from headwaters in Fay and Skunk canyons (Rauuci et al. 2003). Walnut Canyon currently supports an intermittent drainage channel, but it likely flowed more often approximately 800 years ago during habitation by the Sinagua (Chronic 1988). Perennial pools likely occurred, as the steep canyon walls and riparian vegetation provided shade and the scoured bedrock created small depressions that could fill with water.

The upper watershed has been dammed to provide water for the City of Flagstaff, creating Upper and Lower Lake Mary (completed in 1905 and 1941 – elevated in 1952, respectively) (USFWS 2011). The lakes are situated in a faulted graben south of Anderson Mesa and capture a significant portion of the Walnut Creek flow / water volume, which results in less flow through the canyon within the monument (Hansen et al. 2004). Water from Lake Mary reaches Walnut Canyon only when lake elevation exceeds the spillway elevation (Neff et al. 2011). Water draining into Lake Mary flows mostly from the southwest including the tributaries of Priest and Howard draws. A dense drainage network south of Walnut Canyon drains the western edge of Anderson Mesa, from about

Fisher Point to the monument boundary. A less-dense drainage network flows into Walnut Canyon downstream of the visitor center, draining the eastern edge of Anderson Mesa. The dominant trend of all Study Area drainages is toward the northeast, in the direction of the Painted Desert and the Little Colorado River.

Reliable flows typically occurred early each year during the period of spring snowmelt and less predictable flows likely occurred later each year during the summer and fall thunderstorm season (NPS 2007). The natural hydrology within the Walnut Canyon drainage was severely altered when the City of Flagstaff began impounding Walnut Creek for use as its public water supply, collected and stored in Upper Lake Mary. The dams significantly disrupted seasonal water flows through the canyon; Walnut Creek ceased flowing. Since 1941, the canyon has flooded only a few times during extremely wet seasons, which completely filled both lakes. Flows of lesser magnitude occur about once a decade from smaller tributary watersheds below the lakes.

Small, internally drained basins that hold water year-around characterize the surface of Anderson Mesa; the largest is Marshall Lake (in the north-south trending Marshall Lake graben). This hydrologic process is thought to relate to extension of the Earth's crust as it is pulled apart along normal faults. This downward movement, which likely occurred millions of years ago, created linear valleys filled with alluvium eroded from upslope sources (Neff et al. 2011).

Watershed conditions of Coconino National Forest lands are monitored, regulated, and assessed to: (1) meet federal regulation; (2) ensure that forest watersheds are in satisfactory condition by 2020; (3) assure that the productivity of the land is maintained; (4) Watershed Condition Framework for 6th hydrologic unit code (HUC) watershed conditions include evaluating 12 indicators; (5) a standard watershed condition inventory is conducted according to R-3 Hydrology

Note 14 for soil condition; (6) photograph points, ocular estimates to determine trends/acres are conducted as are step A for 6th HUC assessments, 10% annually for soil condition; (7) baseline watershed condition assessments (step A) were completed on all 101 6th HUC watersheds following the watershed condition framework process; (8) assessments were a qualitative and quantitative look at watershed condition and evaluated 12 resource indicators serving as an indication of watershed condition; (9) the information was input into a web-based application called Watershed Classification and Assessment Tracking Tool; and (10) the majority of 6th HUC watersheds (65%) are in functional at risk condition followed by properly functioning (21%), and impaired function (14%) (USFS 2010).

Limited water quality data are available for Upper and Lower Lakes Mary (AZDEQ 2012). In 2002, the U.S. Environmental Protection Agency reported mercury in fish tissue in Upper Lake Mary (861 acres in size). In 2004 and 2005 analyses, there were exceedances reported (AZDEQ 2012) for dissolved oxygen, mercury, nickel, and hydrogen sulfide. In 2002, the U.S. Environmental Protection Agency reported mercury in fish tissue in Lower Lake Mary (764 acres in size); in 2004 and 2005 analyses, there were exceedances reported (AZDEQ 2012) for pH and hydrogen sulfide.

Water quality was monitored in 2010 for exceedances in fecal coliform pathogens at several sites along Oak and Spring creeks by the Arizona Department of Environmental Quality and Friends of the Forest per forest plan and state and federal regulations (USFS 2010). Results indicated water quality exceeded standards on busy days at Slide Rock and consequently, both Spring Creek and Oak Creek remain listed as impaired for pathogens; reasons include unsanitary habits of swimmers and leaky septic systems on adjacent non-Coconino National Forest land. Lake water quality monitoring discontinued at Upper and Lower Lake Mary, Soldiers Lake, Soldiers Annex, and Lower Long Lake, but

will resume in the next three-year cycle. Water quality results by stream are stored on this Internet link: <http://www.azdeq.gov/envIRON/water/assessment/assess.html>.

The occurrence of shallow groundwater in the Study Area is expressed via seeps from sedimentary rock fractures and bedding planes (NPS 2007). Numerous localized seeps have been recorded in the fractures and bedding planes of the steep canyon walls; prominent seeps occur in the tributary canyons on the south side of the monument. It is believed that the seeps are recharged via local fractures and limestone “karst” erosion features in the watershed, and there is little threat of contamination or aquifer depletion under current land uses within the watershed. The only reliable groundwater beneath the monument occurs at a depth greater than 1,500 feet within the regional Coconino Aquifer. The National Park Service maintains a well into the aquifer to supply operations at the monument—the water table has declined about 10 feet over the last 30 years (NPS 2007).

During the Walnut Canyon National Monument General Management Plan (2007) preparation, the primary concern expressed about wetlands, floodplains, and riparian habitat was ensuring that the unique riparian resources are conserved within Walnut Canyon and its tributaries. The southern Colorado Plateau receives a limited amount of precipitation and surface water is limited. Streams, wetlands, and riparian habitats harbor a high percentage of regional biological diversity and are important resources (NPS 2007). Fish species include several that are formally protected under the Endangered Species Act (AGFD 2012). Numerous protected and sensitive plants, animals, and invertebrates are restricted to perennial streams, wetlands, or riparian habitats.

Many perennial streams and ephemeral tributary washes of the region and Study Area are affected by human uses, primarily

livestock grazing but also by damming, diversion, and groundwater withdrawals for public water supply, hydropower generation, limited agriculture and industry, and public recreation. Narrow galleries of cottonwood, willow, and sycamore (*Platanus* spp.) trees once occupied most streambanks; these native species are now largely replaced by stands of nonnative tamarisk (*Tamarix* spp.) and disturbance-tolerant desert scrub. Available riparian habitat and natural stream and spring waters for wildlife have diminished during the last century, especially for bird species.

Reliable springs and seeps are rare throughout the region and even scarcer in the northern half. Although springs support small riparian areas, these are usually rich in plant species and provide important surface water for wildlife including elk (*Cervus elaphus*), deer (*Odocoileus* spp.), and pronghorn (*Antilocapra americana*). Springs emerge from shallow, perched aquifers or from the large, regional Coconino Aquifer (Bills et al. 2000). Winter precipitation is important to recharge these aquifers. Most spring water within the inner basin of the San Francisco Mountains is completely used as part of the public water supply for the City of Flagstaff and many reliable springs that are near areas with good rangeland have been fully contained and diverted for livestock use and are less available to wildlife. Oak Creek and a few other sites are now popular public recreation attractions.

Wetland, floodplain, and riparian resources within the Study Area are restricted to the narrow canyon bottom and a number of perennial seeps found in the tributary canyons on the south side. The floor of Walnut Canyon supports approximately 80 acres of wetland and riparian woodland and shrubland vegetation, which is locally characterized by stands of Arizona walnut and narrowleaf cottonwood trees; box-elder, New Mexico locust, Arizona wild rose, and red osier dogwood shrubs; and sedges in the herbaceous layer. In the narrow reaches of the canyon, water catchment basins are scoured into Coconino sandstone bedrock, filled

seasonally by local snowmelt and rainfall, and provide important water sources for wildlife.

Coconino National Forest, the National Park Service, and the City of Flagstaff are active members of the Lake Mary-Walnut Creek Watershed Technical Advisory Committee. The purpose of the committee is the development of study proposals designed to evaluate and implement, where appropriate, best management practices, reservoir modifications, and/or operational criteria to address the quality and quantity of the municipal water supply, increase the likelihood of flood flows, and improve the inner canyon environment in Walnut Canyon National Monument (USFS 2010). Water quality results by stream/lake are presented on this AZDEQ link: <http://www.azdeq.gov/environ/water/assessment/assess.html>.

Some of the impacts of diminished natural water sources for wildlife have been mitigated by the development of livestock tanks. Passive precipitation catchment systems or guzzlers have recently become popular for supporting wildlife, ranching, and recreational activities. However, they are not naturally distributed across the landscape and have likely changed species population numbers, seasonal ranges, vegetation browse levels, and species interaction patterns, including natural predator-prey relationships.

Riparian resources are buffered from most water quality degradation by surrounding undeveloped Coconino National Forest and Arizona State Trust Lands. However, the City of Flagstaff has annexed all lands to the north and west boundary of Walnut Canyon National Monument, including a relatively large area contiguous to the canyon rim and tributary canyons upstream of the monument. Development of these lands within the relatively pristine canyon watershed could significantly increase nonpoint source pollution, such as motor and exhaust residue from streets, and fertilizers, herbicides, and pet waste from lawns, which would negatively affect wetland and riparian habitat and water quality.

WILDFIRE

The Coconino National Forest surrounds the entire city of Flagstaff. Forest types are largely characterized by ponderosa pine in addition to forest and woodland stands characterized by pinyon pine-Utah juniper and the resultant mixed conifer communities (USFS 2010). Urban areas that intermingle with forested lands are known as the urban interface. The Flagstaff urban interface consists of about 180,000 acres of Coconino National Forest, Arizona State Trust, military, National Park Service, City of Flagstaff, and privately managed/owned lands (GFFP 2012).

Changes in historic fire regimes, along with other events, have resulted in changes in successional dynamics, altered insect and disease dynamics, decreased understory productivity, decreased tree health, growth and vigor, increased fuel accumulation and continuity, increased crown fire potential, and increased fire size and intensity (USFS 2010).

Presently, wildfires are infrequent but of high intensity; on average about 50% of a modern wildfire represents a stand-replacement event (usually in very large patches from 100s to 1,000s of acres in size). Annually, in the Coconino National Forest, an average of 1,500 forested acres are catastrophically burned. Since 1947, approximately 40,000 acres of forest and woodland have been consumed in stand-replacement wildfire (approximately 5% of the Coconino National Forest ponderosa pine forest type). The rate of acres lost to catastrophic wildfire in the vicinity of the city of Flagstaff is increasing geometrically. The associated ecological loss in the vicinity of Flagstaff includes six each of Mexican spotted owl territories and northern goshawk territories lost or badly damaged between 1994 and 2001 (GFFP 2012).

Wildfire is the number one fire threat to Flagstaff and surrounding communities. The greater Flagstaff area averages around 150

ignitions per year, while within the City of Flagstaff alone, there are roughly 60 to 80 wildfires each year (CWPP for Flagstaff & Surrounding Communities 2004). In the past 10 years, the number of fires in Coconino National Forest have ranged from 122 (2012 and 2010) to a high of 410 (2003) forest-wide (USFS Stakeholder Report 2012).

A number of efforts are underway to reduce the risk of catastrophic wildfire within the Flagstaff urban interface, they include: (1) Grand Canyon Forests Partnership – analyze and treat forests for the reduction of catastrophic wildfire and restoration of forest health using thinning and prescribed fire; (2) Coconino National Forest – conducts numerous thinning and prescribed burning projects annually (see figure 6); (3) Arizona State Land Department – manages forest fuels conditions by thinning; (4) Flagstaff Fire Department – reduces catastrophic fire conditions using prescribed fire, a seasonal thinning crew, fuel management officer, and upgraded wildland fire equipment; and (5) Ponderosa Fire Advisory Council – conducts a fuel management program within developed areas of member fire departments (GFFP 2012).

The City of Flagstaff and Coconino County have encouraged homeowners to assume more responsibility for preventing damage and loss from wildfires, including fire safety education, homeowner responsibilities for fire prevention, and actions for reducing damage and loss from potential wildfires in and around private homes and property. Building codes and zoning regulations address private property requirements, with a land development code that dictates the amount of tree removal allowed in city areas; new subdivisions require forest stewardship plans that have a review process by the Flagstaff Fire Department for compatibility with wildland fire protection.



Cliff Dwelling

Walnut Canyon Study Area - Planned and Accomplished Activities

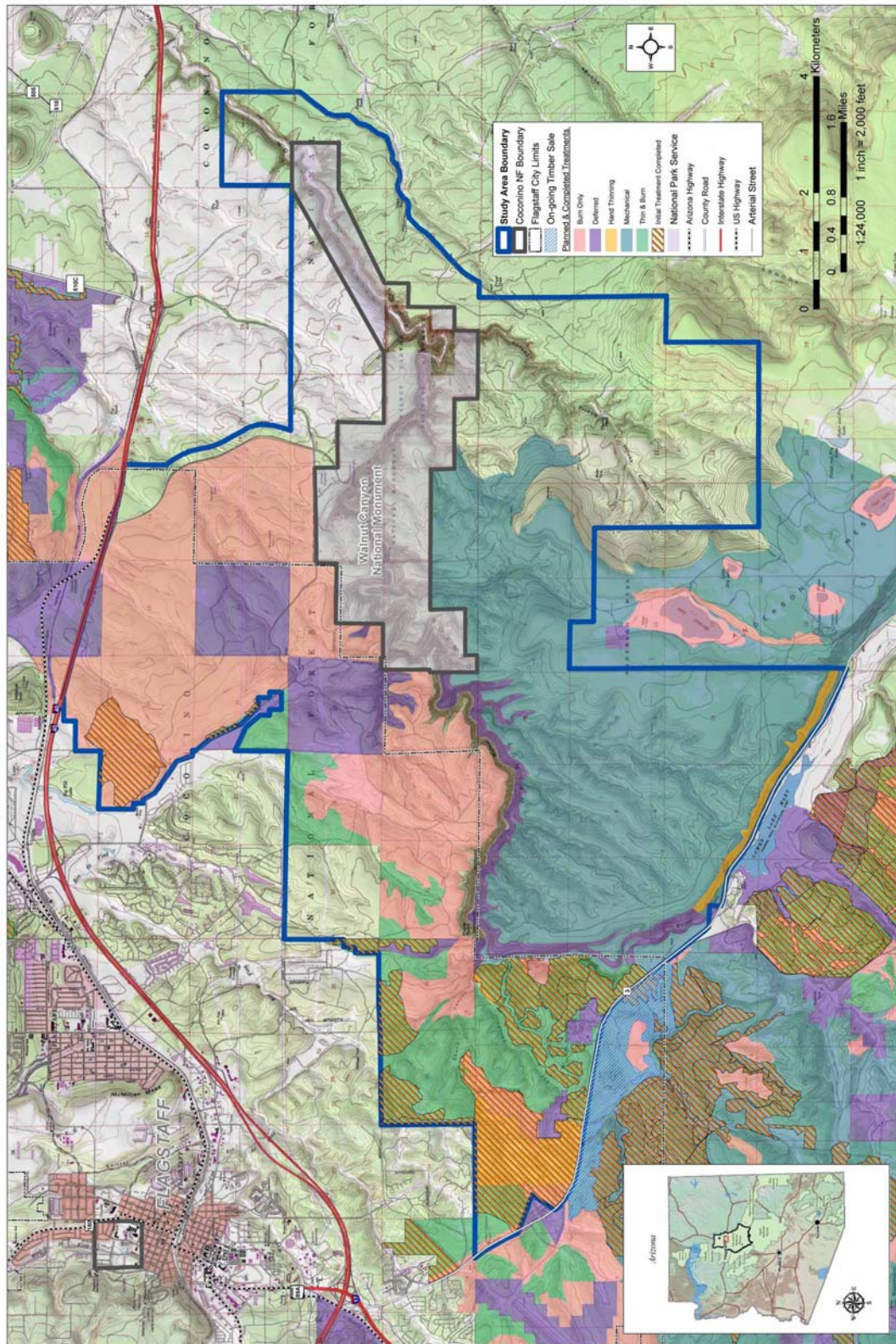


FIGURE 8. FIRE FUELS ACTIVITIES

The U.S. Forest Service, in the Flagstaff / Lake Mary Ecosystem Analysis (FLEA) amendments, developed desired future conditions for the Study Area to reduced threat of and potential for destructive crown wildfire, especially in the Urban / Rural Influence and Wildland / Urban Interface zones (USDA Forest Service 1987, amended). This involves reducing ladder fuels, crown canopy and competition between closely spaced trees in some areas to promote future large trees faster and to achieve desired tree sizes and canopy closures outlined in the Forest Plan, and to increase in the forest's resistance to insects and disease. Desired future conditions also involve maintaining the presence of fire in a "natural ecological role within the constraints of human health and safety" (USDA Forest Service 1987 amended).

The U.S. Forest Service recently prepared an environmental assessment for the proposed Marshall Fuels Reduction and Forest Restoration project. The Marshall Fuels Reduction and Forest Restoration project area is approximately 12,000 acres southeast of Flagstaff, roughly between Lake Mary Road

and Walnut Canyon National Monument, and includes part of Anderson Mesa. The primary purpose of this project is to reduce the risk of uncharacteristic wildfire and to improve the health of the forest and associated habitats in the Marshall Project Area, according to Coconino National Forest Plan guidance. As the project falls within the Flagstaff / Lake Mary Ecosystem Analysis (FLEA) area and within the Study Area. The Forest Plan guidance dictates that "use of wildland fire is not acceptable or desirable. Therefore, future management actions for wildfire in the project area will continue to be full suppression (USFS 2010).

Coconino National Forest staff is also actively engaged in a collaborative, landscape-scale initiative designed to restore fire-adapted ecosystems in the Southwestern Region. The overall goal of the Four Forest Restoration Initiative (4FRI) is to restore the structure, pattern and composition of fire-adapted ecosystems, which will provide for fuels reduction, forest health, and wildlife and plant diversity (USDA 2011).

MANAGEMENT OPTIONS ASSESSMENT

Under all management options, it is assumed that the U.S. Forest Service would continue to comply with regulations, policies, and directives and manage forest resources under the forest plan, forest plan revisions, and other resource management plans for lands under U.S. Forest Service responsibility. The plans support multiple use and plan objectives, strategies, and actions strive to balance resource protections with use. It is acknowledged, however, that the programs could be affected by changes to levels of funding, policies and the need for additional resource protection to offset user impacts. It is also acknowledged that currently access to the forest is free. Per the Recreation Enhancement Act, fees may be charged for developed sites (including trailheads), however, there is currently no authority to charge fees for general access to forest managed lands.

This study does not assume a specific time line for actions required by the secretaries of agriculture and interior, which could be submitting the special study to Congress, with or without a recommendation. There is also no assumption of when Congress could act on a recommendation.

Under all three options, the U.S. Forest Service retains management of the lands and current uses are relatively stable—there would be no to minimal changes to the local economy. Special designation could result in more visitation or use restrictions depending on the type of designation and legislation. Special designation could have an effect on USFS operating costs.

EFFECTS TO NATURAL AND CULTURAL RESOURCES

In all management options, the U.S. Forest Service would retain management of the Study Area (excluding Arizona State Trust Lands

and private inholdings). The U.S. Forest Service is mandated by federal laws, regulations, executive orders, and USFS policies and directives, and regional and forest orders to manage and protect cultural and natural resources. The U.S. Forest Service would continue to define management objectives and strategies in the forest plan, forest plan revisions, and other resource management plans, which are subjected to the National Environmental Policy Act and public involvement. The U.S. Forest Service is also constrained by budgets. It is not anticipated that current management of cultural or natural resources would be significantly altered due to implementation of one of the management options.

In addition to complying with regulations and policies, Coconino National Forest has programs for invasive species, water resources, and wildfire described below. It is not anticipated that these programs would change based on implementation of one of the management options; although it is acknowledged that the programs could be affected by changes to levels of funding.

OPTION 1: CONTINUED MANAGEMENT BY U.S. FOREST SERVICE

Under this option, the U.S. Forest Service would continue to manage the Study Area. USFS management is dynamic to balance resource protection with the multiple-use mission. There are portions of three grazing allotments within the Study Area. Recreational activities include camping, mountain biking, horseback riding, rock climbing, hunting, and hiking, which would be allowed to continue. Recreational facilities include Canyon Vista Campground (concessioner operated), the Arizona Trail, several trails connecting to the Flagstaff Urban Trail

System, Fisher Point, and approximately 32 miles of USFS-managed hiking, biking, and equestrian trails, including the Campbell Mesa trail system, and an approximately 8-mile segment of the future Flagstaff Loop Trail, all of which would be maintained.

The Coconino National Forest Management Plan states that for this management area (MA 37, no land exchanges will occur unless the purpose is *to acquire land within* MA 37 through exchange of lands of national forest elsewhere. This means that the U.S. Forest Service may possibly trade lands elsewhere to acquire inholdings within MA 37, but that no national forest lands within MA 37 would be exchanged in order to acquire lands or resource interests outside MA 37. This is the strongest management policy that can be made at the local U.S. Forest Service level. Although a future change in policy is possible, once such a policy is adopted, future changes are unlikely and could only be implemented through a management action subject to public involvement. Final decisions regarding changes to the Forest Plan, after public involvement, are under the authority of the forest supervisor, while actual land exchanges can only be authorized at a higher level, by the regional forester.

Nonmotorized access is virtually anywhere along the boundary and at this time access to the forest is free. Motorized access is on designated roads and management currently under the travel management plan (2011).

In the future, the U.S. Forest Service may be able to trade for Arizona State Trust Lands. Although, the U.S. Forest Service can accept donated land, the Arizona State Land Trust cannot donate lands.

Maintaining current management supports the local interest in maintaining existing multiple use while allowing the locally based Coconino National Forest decision authority of future management, while working cooperatively with the National Park Service, Flagstaff, Coconino County, Arizona State Land Department, and Arizona Game and

Fish Department in addressing regional land use and land use issues.

The Coconino National Forest currently has regional forester special area designations, including research natural areas and botanical and geological areas. Research natural areas (RNAs) and botanical and geological areas are designated to ensure protection of specific biological and geological communities. Research natural areas are experimental controls for a particular vegetation type, and botanical and geological areas are designated for a special feature such as a rare plant or exemplary geological formation. There are four existing research natural areas in Coconino National Forest: Casner Canyon, G. A. Pearson, Oak Creek, and San Francisco Peaks. The G. A. Pearson is within the Fort Valley Experimental Forest. Oak Creek and the San Francisco Peaks research natural areas are within designated wilderness. The draft revised forest plan is proposing three new research natural areas: West Clear Creek, Rocky Gulch, and an expansion of the San Francisco Peaks research natural area. West Clear Creek and the expansion of Francisco Peaks are within existing wilderness areas. There are four botanical areas: Verde Valley, Mogollon Rim, Fossil Springs, and Fern Mountain, and one geological area: Red Mountain (USFS 2011).

To conserve and protect the natural and scenic qualities of the Study Area are high priorities; therefore, the most likely special management designations for the lands considered in the Study Area are “National Conservation Area” and “National Scenic Area.” A national recreation area designation could result in additional recreation types and development. A special designation could potentially limit future community/public infrastructure development in the area.

Given the amount of existing infrastructure in the Study Area and the close proximity of urban interface, a special designation could also limit agency flexibility to effectively manage for threats to public health and safety.

OPTION 2: CONGRESSIONAL SPECIAL MANAGEMENT DESIGNATION

Congress designates special management areas within the national forest system. Nearly one hundred special management areas have been established on federal lands. Most areas have been created out of National Forest land, but this is not always the case. The special management area designation continues to be used regularly by Congress.

The legislation establishing each special management area is unique, but the designations generally fall into the following categories: national monuments (Mount St. Helens National Volcanic Monument, Washington), game refuges (Newberry Wildlife Refuge, Oregon), scenic areas (Seng Mountain National Scenic Area, Virginia), other protected areas, and recreation areas (Sabino Canyon National Recreation Area, Arizona).

Legislation establishing the special management areas asserts the importance of the area. While most acts creating special management areas express similar purposes for designation, there are subtle differences between designation types. For example, the preservation of scenic and natural resources is prioritized in the designation of scenic and other protected areas. Recreation is protected, but not prioritized. Acts setting aside recreation areas, on the other hand, usually include specific provisions to protect appropriate recreational uses within the area while also asserting resource protections. In each case, when Congress withdraws the lands comprising the special management area it does not usually provide explicit language (but can) barring the U.S. Forest Service from exchanging lands. Most of the focus is in the provision of mechanisms to consolidate lands within the area under U.S. Forest Service management. Even if the legislation was silent on this issue, an area's specific land management plan may outline the circumstances for retention or exchange of land within or adjacent to the area's boundary.

In most cases, management provisions for scenic and recreational areas include restrictions on mineral leasing and timber harvest (except to protect resource conditions). Historical/traditional public access, use, and recreational opportunities are typically retained, though some areas limit off-road vehicle use or other activities that conflict with the purpose for which the area was set aside. Legislation often establishes an advisory council or some other type of cooperative committee to direct or assist in management planning. Pursuing a special designation would result in an increased emphasis on the specific purpose noted, potentially resulting in long-term changes that restrict other desired uses.

A special management designation could subject future actions involving land acquisition / disposal / exchange to congressional approval if Congress writes this language into the enabling legislation. The public could provide input into what the enabling legislative contains, but it is ultimately written by Congress. Congress could also include language in the legislation to withdraw lands from mineral extraction. The special designation would not apply to Arizona State Trust Lands nor change the status of Arizona State Trust Lands, unless acquisitions or exchanges were approved.

OPTION 3: CONGRESSIONAL RESTRICTION ON LAND DISPOSAL OR EXCHANGES

To address the primary concern to protect the land from development in perpetuity, Congress could approve legislation for specific land management direction, i.e., restriction on disposing of land out of federal ownership. No concrete examples for this scenario were discovered during the research phase of this study.

This type of congressional restriction would raise land disposal actions to requiring an act of Congress. This would not change the status

of Arizona State Trust Lands unless acquisitions were approved.

SUMMARY/COMPARISON TABLE AND SUGGESTIONS

Table 2 provides a brief summary of how each option meets goals, objectives, and public concern.



Cliff Dwelling on Island Trail

TABLE 2. SUMMARY/COMPARISON TABLE

	Option 1: Continue Management by USFS	Option 2: Congressional Special Management Designation	Option 3: Congressional Restriction on Disposal
Support current range of multiple use.	Yes.	Continued management by the USFS—use emphasis could change, resulting in either increases or decreases in some use.	Same as Option 1 - Continued management by the USFS.
Local decision making to respond to changes in future needs.	Yes.	More constrained than Option 1.	Same as Option 1.
Protection of cultural resources.	No change; protected by current federal law and regulation.	Same as Option 1.	Same as Option 1.
Natural resources.	No change; continue to manage resources per regulatory requirements.	Same as Option 1.	Same as Option 1.
Water resources.	No change; continue to manage resources per regulatory requirements.	Same as Option 1.	Same as Option 1.
Fire management.	No change; continue to manage resources per regulatory requirements.	Same as Option 1.	Same as Option 1.
Threatened, endangered, and species of special concern.	No change; protected by current federal law and regulation.	Same as Option 1.	Same as Option 1.
Recreation and visitor use.	Use responds to growth, changes in activities; supports FUTS and Loop Trail.	Could increase or decrease depending on designation.	Same as Option 1.
Public access and fees.	No change in fees; Coconino Travel Management Plan.	Same as Option 1 unless increased emphasis on developed recreation, or restriction to protect resources.	Same as Option 1.
Land use in the Special Study Area.	No change; allowable land use consistent with U.S. Forest Service policies and local site and planning considerations.	Allowable land uses may be defined by congressional action. Designation could limit agency flexibility to effectively manage for threats to public health and safety.	Same as Option 1.
USFS management.	No proposed change in management objectives are defined under forest plan. A regional forester designation could be considered in the future.	Adds additional layer of planning and staffing responsibility; may change depending on the designation.	Same as Option 1.
Arizona State Trust Lands / private inholdings.	No change; Forest plan would be amended to include any acquired lands.	Same as Option 1.	Same as Option 1.
Achieves primary goal of protecting the land from development in perpetuity.	Land exchange approved at forest or USFS region level.	Land disposal would require act of Congress.	Land disposal would require act of Congress.

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PUBLIC INVOLVEMENT, CONSULTATION, AND COORDINATION

The U.S. Forest Service and the National Park Service jointly initiated the special study in February 2010 to explore management options for the Study Area, per direction from the Omnibus Public Land Management Act of 2009. One of the directives of the act and objectives of this project was to “meaningfully engage stakeholders, City of Flagstaff, and Coconino County governments, American Indian tribes, other agencies, and the general public at local and national levels to determine their desires for future management of this area.”

The planning team developed a public involvement plan that included compiling an initial project mailing list from databases supplied by the National Park Service, U.S. Forest Service, the City of Flagstaff, and Coconino County officials, newsletters, a project-specific website, press releases, and open house events.

The initial public outreach period was conducted from March 22 through July 26, 2010. A newsletter was sent to the initial project mailing list. Information was also posted to the project-specific website. Press releases were prepared to announce the project and public meetings and were sent to local newspapers, radio stations, and organizations totaling over 100. The U.S. Forest Service, National Park Service, Coconino County, and Flagstaff representatives hosted a series of open house events in April 2010.

The open house events provided an opportunity for the public to engage in dialogue with the partner agencies; to learn about the special study (history, purpose, outcomes, etc.); ask questions; and discuss concerns. Opportunities were available for one-on-one discussions as well as to look and listen. The public was encouraged to provide input and comment in their own words, either at the open house events or at their

convenience on the project website or on the comment forms. A total of 328 pieces of correspondence was received during the first public outreach period. All correspondence was analyzed for comments and summarized in a report. This document is available on the project website and is incorporated by reference (Walnut Canyon National Monument Special Study Comments, through August 2010). The comments were reviewed and discussed for the development of the management options.

The second phase of public outreach was initiated on May 10, 2011, through July 31, 2011. A second newsletter was prepared and sent to the updated project mailing list. This newsletter provided current project and open house schedules, brief descriptions of preliminary management options, options for state trust lands, and a summary of the management options workshop held with representatives of Coconino National Forest, Walnut Canyon National Monument, National Park Service Intermountain Region, City of Flagstaff, and Coconino County. The website was updated with new project information and a press release was sent to local newspapers, radio stations, and organizations totaling over 100 media outlets.

The U.S. Forest Service, National Park Service, Coconino County, and Flagstaff representatives hosted a second series of open house events in May 2011. The open house events provided an opportunity for the public to hear a presentation on the process and preliminary management options, engage in dialogue with the partner agencies, ask questions, and discuss concerns.

Opportunities were available for group and one-on-one discussions. The public was encouraged to provide input and comment in their own words, either at the open house events or at their convenience on the project website or on the comment forms. A total of

113 comments were received during this phase of public involvement. Comments were summarized in a report. This document is available on the project website and is incorporated by reference (Walnut Canyon Special Study Comments, May 2011 through July 2011).

The third phase of public scoping occurred with the public release of the draft study report on May 10, 2013. The review period lasted for 60 days, ending July 10, 2013. A public open house event was held June 13, 2013, at the City Hall Council Chambers in Flagstaff, Arizona. A presentation on the process and findings of the study was provided and the audience had an opportunity for questions and answers with the partner agencies. There were 31 people from the public in attendance. Four written comments were received during the event and an additional 46 comments were received through the website and in hardcopy form or letter for a total of 50 comments (see appendix F).

TRIBAL CONSULTATION

In April 2010, the National Park Service and U.S. Forest Service sent a joint letter to the 13 tribes traditionally associated with the Walnut Canyon area to initiate the project. A second letter was sent on July 28, 2011, containing the newsletters with project summaries. A letter was received from the Hopi Tribe providing comments and accepting an invitation to meet and discuss the Special Study. A third letter was sent in April 2013 announcing the availability of the draft report and a summary of the management options. The letters are included in appendix G.

AGENCY INVOLVEMENT

As part of the public involvement process, newsletters were also sent to local, state, and federal agencies, including:

Advisory Council on Historic Preservation
Arizona Department of Commerce
Arizona Department of Environmental Quality
Arizona Department of Game and Fish
Arizona Department of Mines and Mineral Resources
Arizona Department of Transportation
Arizona Department of Water Resources
Arizona Governor's Office
Arizona Historical Society
Arizona Housing Allowance
Arizona Public Service
Arizona State Historic Preservation Office
Arizona State Land Department
City of Flagstaff
City of Sedona
Coconino County
Coconino County Parks & Recreation
Coconino County Public Works
Federal Highway Administration
Flagstaff Public Library
Grand Canyon National Park
National Park Service
National Resources Conservation Service
Northern Arizona Intergovernmental Public Transportation Authority
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. Geological Survey
U.S. Naval Observatory
U.S. Senator John Kyl
U.S. Senator John McCain

Representatives from the U.S. Forest Service, National Park Service, City of Flagstaff, and Coconino County make up the planning team. Representatives from Arizona State Trust Lands also participated in the management

options workshop. Arizona Game and Fish Department provided letters during both public involvement phases—these letters are

included in the summary reports referenced above.

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