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Region**

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# Kaibab National Forest

## Potential Wilderness Area Evaluation Report



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Cover photo: Kanab Creek Wilderness

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## Introduction

Federal land management agencies have completed inventories for wilderness in the past. As early as the 1920s, primitive areas were identified in the United States. The Wilderness Preservation System was established in 1964, when the Wilderness Act was passed. Two efforts to identify areas that meet the definition of wilderness under this Act have been made on Forest Service System lands in Arizona, the first as part of the 1964 Wilderness Act, and the second culminating in the 1984 Arizona Wilderness Act. In these efforts, the gems of the wilderness system were designated.

As required as part of the Forest planning process, the Kaibab National Forest (NF) conducted an additional potential wilderness area (PWA) evaluation. The purpose of this evaluation was to identify and inventory all remaining areas within the Kaibab National Forest that satisfy the definition of wilderness found in the 1964 Wilderness Act, which states:

*“A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of underdeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.”*

Forest Service Handbook (FSH) direction (1909.12, Chapter 70) provides a three-step process for identifying and evaluating potential wilderness on National Forest System Lands. This process includes:

1. An inventory of potential areas;
2. Evaluation of potential areas; and
3. Determination (by the Decision Maker for the Kaibab Forest Plan) if a recommendation will be pursued for any potential wilderness areas.

This report discusses the inventory and evaluation of potential wilderness areas conducted as a part of the Kaibab NF's plan revision process. The inventory process initially produced 15 PWAs, totaling approximately 96,000 acres. These PWAs were then evaluated on their capability for designation as wilderness, and nine areas (totaling approximately 44,000 acres) that received either a medium or high capability rating were carried forward into an evaluation of availability for wilderness designation and the general need for additional wilderness in the Southwestern Region. The capability, availability, and need evaluations were documented in an Access database, which is located in the project record. A summary version of this report was included as Appendix E of the Draft Environmental Impact Statement (DEIS) and posted on the Kaibab NF's website.

Between the release of the draft plan/DEIS and preparation of the final plan/FEIS, the PWA inventory and evaluation processes were reviewed to ensure accuracy of the results and consistency between the database and report. In addition to resolving several typographical and consistency errors, a mapping error was discovered in the GIS layer for existing wilderness that was used in the inventory process. This layer incorrectly displayed a 361-acre portion of the Kaibab NF adjacent to the Sycamore Canyon Wilderness as existing wilderness, thus excluding it from the inventory and further evaluation.

To correct this error, the excluded area was evaluated with the same wilderness analysis process used for all other potential wilderness areas within the proclaimed boundary of the Kaibab NF. A boundary was drawn so that it generally followed breaks in slope greater than 40 percent. The new boundary resulted in an area of about 156 acres to be evaluated as a potential wilderness area. This area was selected because it can be easily identified on the ground and it excludes areas above the rim easily accessed by vehicles, making it manageable. The boundary also excluded some areas containing evidences of human influence (old roads and vegetation management activities), which would have affected its capability rating. This area, known as Jacks Canyon, meets the inventory criteria because it can be preserved due to physical terrain, is contiguous to existing wilderness, and does not contain forest roads. This area also represents a logical extension of the wilderness boundary by adding a side canyon that was not included in the original wilderness area designation. Jacks Canyon (PWA 03-07-999) was added to the PWA evaluation database and this report was updated to reflect this addition.

## **Inventory of Potential Wilderness Areas**

In 2007, the Southwestern Region developed a Potential Wilderness Inventory process for use by National Forests in the Region. Through this process, the Kaibab NF identified areas that met the basic requirements of size, geography or adjacency to existing or recommended wilderness. In order for an area to be included in the potential wilderness inventory, it must meet the definition in the 1964 Wilderness Act and meet either criteria 1 and 3, or criteria 2 and 3 below.

1. Areas contain 5,000 acres or more.
2. Areas contain less than 5,000 acres, but can meet one or more of the following criteria:
  - a. Can be preserved due to physical terrain and natural conditions.
  - b. Self-contained ecosystems, such as an island, that can be effectively managed as a separate unit of the National Wilderness Preservation System.
  - c. Contiguous to existing wilderness, primitive areas, Administration-endorsed wilderness, or potential wilderness in other Federal ownership, regardless of their size.
3. Areas do not contain forest roads (36 CFR 212.1) or other permanently authorized roads, except as permitted in areas east of the 100th meridian (sec. 71.12).

Areas may qualify for inventory of potential wilderness even though they include the types of areas or features listed in FSH 1909.12, Chapter 71.11 (e.g. historic mining, electronic sites, fences, water troughs, and corrals), providing their impact is minimal.

The Kaibab NF used a systematic process to identify areas (polygons) that met the inventory criteria. An automated GIS model was developed to identify polygons that met inventory criteria 1, 2c, and 3. The portion of this analysis determining the presence of roads utilized the most up-to-date motor vehicle use map. These polygons were then individually examined for inherent model errors such as polygons containing “dead-end” roads. Polygons were reshaped or completely removed if they contained dense networks of dead-end roads. When delineating the boundaries of areas, efforts were made to facilitate easy on-the-ground identification. During this examination the Kaibab NF also determined whether a polygon met inventory criteria 2a and 2b, and criteria from FSH 1909.12, Chapter 71.

The inventory process identified sixteen PWAs that were carried forward to the evaluation phase. A full description of the PWA inventory process can be found in Appendix A of this document.

## Evaluation of Potential Wilderness Areas

After the initial inventory was completed, PWAs identified in the inventory were evaluated for capability, availability, and need:

1. Capability is an evaluation of the inherent characteristics of the potential area.
2. Availability is an evaluation of the value and need for wilderness compared to value and need for other resources or uses.
3. Need is an evaluation of the regional distribution of wilderness and representation of regional landforms and ecosystems.

## Capability Analysis

The sixteen PWAs carried forward from the inventory process were evaluated for their capability. Basic wilderness capability characteristics were used to evaluate the initial suitability of a PWA for wilderness recommendation regardless of its availability or need as wilderness. Five principle wilderness characteristics (based on the Wilderness Act) were analyzed in this step (FSH 1909.2, Chapter 70, Section 72.1):

1. Natural—the degree to which the area is substantially free from the effects of modern civilization and generally appears to be affected primarily by forces of nature.
2. Undeveloped—the degree to which an area is without permanent improvements/human habitation.
3. Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation—the degree to which the area provides a wide range of experiential opportunities for feelings of solitude, isolation, and a part of nature free from evidence of humans.
4. Special Features and Values—the degree to which an area is capable of providing other values such as those with ecologic, geologic, scientific, educational, scenic, historic or cultural significance.
5. Manageability—ability to manage the area as wilderness as required by the Wilderness Act and how boundaries of the area affect its manageability.

A rating system was used to assess the wilderness character of each PWA. The specific criteria were developed by the Southwestern Regional Office with direction from the Forest Service Handbook 1909.12 Chapter 72.1. For each PWA, each criterion was assigned a high, medium, or low rating. These were then converted to numerical ratings using the following scale: a high rating received 3 points; a medium rating received 2 points; and low ratings received zero points. Each of the five wilderness characteristics—naturalness, undeveloped, solitude/primitive recreation, special features, and manageability—then received a rating of high, medium, or low based on the points given to its constituent criteria. The overall capability rating for a PWA was based on the total number of points earned in all five categories.

The rating criteria for capability are described in Table 1. Table 2 summarizes the capability ratings for the 16 inventoried PWAs on the Kaibab NF. The evaluation relied on professional knowledge regarding the unique, site specific conditions of each area being considered. More detail about the capability of each PWA is provided in the area-specific PWA evaluation summaries in this report. Figures 1 and 2 display the potential wilderness areas that were evaluated for capability as a part of this analysis.

**Table 1. Potential wilderness area capability rating criteria**

Characteristic	Criterion	Rating <sup>1</sup>
<b>Natural</b>	Presence of non-native species	<b>High</b> – Non-native species are not evident
		<b>Medium</b> – Non-native species are evident in isolated spots
		<b>Low</b> – Non-native species are common or scattered throughout the area
	Seeps/springs within the area are in free-flowing condition	<b>High</b> – Seeps/springs are considered free-flowing (undeveloped)
		<b>Medium</b> – Some seeps/springs have development or other issues that affect their free-flowing character.
		<b>Low</b> – Springs/seeps are absent, seasonal or heavily impacted by development
	Quality of night sky as affected by light pollution	<b>High</b> – The night sky is clear with little to no interference from light pollution
		<b>Medium</b> – Some stars are visible and there is moderate degradation from light pollution
		<b>Low</b> – Few stars are visible at night and the presence of light pollution is evident
	Area provides elements of biological diversity and naturalness, including unique habitats, TES or rare plants & wildlife.	<b>High</b> – Has critical or unique habitats and diverse ecological conditions
		<b>Medium</b> – Has a mix of habitats and ecological conditions
		<b>Low</b> – Has limited ecological conditions and habitats
	Area contains a variety of natural resources, including a variety of tree species and structures. Intermingled grasslands or meadows, numerous recreation opportunities, diversity of wildlife habitats, and wildlife, etc.	<b>High</b> – Diverse amount of natural resources
		<b>Medium</b> – Mixed amount of natural resources
		<b>Low</b> – Limited amount of natural resource diversity
<b>Undeveloped</b>	Area is free from human disturbance	<b>High</b> – Has only minor improvements and appears free from human disturbance
		<b>Medium</b> – Has several minor improvements and is mostly free from human disturbance
		<b>Low</b> – Has major improvement such as a power line or road and shows signs of human disturbance
<b>Outstanding opportunities for solitude or primitive and unconfined recreation</b>	Area provides physically and mentally challenging recreation opportunities that promote adventure and self-reliance	<b>High</b> – Most of the area provides challenging recreation opportunities
		<b>Medium</b> – Some parts of the area have the potential for challenging recreation opportunities
		<b>Low</b> – Few parts of the area can provide challenging recreation opportunities
	Opportunity to experience solitude and isolation from human activities while recreating in the area	<b>High</b> – Significant feeling of being alone or remote from civilization
		<b>Medium</b> – Feeling of being alone is possible but signs of civilization are likely
		<b>Low</b> – Little opportunity of feeling alone
	Opportunity to engage in primitive and unconfined recreation such as back-packing, hunting, fishing, etc.	<b>High</b> - There are many opportunities for engaging in primitive recreation
		<b>Medium</b> – There are some opportunities for engaging in primitive recreation
		<b>Low</b> – There are few to no opportunities to engage in primitive recreation
	Degree of primitive ROS settings	<b>High</b> – Majority of the area is classified primitive or semi-primitive non-motorized
		<b>Medium</b> – Some of the area is classified primitive or semi-primitive non-motorized
		<b>Low</b> – Little to none of the area is classified primitive or semi-primitive non-motorized

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Characteristic	Criterion	Rating <sup>1</sup>
<b>Special Features and Values</b>	Area contains outstanding or distinct features like rock formations, panoramic views, etc.	<b>High</b> – Many distinct features or few but exceptional features
		<b>Medium</b> – Some distinct features
		<b>Low</b> – One or no distinct features
	Area has potential for scientific research, environmental education, or historic/cultural opportunities	<b>High</b> – Good potential for two or more types of these opportunities
		<b>Medium</b> – Potential for one type of opportunity
		<b>Low</b> – Little or no potential for this type of opportunity
	Area contains unique or rare species of plants and/or animals	<b>High</b> – Area has several unique or rare plants and/or animals
		<b>Medium</b> – Area has a few unique or rare plants and/or animals
		<b>Low</b> – Area has no known unique or rare plants and/or animals.
<b>Manageability</b>	Ability to manage the area for wilderness character, including distance and influence from outside activities; opportunity to access the area; and resource conflicts or encumbrances	<b>High</b> – Isolated from areas of activity; controlled or limited access; no encumbrances or resource conflicts
		<b>Medium</b> – Somewhat isolated from areas of activity; adequate access opportunities; some resource conflicts and/or encumbrances
		<b>Low</b> – Areas of activity are nearby; many access opportunities; many resource conflicts and/or encumbrances
	Area boundaries are recognizable and defensible	<b>High</b> – Majority of boundary follows features that can be easily found and identified on the ground
		<b>Medium</b> – About half of the boundary follows features that can be easily found and identified on the ground
		<b>Low</b> – Boundary can rarely be located without equipment, such as a GPS unit

<sup>1</sup> Each criterion rating was assigned a numeric score: High= 3 points, Medium = 2 points, Low = 0 points

**Table 2. Summary of the Kaibab National Forest potential wilderness area capability ratings**

Area Name, Size, PWA Number <sup>1</sup>	Capability Rating <sup>2</sup>					
	Natural	Undeveloped	Outstanding opportunities for solitude or primitive, unconfined recreation	Special features and values	Manageability	Overall capability rating <sup>3</sup>
<b>Saddle Mountain Addition:</b> 1,296 ac PWA 03-07-043	Medium (2)	High (3)	High (3)	High (3)	High (3)	<b>14 = High</b>
<b>Kanab Creek Additions:</b> 4,710 ac PWA 03-07-034	Medium (2)	High (3)	Medium (2)	High (3)	High (3)	<b>13 = High</b>
<b>Grassy/Quaking Aspen Canyons:</b> 232 ac, PWA 03-07-099	High (3)	High (3)	High (3)	Medium (2)	Medium (2)	<b>13 = High</b>
<b>Sycamore Canyon Addition:</b> 988 ac PWA 03-07-057	Medium (2)	High (3)	High (3)	Medium (2)	High (3)	<b>13 = High</b>
<b>Jacks Canyon:</b> 156 ac PWA 03-07-999	Medium (2)	High (3)	High (3)	High (3)	Medium (2)	<b>13 = High</b>
<b>Burro Canyon:</b> 10,735 ac PWA 03-07-003	Medium (2)	High (3)	High (3)	Medium (2)	Medium (2)	<b>12 = Medium</b>
<b>Coconino Rim:</b> 7,750 ac PWA 03-07-079	Medium (2)	Medium (2)	Medium (2)	Medium (2)	Medium (2)	<b>10 = Medium</b>
<b>Seegmiller:</b> 6,168 ac PWA 03-07-035	Medium (2)	Medium (2)	Medium (2)	Medium (2)	Medium (2)	<b>10 = Medium</b>
<b>Willis Canyon:</b> 6,418 ac PWA 03-07-002	Medium (2)	Medium (2)	Medium (2)	Medium (2)	Medium (2)	<b>10 = Medium</b>
<b>South Canyon Point:</b> 5,829 ac PWA 03-07-045	Medium (2)	Medium (2)	Medium (2)	Medium (2)	Medium (2)	<b>10 = Medium</b>
<b>The following PWAs were not carried forward to the availability analysis due to an overall "low" score:</b>						
<b>Sitgreaves Mtn:</b> 10,016 ac PWA 03-07-073	Medium (2)	Medium (2)	Medium (2)	Medium (2)	Low (0)	<b>8 = Low</b>
<b>Red Point:</b> 7,385 ac PWA 03-07-098	Low (0)	High (3)	Medium (2)	Low (0)	Low (0)	<b>5 = Low</b>
<b>Big Ridge:</b> 9,373 ac PWA 03-07-004	Low (0)	High (3)	Low (0)	Medium (2)	Low (0)	<b>5 = Low</b>
<b>Red Butte:</b> 2,682 ac PWA 03-07-088	Low (0)	Low (0)	Low (0)	Medium (2)	Medium (2)	<b>4 = Low</b>
<b>Paradise Ridge:</b> 10,444 ac PWA 03-07-134	Low (0)	Low (0)	Low (0)	Low (0)	Medium (2)	<b>2 = Low</b>
<b>NW NKRD:</b> 12,110 ac PWA 03-07-018	Low (0)	Medium (2)	Low (0)	Low (0)	Low (0)	<b>2 = Low</b>

<sup>1</sup> The first 5 PWAs are included based on the "contiguous to existing wilderness" criterion. Red Butte & Sitgreaves Mtn. are included because "they can be preserved due to physical terrain and/or natural conditions". The remaining PWAs are included based on the  $\geq 5,000$  acres criterion

<sup>2</sup> Each criterion rating was assigned a numerical score: High = 3 points, Medium = 2 points, Low = 0 points.

<sup>3</sup> Overall capability rating: 13-15 = High ( $\geq 87\%$ ); 9-12 = Medium (60-86%); <9 = Low (<60%). Only those PWAs with a >60% rating are carried forward to availability analysis.

## Availability Analysis

Of the sixteen PWAs evaluated for capability, six were not carried forward into the availability and need assessments because they had a low capability rating (below 60%). The remaining ten PWAs were considered potentially available for wilderness designation. The availability analysis compares the resource tradeoffs and consequences of wilderness designation based on the qualitative and quantitative information about current and potential uses, outputs, trends for the various resources.

Availability of PWAs was evaluated on nine criteria: recreation, including tourism; information on wildlife species, populations, and management needs; water availability and use; livestock operations; timber; minerals; cultural resources; authorized and potential land uses; and management considerations, including fire, insects and disease, and presence of non-federal lands. Surface water is exceedingly uncommon on the Kaibab NF, and it was determined that available water within the PWAs only occurred as seeps and springs or developed livestock waters. The presence of seeps and springs is addressed in the capability analysis (described above), and the presence and use of livestock waters is included in the livestock operations question described below.

The availability rating of the ten remaining PWAs was determined by asking a question related to each of the resource categories and scoring based on the resulting availability. As with capability, the PWAs were assigned a high, medium, or low rating on each criterion. A high rating was worth 3 points, a medium rating was worth 2 points low ratings received zero points since the objective was to promote areas with outstanding wilderness qualities. More detail about the availability rating for each PWA is provided in the area-specific summaries in this report.

Table 3 describes the rating criteria for availability. Table 4 summarizes the availability ratings and associated scores for each of the ten PWAs under consideration.

**Table 3. Potential wilderness area availability rating criteria**

Resource Area	Availability Question	Rating <sup>1</sup>
<b>Vegetation (Timber)/ Fire Management</b>	What have been or will be the impacts of existing/planned/needed management activities on the “wilderness character” of the PWA (includes timber harvest activities, invasive/noxious species eradication, and fire)?	<b>High</b> – Minimal or no existing/planned/needed activities
		<b>Medium</b> – Some existing/planned/needed activities
		<b>Low</b> – Many existing/planned/needed activities
<b>Recreation and Tourism</b>	What types of recreation or tourism occur in the PWA, and do they involve motorized or mechanized vehicle use (e.g. mountain bikes or ATVs)?	<b>High</b> – Primitive non-motorized/mechanized recreation/tourism only
		<b>Medium</b> – Semi-primitive non-mechanized/motorized vehicle use
		<b>Low</b> – User-created (social) mechanized/motorized vehicle trail use
<b>Wildlife and Plants</b>	Would wilderness designation result in increased protection and viability for federally listed or sensitive species within the PWA?	<b>High</b> – Federally listed or sensitive species are present and wilderness designation would improve protection and viability of these species
		<b>Medium</b> – Only one federally listed and/or sensitive species are present and wilderness designation would improve protection of these species
		<b>Low</b> – No federally listed or sensitive species are present and/or wilderness designation would not improve protection or viability
<b>Livestock Operations</b>	Are there active allotments and associated improvements (including	<b>High</b> – No active allotments and/or improvements do not require maintenance with mechanized equipment

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Resource Area	Availability Question	Rating <sup>1</sup>
	water developments) within the PWA that are subject to periodic maintenance requiring the use of mechanized equipment?	<p><b>Medium</b> – Active allotment(s) are present but existing improvements do not require maintenance with mechanized equipment</p> <p><b>Low</b> – Active allotments are present and improvements do require maintenance with mechanized equipment</p>
<b>Lands and Minerals</b>	Are there patented lands, mining claims, surface occupancy leases, or abandoned mines/quarries with the PWA?	<p><b>High</b> – None of the above exist</p> <p><b>Medium</b> – No patented lands, mining claims, or surface occupancy leases exist but some abandoned mines/quarries present</p> <p><b>Low</b> – Any of the above (except abandoned mines/quarries) are present</p>
<b>Heritage and Cultural Resources</b>	Are there prehistoric, historic, or ceremonial sites with the PWA and are they ever accessed using mechanized vehicles?	<p><b>High</b> – High density of sites that do not require mechanized vehicle access are present and wilderness designation would increase protection of sites</p> <p><b>Medium</b> – Low to moderate density of sites that do not require mechanized vehicle access are present and wilderness designation would increase protection of sites</p> <p><b>Low</b> – No to low density of sites are present or sites require mechanized vehicle access or wilderness designation would not increase protection of sites</p>

<sup>1</sup> High = 3 points, Medium = 2 points, Low = 0 points

**Table 4. Summary of the Kaibab National Forest potential wilderness area availability ratings**

Area Name, Size, PWA Number <sup>1</sup>	Availability Rating Criteria <sup>2</sup>						Overall Availability <sup>3</sup>
	Timber, Vegetation, & Fire Mgmt	Recreation	Wildlife & Plants	Livestock Operations	Lands & Minerals	Heritage & Cultural Resources	
<b>Kanab Creek Additions:</b> 4,710 ac PWA 03-07-034	High (3)	High (3)	High (3)	High (3)	High (3)	High (3)	<b>High (18)</b>
<b>Saddle Mountain Addition:</b> 1,296 ac PWA 03-07-043	High (3)	Medium (2)	Medium (2)	High (3)	High (3)	High (3)	<b>High (16)</b>
<b>Grassy and Quaking Aspen Canyons:</b> 232 ac, PWA 03-07-099	High (3)	Medium (2)	High (3)	High (3)	High (3)	Medium (2)	<b>High (16)</b>
<b>Jacks Canyon:</b> 156 ac PWA 03-07-999	Medium (2)	Medium (2)	High (3)	High (3)	High (3)	Medium (2)	<b>Medium (15)</b>
<b>Sycamore Canyon Addition:</b> 988 ac PWA 03-07-057	High (3)	Medium (2)	High (3)	High (3)	High (3)	Medium (2)	<b>High (16)</b>
<b>Coconino Rim:</b> 7,750 ac PWA 03-07-079	Medium (2)	Medium (2)	Medium (2)	Medium (2)	Medium (2)	High (3)	<b>Medium (13)</b>
<b>Seegmiller:</b> 6,168 ac PWA 03-07-035	Medium (2)	Medium (2)	Medium (2)	Medium (2)	High (3)	Medium (2)	<b>Medium (13)</b>
<b>Burro Canyon:</b> 10,735 ac PWA 03-07-003	Medium (2)	Medium (2)	Medium (2)	Low (0)	High (3)	Medium (2)	<b>Medium (11)</b>
<b>South Canyon Point:</b> 5,829 ac PWA 03-07-045	Medium (2)	Low (0)	Medium (2)	Medium (2)	High (3)	Medium (2)	<b>Medium (11)</b>
<b>Willis Canyon:</b> 6,418 ac PWA 03-07-002	Low (0)	Medium (2)	Low (0)	Low (0)	High (3)	Medium (2)	<b>Low (7)</b>

<sup>1</sup> The Kanab Creek, Saddle Mountain, Sycamore Canyon, Jacks Canyon, and Grassy/Quaking Aspen Canyons additions are included based on the "contiguous to existing wilderness" criterion. The remaining five PWAs are included based on the ≥5,000 acres criterion.

<sup>2</sup> Each criterion rating was assigned a numerical score: High = 3 points, Medium = 2 points, Low = 0 points.

<sup>3</sup> Overall availability rating: 16-18 = High (≥87); 11-15 = Medium (60-86%); <11 = Low (<60%).

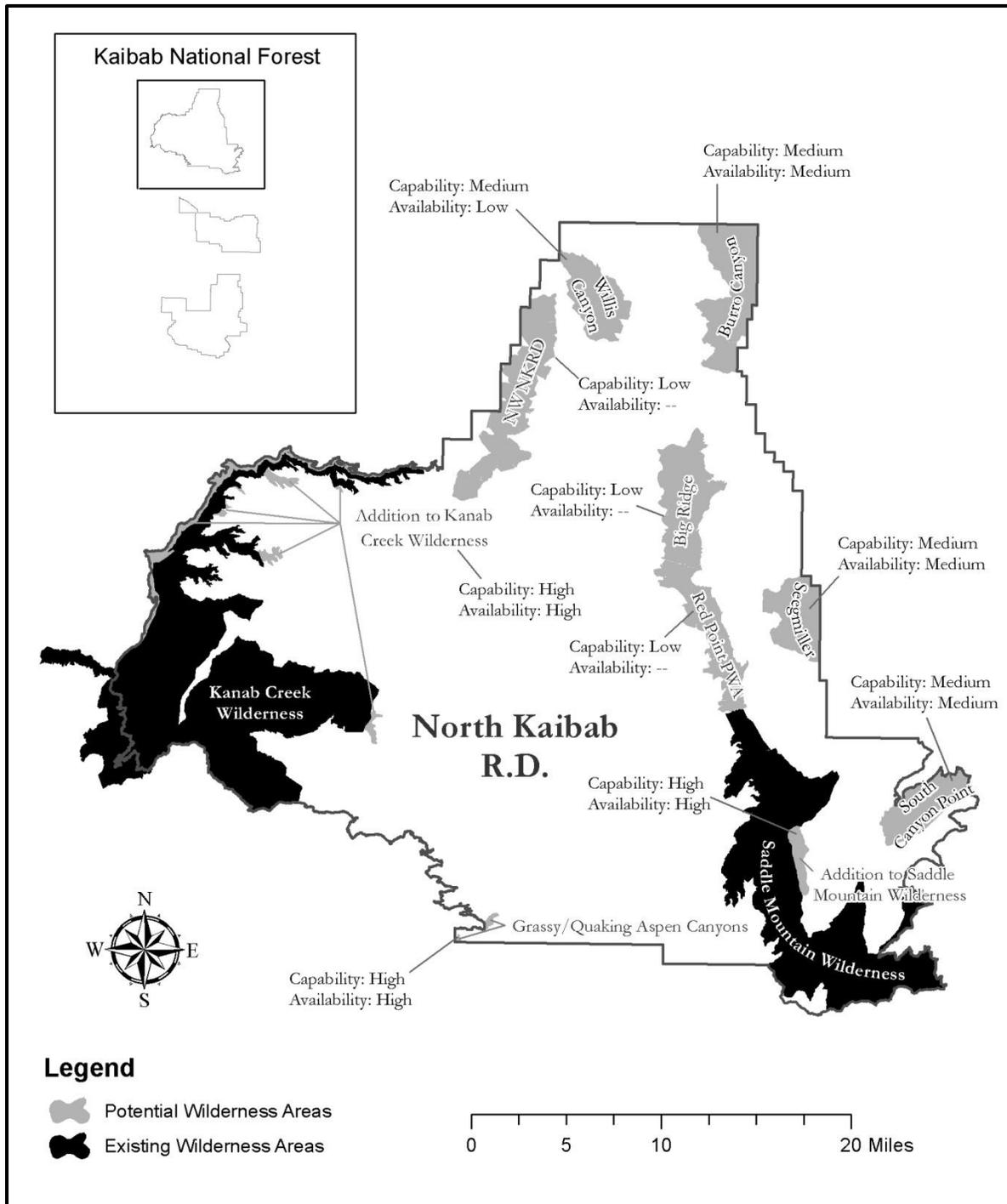


Figure 1. North Kaibab Ranger District existing and potential wilderness areas with capability and availability

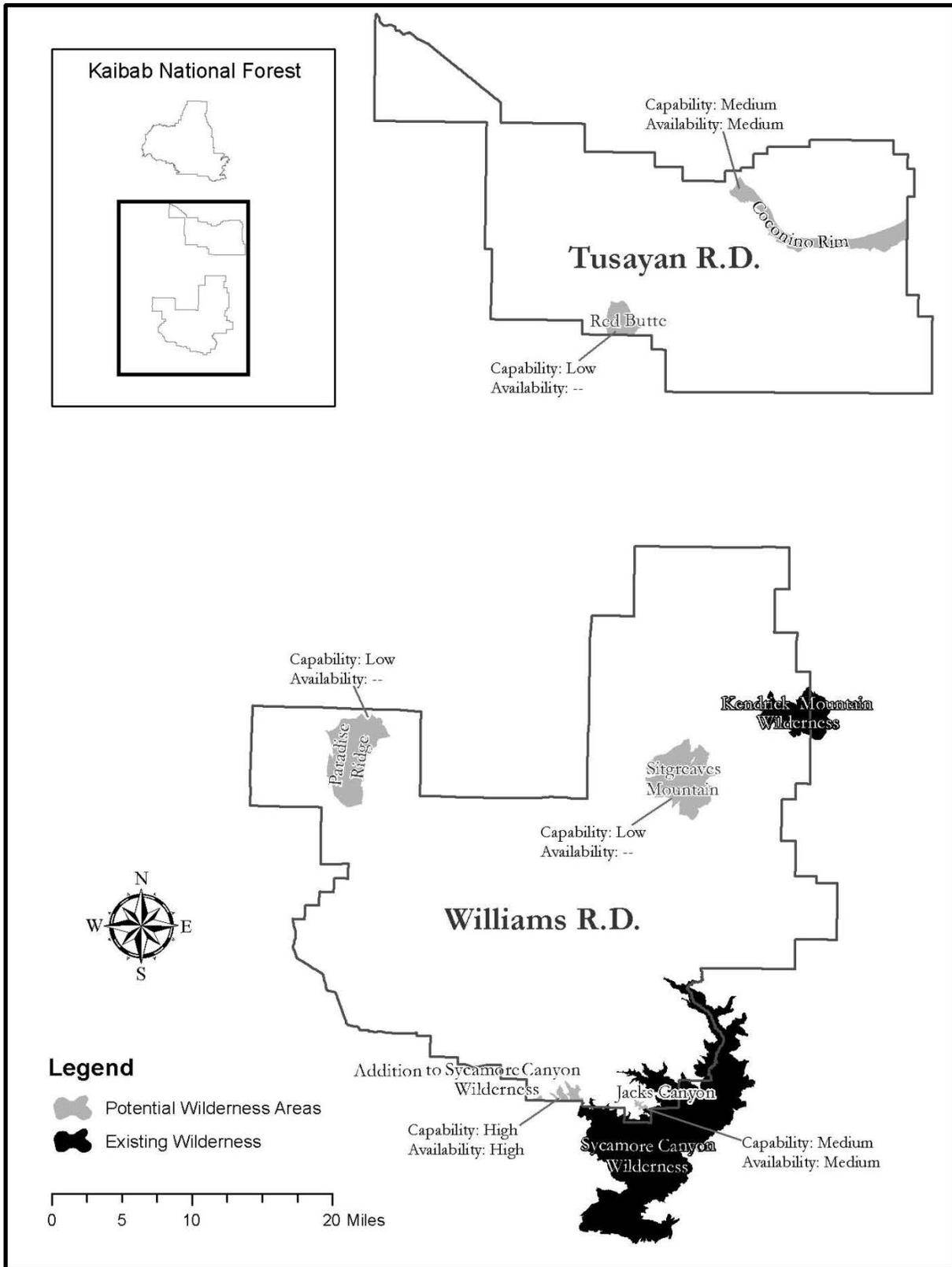


Figure 2. Tusayan and Williams ranger districts existing and potential wilderness areas with capability and availability

The following describes the areas that resulted from the initial PWA inventory and summarizes the capability and availability ratings for these areas. The need analysis is discussed after this section.

## **Burro Canyon – PWA 03-07-003**

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### **Description**

#### **Acres, Location, Landforms**

The 10,735-acre Burro Canyon PWA is located in the northeast corner of the North Kaibab Ranger District (NKRDR). It is approximately 100 miles north of Flagstaff, AZ, and 35 miles southeast of Kanab, UT. A portion of the area is located on the northeastern slope of the Kaibab Plateau; the area contains no other unique or distinct geologic features or landforms.



#### **Vegetation**

The dominant vegetation types are semi-desert grassland interspersed with sagebrush on the eastern flats and pinyon-juniper woodland on the slopes of the Kaibab Plateau.

#### **Surroundings and Land Ownership**

This PWA lies entirely within the Burro Canyon Inventoried Roadless Area (IRA) on the North Kaibab Ranger District. The Bureau of Land Management-Arizona Strip District borders the area to the north and east. The western portion of the PWA overlaps with the Grand Canyon Game Preserve, and the eastern portion overlaps the Pediocactus Conservation Area.

#### **Access and Boundaries**

Access is gained from the east via BLM Road 1065 and from the west via various National Forest System roads. The northern and eastern boundaries of the PWA generally align with the forest boundary; the southern boundary follows the FS 9024Z road; and the western boundary generally follows the FS 249B road in the north and topographic contours in the south.

#### **Current Use**

Current uses of Burro Canyon include livestock grazing, hunting, and limited dispersed camping. These activities are consistent with the area's designation as an IRA.

#### **Key Attractions**

There are outstanding views of House Rock Valley and the Vermillion Cliffs from the eastern portion of the PWA. This area is of cultural significance both for prehistoric use and historic use.

## Capability

### **Natural Rating: MEDIUM**

Cheatgrass occurs on approximately two percent (500 acres) of the PWA, along the eastern edge. There are no known springs and seeps. The night sky is clear with little to no interference from light pollution. The area does not contain a high diversity of ecological conditions, but it does contain habitat for *Pediocactus paradinei*, which is managed under a conservation agreement with the U.S. Fish and Wildlife Service. It has a medium mix of natural resources.

### **Undeveloped Rating: HIGH**

The area contains minor range improvements and a hiking trail but is otherwise relatively free of human disturbance.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: HIGH**

Much of the area provides opportunities for challenging recreation such as backpacking and hunting, but no water is available. The area would provide a sense of being alone in a remote setting. The majority of the area is classified as semi-primitive non-motorized.

### **Special Features Rating: MEDIUM**

There are views of the Vermillion Cliffs from portions along the eastern edge. There are no other distinct geological features or landforms. The area contains cultural resources. *Pediocactus* occurs in the area.

### **Manageability Rating: MEDIUM**

The majority of the boundary follows features (roads and the forest boundary) that could be readily located on the ground.

### **OVERALL CAPABILITY RATING: MEDIUM**

Overall capability rating:  $12/15=80\%$  (medium)

## Availability

### **Timber, Vegetation, and Fire Management Rating: MEDIUM**

There is a potential for activities such as invasive species treatments to occur within this PWA in the future.

### **Recreation Rating: MEDIUM**

There are some opportunities to engage in challenging primitive recreation. The area is classified as semi-primitive non-motorized.

### **Wildlife and Plants Rating: MEDIUM**

The dominant vegetation types are semi-desert grassland/sagebrush on the eastern flats and pinyon-juniper woodland on the Kaibab Plateau. Non-native species are not common but cheatgrass is present, and there is concern that Russian thistle is invading the area from the east.

The area has been identified as habitat for the Pediocactus (Fickeisen Plains Cactus) – a candidate species under the Endangered Species Act. This area is within the Pediocactus Conservation Area but currently contains no known populations.

**Livestock Operations Rating: LOW**

There is an active livestock allotment within the area. A fence bisects the western portion. Typically fence maintenance can be managed via horseback; however, some activities such as fence reconstruction could require the use of mechanized or motorized equipment.

**Lands and Minerals Rating: HIGH**

There are no known patented lands, mining claims, surface occupancy leases, abandoned mines or quarries within the PWA.

**Heritage and Cultural Resources Rating: MEDIUM**

This area is of cultural significance both for prehistoric use and historic use. Based on the inventoried areas, it is predicted to contain a moderate to high density of heritage resources sites.

**OVERALL AVAILABILITY RATING: MEDIUM**

The Burro Canyon PWA has very few roads, mostly due to the fact that the slopes in the area preclude road building. It is remote and isolated primarily due to its location and topography (i.e., the monocline separating the Kaibab Plateau from House Rock Valley). The area would likely continue to provide solitude and remoteness for decades to come, regardless of wilderness designation.

Wilderness designation of the area could create management difficulties for grazing permittees and Forest Service range staff, particularly for maintenance and improvement of range developments. Should an invasion of cheatgrass and Russian thistle occur, management options to contain/eradicate these invasive species would be constrained.

Overall availability rating is 11/18=61% (medium).

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**Coconino Rim – PWA 03-07-079**

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**Description**

**Acres, Location, Landforms**

The 7,750-acre Coconino Rim PWA is a narrow strip of inventoried roadless area in the northeast corner of the Tusayan Ranger District. It ranges from less than a half mile to a little over a mile in width. It is located approximately 70 miles northeast of Williams, AZ, and 15 miles east-southeast of Grand Canyon Village on the South Rim of the Grand Canyon. The area contains limestone outcrops in some drainages.



## **Vegetation**

The narrow canyons contain vegetation that provides diversity to the ponderosa pine on top and the sage and pinyon-juniper at lower elevations.

## **Surroundings and Land Ownership**

The southeast part of Coconino Rim is called Gray Mountain. As the incline turns west and enters national forest system lands, it is called the Coconino Rim. The entirety of the PWA is contained within the Tusayan Ranger District of the Kaibab NF. The northwestern-most corner of the PWA overlaps with the Grand Canyon Game Preserve.

## **Access and Boundaries**

The Arizona Trail runs along the southwestern boundary and is managed as a non-motorized trail; however, bicycles are permitted. The PWA can be accessed by various National Forest System roads above and below the rim. The eastern boundary of the PWA aligns with the forest boundary, and the northern, southern, and western boundaries generally coincide with steep slopes above and below the rim.

## **Current Uses**

A number of user-created "2-track" trails and campsites exist within the area. Livestock grazing and personal fuelwood collection occurs within the PWA. The Arizona Trail runs along the southwest boundary and is managed as a non-motorized trail; however, bicycles are permitted.

## **Key Attractions**

There are views into the Little Colorado River, Painted Desert & parts of Grand Canyon from the rim. This area is of cultural significance for both prehistoric and historic use. The area includes well-preserved cliff dwellings, large walled pueblos ("Forts") and rock art (pictograph) sites.

## **Capability**

### **Natural Rating: MEDIUM**

Non-native species are not evident and the area provides for a mix of habitats and ecological conditions. Variations in topography, elevation, and aspect yield a diversity of vegetation. There are no known seeps or springs in the PWA.

### **Undeveloped Rating: MEDIUM**

The area contains several short two-track roads that are proposed to be closed. A number of user-created two-track roads, trails, and campsites exist.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: MEDIUM**

The Coconino Rim provides topographical relief in a generally flat area. The entire area is classified as semi-primitive non-motorized, but given the narrowness of this area recreation may not feel "unconfined."

**Special Features Rating: MEDIUM**

The Coconino Rim provides views into the Little Colorado, Marble Canyon, and parts of the Grand Canyon from the top. State Highway 64 is also visible from the east end. The area contains low-elevation aspen and Douglas-fir.

**Manageability Rating: MEDIUM**

The Arizona Trail runs along the southwest boundary and is managed as a non-motorized trail; however, bicycles are permitted. Planned road closures will need enforcement.

**OVERALL CAPABILITY RATING: MEDIUM**

The overall capability rating for the Coconino Rim is  $10/15 = 67\%$ .

**Availability**

**Timber, Vegetation, and Fire Management Rating: MEDIUM**

The possibility of future vegetation management activities such as invasive species treatments exists.

**Recreation Rating: MEDIUM**

The area is generally characterized by semi-primitive non-motorized recreation, but some motorized use occurs, as evidenced by the presence of user-created two-track roads.

**Wildlife and Plants Rating: MEDIUM**

There is a possibility that federally listed or sensitive species exist, including the California condor and Allen's Lappet browed bat.

**Livestock Operations Rating: MEDIUM**

An active allotment is present within the PWA but there are no improvements that would require maintenance with mechanized equipment.

**Lands and Minerals Rating: MEDIUM**

The area contains some abandoned and closed mines.

**Heritage and Cultural Resources Rating: HIGH**

A high density of sites exists, but none would require mechanized vehicles access for maintenance. Designation could increase protection of sites.

**OVERALL AVAILABILITY RATING: MEDIUM**

The total score for Coconino Rim is  $13/18 = 72\%$ .

## Kanab Creek Additions – PWA 03-07-034

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### Description

#### Acres, Location, Landforms

This PWA is comprised of eight small areas totaling 4,710 acres. It is adjacent to the existing 68,000-acre Kanab Creek wilderness. It straddles the Mohave/Coconino County line, approximately 30 miles south of Fredonia, Arizona. It is rich in colorful rock formations, water- and wind-carved features, and deeply incised canyons. The addition of this PWA would bring the boundary of the Kanab Creek wilderness to the canyon rim.



#### Vegetation

On the upper portion of the canyon rims, the land is arid and vegetation is sparse, consisting mostly of desert shrub and sagebrush. Some riparian vegetation is present in the canyon bottoms.

#### Surroundings and Land Ownership

The entire PWA is located within the North Kaibab Ranger District of the Kaibab NF and is adjacent to the existing Kanab Creek wilderness area. The west and north sides of the PWA are adjacent to BLM lands. Portions of the PWA are contained within the Grand Canyon Game Preserve and Kaibab Squirrel National Natural Landmark (NNL).

#### Access and Boundaries

Access to the western portion of the wilderness is Arizona State Road 389, the Mt. Trumbull road (Mohave County Road 109), and the Hacks Canyon (BLM 1023) road (four-wheel-drive vehicles only). The eastern portion can be reached by U.S. Highway 89-A and Forest Service roads 22, 423, 201, and 233. Multiple trails access the area. This PWA consists of eight noncontiguous areas. The largest of these is located north and west of the existing wilderness area, and extends the wilderness boundary to the canyon rim and forest boundary. The remaining areas represent logical extensions of the wilderness boundary to include portions of side canyons.

#### Current Uses

The area provides recreation opportunities include backpacking, camping, watching wildlife, horseback riding, sightseeing and photography.

#### Key Attractions

Numerous springs and the variety of plants they support provide an interesting contrast to the generally arid terrain in the designated portion of Kanab Creek Wilderness. The canyon cliffs are home to bands of desert bighorn sheep as well as the peregrine falcon. The Kanab Creek additions contain many cultural sites.

## Capability

### **Natural Rating: MEDIUM**

Non-native species are found in isolated areas. There are no known springs or seeps within the boundaries of the PWA. The night sky is clear with little to no interference from light pollution. The area contains critical or unique habitats and diverse ecological conditions, and possesses a high diversity of natural resources. The canyon cliffs are home to desert bighorn sheep as well as the peregrine falcon.

### **Undeveloped Rating: HIGH**

The area is generally free of human disturbance.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: MEDIUM**

Some parts of the area have the potential for challenging recreation opportunities, and the area provides excellent opportunities for experiencing solitude and isolation. Most of the area is characterized as semi-primitive non-motorized.

### **Special Features Rating: HIGH**

The Kanab Creek additions contain panoramic views, high steep cliffs, and many cultural sites.

### **Manageability Rating: HIGH**

The isolated nature of this area facilitates its management for wilderness character. These additions would improve the manageability of the existing wilderness boundary by extending the wilderness boundary to the canyon rim.

### **OVERALL CAPABILITY RATING: HIGH**

Overall capability rating: 13/15=87% (high)

## Availability

### **Timber, Vegetation, and Fire Management Rating: HIGH**

Management activities are unlikely to occur in this area due to its steep, remote nature.

### **Recreation Rating: HIGH**

The area experiences primitive non-motorized recreation use only.

### **Wildlife and Plants Rating: HIGH**

California condors are known to forage in the area and wilderness designation would improve protection and viability of these species. Additionally, the canyon cliffs are home to bands of desert bighorn sheep as well as peregrine falcons, and some portions of the canyon are habitat for Fickeisen plains cactus (*Pediocactus peeblesianus* var. *fickeiseniae*).

**Livestock Operations Rating: HIGH**

The largest portion of this PWA has been identified as unsuitable for grazing. The smaller portions of the PWA fall within an active allotment, but their steepness discourages livestock use.

**Lands and Minerals Rating: HIGH**

There are no known patented lands, mining claims, or surface occupancy leases in this PWA.

**Heritage and Cultural Resources Rating: HIGH**

There is a high density of sites in the area, but none that have anticipated needs for mechanized or motorized equipment. Wilderness designation would increase protection of these sites.

**OVERALL AVAILABILITY RATING: HIGH**

The overall score for the Kanab Creek Addition is 18/18=100% (high).

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**Saddle Mountain Addition – PWA 03-07-043**

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**Description**

**Acres, Location, Landforms**

This 1,296 acre PWA is adjacent to the existing 41,000-acre Saddle Mountain Wilderness. It is located along the southeastern edge of the Kaibab Plateau in the southeastern portion of the North Kaibab Ranger District. This area contains a unique landform known as the “Cocks Comb.”



**Vegetation**

The vegetation in this PWA is primarily pinyon-juniper transitioning to sagebrush.

**Surroundings and Land Ownership**

This PWA lies entirely within the North Kaibab Ranger District. The existing Saddle Mountain Wilderness forms the western boundary. The entirety of the PWA overlaps the Houserock Valley buffalo ranch and the Grand Canyon Game Preserve.

**Access and Boundaries**

This area can be accessed from the east side by BLM Road 8910 past the Kane Ranch property then to FS Road 631 or FS Road 445A. The existing Saddle Mountain wilderness comprises the western and northern boundary of the PWA, and the eastern boundary parallels Forest Service Route 631.

### **Current Uses**

The area is currently used for hiking and other backcountry recreation.

### **Key Attractions**

This PWA provides views into Marble Canyon and House Rock Valley. The Cocks Comb area contains cliff dwelling structures, rock art, and various archaic and pueblo habitation sites.

## **Capability**

### **Natural Rating: MEDIUM**

There is minimal light pollution in the night sky. The isolation and topographic variation are likely to contribute to diverse flora and fauna within the area. This area is currently under an agreement to provide detailed floristic data, however it is not yet available. There are no known springs or seeps, and non-native species may be evident in isolated areas.

### **Undeveloped Rating: HIGH**

There is an old road on the west side of the "Cocks Comb" that has been scheduled for removal under Travel Management. Otherwise, the area generally appears to be free of human disturbance.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: HIGH**

The area is remote and provides opportunities for primitive and/or semi-primitive recreation.

### **Special Features Rating: HIGH**

This area provides extraordinary views into Marble Canyon and House Rock Valley. The Cocks Comb area contains cliff dwelling structures, rock art, and various archaic and pueblo habitation sites.

### **Manageability Rating: HIGH**

The area is isolated from outside activities and the boundary is easily identifiable and defensible.

### **OVERALL CAPABILITY RATING: HIGH**

Wilderness designation would bring a unique and interesting landform and one of the more scenic enhancements to the existing wilderness system. Overall capability rating: 14/15=93% (high)

## **Availability**

### **Timber, Vegetation, and Fire Management Rating: HIGH**

Management activities are unlikely to occur in this area due to its remote nature.

### **Recreation Rating: MEDIUM**

Although the area is classified as semi-primitive motorized, its remote location provides for semi-primitive non-motorized use.

**Wildlife and Plants Rating: MEDIUM**

Federally listed or sensitive species may be present in this area. Small areas of suitable habitat have been identified for *Astragalus ampillarius* (gumbo milkvetch) and the chisel-toothed kangaroo rat. California condors and northern goshawks have been seen foraging in the area.

**Livestock Operations Rating: HIGH**

There are no active allotments within this PWA and no improvements that would require the use of motorized/mechanized equipment.

**Lands and Minerals Rating: HIGH**

There are no known patented lands, mining claims, surface occupancy leases, or abandoned mines or quarries within this PWA.

**Heritage and Cultural Resources Rating: HIGH**

A high density of cultural sites is present in this PWA and wilderness designation would increase protection of these sites.

**OVERALL AVAILABILITY RATING: HIGH**

The overall score for this area was 16/18 = 89%.

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**Seegmiller – PWA 03-07-035**

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**Description**

**Acres, Location, Landforms**

The 6,168-acre Seegmiller PWA lies along the east-central boundary of the NKRD on the eastern slopes of the Kaibab Plateau. It is approximately 30 miles west of Marble Canyon and the turnoff to Lees Ferry.



**Vegetation**

The dominant vegetation type is semi-desert grassland/sagebrush with scattered juniper.

**Surroundings and Land Ownership**

This PWA lies entirely within the North Kaibab Ranger District. It is bordered by BLM lands to the east. The western portion of the PWA falls within the Pediocactus Conservation Area and Grand Canyon Game Preserve.

**Access and Boundaries**

The PWA can be accessed from the west by FS Road 284 and from the southeast by BLM Road 8910 at the Kane Ranch property. The southern boundary of this PWA is the Kane Springs water

pipeline, which provides water to the Kane Ranch property. Grand Canyon National Park forms the eastern boundary, and the western boundary is formed by FS roads 284, 285, and 445B.

### **Current Uses**

Current uses include livestock grazing, hunting and limited dispersed camping.

### **Key Attractions**

The canyons in the area contain a variety of cultural resource sites including habitation sites, rock art, prehistoric storage structures, and historic water developments.

## **Capability**

### **Natural Rating: MEDIUM**

Some non-native species, including cheatgrass, Russian thistle, and spotted knapweed, occur in the area. These species are not yet prevalent but have the potential to spread. The Fickeisen plains cactus is known to occur. Three seeps are known, one of which has been developed, but their reliability is unknown. A mixed amount of natural resources are present, with the majority of landscape characterized by semi-desert grassland/sagebrush with scattered juniper and sage grading into rock.

### **Undeveloped Rating: MEDIUM**

There are some earthen tanks on the eastern edge of the area; one spring improvement is present.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: MEDIUM**

Much of this area is steep and narrow, providing some opportunities for challenging recreation, particularly backpacking and hunting.

### **Special Features Rating: MEDIUM**

This area contains scenic vistas and canyon formations. Fickeisen Plains Cactus is known to occur along the eastern edge.

### **Manageability Rating: MEDIUM**

About half of the proposed boundary is readily identifiable and defensible. The Kane Springs pipeline, which provides water to the Kane Ranch property, helps to identify the southern boundary of this PWA.

### **OVERALL CAPABILITY RATING: MEDIUM**

Overall capability rating: 10/15=67% (medium)

## Availability

### **Timber, Vegetation, and Fire Management Rating: MEDIUM**

Arizona Game and Fish has proposed wildlife habitat improvement projects in the area that would involve mechanical manipulation of vegetation.

### **Recreation Rating: MEDIUM**

This area would provide some opportunities for primitive or semi-primitive non-motorized recreation. However, the area is classified as semi-primitive motorized.

### **Wildlife and Plants Rating: MEDIUM**

The dominant vegetation type in the area is semi-desert grassland/sagebrush with scattered juniper. Some non-native species, including cheatgrass, Russian thistle, and spotted knapweed, have begun to invade the area. The Fickeisen Plains Cactus is also present, but designation as wilderness would not necessarily improve protection and/or viability for the species.

### **Livestock Operations Rating: MEDIUM**

There is an active allotment within the PWA, but there are no improvements that require maintenance with mechanized equipment.

### **Lands and Minerals Rating: HIGH**

No known patented lands, mining claims, surface occupancy leases, or abandoned mines or quarries are present within the PWA.

### **Heritage and Cultural Resources Rating: MEDIUM**

The canyons in the area contain some cultural resource sites including habitation sites, rock art, prehistoric storage structures, and historic water developments.

### **OVERALL AVAILABILITY RATING: MEDIUM**

The total score for Seegmiller is  $13/18 = 72\%$

## **South Canyon Point – PWA 03-07-045**

### **Description**

#### **Acres, Location, Landforms**

The 5,829-acre South Canyon Point PWA is located in the southeastern portion of the NKRD. It is about 40 miles southeast of Jacob Lake and approximately 20 miles south of highway 89A on FS 8910. This PWA contains almost no topographic variation.



### **Vegetation**

The dominant vegetation types in this PWA are semi-desert grassland and sagebrush shrublands.

### **Surroundings and Land Ownership**

This PWA is contained within the Kaibab NF and bordered by Grand Canyon National Park on the north and east. The PWA is also contained within the Grand Canyon Game Preserve and House Rock Buffalo Ranch management area.

### **Access and Boundaries**

Access is gained from the west by BLM Road 8910 past the Kane Ranch property then to FS Road 632 or FS Roads 445C, D, E, F, H. The northern and eastern boundaries are generally formed by the rims of South Canyon and Marble Canyon, the western boundary by a branch of the South Canyon drainage, and the southern boundary by Forest Service Routes 445E and 445F.

### **Current Uses**

The area is used for sightseeing and hunting. Additionally, the House Rock Buffalo Ranch is occupied by a free-roaming herd of bison.

### **Key Attractions**

There are views into Grand Canyon National Park from the eastern boundary.

## **Capability**

### **Natural Rating: MEDIUM**

The dominant vegetation type is semi-desert grassland/sagebrush. Non-native species including cheatgrass and the Sahara mustard (*Brassica tournefortii*) are present but not prevalent. No known springs and seeps are present. Overall resource diversity is low, but the Fickeisen plains cactus is present on the edge of the canyon. There is no light pollution in the night sky.

### **Undeveloped Rating: MEDIUM**

The House Rock Buffalo Ranch House sits in the northwest corner outside of the area. The area contains some wildlife water developments as well as user crated "2-tracks" and a turnaround area.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: MEDIUM**

The area would provide opportunities for solitude and a feeling of being away from civilization. There is some opportunity for engaging in challenging recreation near the northern rim. The area is classified as semi-primitive motorized.

### **Special Features Rating: MEDIUM**

Fickeisen plains cactus is present in the area and the cliffs may provide locations for condor perching. The area offers panoramic views of Marble Canyon and the Vermillion Cliffs from the northern and eastern edges.

**Manageability Rating: MEDIUM**

Arizona Game and Fish manages the Buffalo Ranch under a memorandum of understanding (MOU) with the Forest Service. While the majority of the boundary could be identified, the flat, unobstructed nature of the area could allow easy access to motorized vehicles.

**OVERALL CAPABILITY RATING: MEDIUM**

Overall capability rating: 10/15=67% (medium)

**Availability**

**Timber, Vegetation, and Fire Management Rating: MEDIUM**

Future activities such as invasive species treatments could impact the "wilderness character" of this area.

**Recreation Rating: LOW**

The area has received some motorized recreation in the past. User-created two-tracks are noticeable. The area is classified as semi-primitive motorized.

**Wildlife and Plants Rating: MEDIUM**

The Fickeisen plains cactus (a candidate species under the ESA) occurs on the northern edge with additional suitable habitat on the eastern edge along the canyon rim. Wilderness designation of the entire PWA would not necessarily improve protection for the cactus.

**Livestock Operations Rating: MEDIUM**

There are no active livestock allotments within the PWA. However, there is a long history of bison use managed by the AZ Game and Fish Department.

**Lands and Minerals Rating: HIGH**

The PWA contains no known patented lands, mining claims, surface occupancy leases, or abandoned mines or quarries.

**Heritage and Cultural Resources Rating: MEDIUM**

A low to moderate density of sites is expected in this area.

**OVERALL AVAILABILITY RATING: MEDIUM**

The overall score is 11/18 = 61%

## Sycamore Canyon Addition – PWA 03-07-057

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### Description

#### Acres, Location, Landforms

The 988-acre Sycamore Canyon PWA is adjacent to a PWA on the Prescott NF named "Sycamore Canyon C" (PWA-03-09-027) that borders the Sycamore Canyon Wilderness. This PWA is too small to meet the inventory criteria without the recommendation of the adjacent PWA on the Prescott NF, which is approximately 4,475 acres. Recommendation of these PWAs would potentially add over 5,000 acres to the existing 58,000-acre Sycamore Canyon Wilderness. It is located about 40 miles southwest of Flagstaff and about 20 miles south of Williams, AZ. It is marked by colorful cliffs that rise above Sycamore Creek, a rare desert riparian habitat. Government Canyon makes up the largest portion of the PWA.



#### Vegetation

Pinyon-juniper is the dominant vegetation.

#### Surroundings and Land Ownership

The PWA lies entirely within the Kaibab NF, and is bordered by the Prescott NF to the south.

#### Access and Boundaries

The area can be accessed on the east by following Road 73 south out of Williams to Forest Road 354 then following 354 south to the FS 125 road. This road dead-ends at Lonesome Pocket (Yew Thicket Trail), at the boundary of the PWA. The area can be accessed on the west side by continuing on FS354 past FS125 to the Prescott NF boundary. The PWA is located approximately ¼ mile to the east of this location. This PWA consists of three non-contiguous areas. The northern, eastern, and western boundaries of these areas align with the canyon rim, and the southern boundary coincides with the boundary with the Prescott NF.

#### Current Uses

Visitors to this area engage in hiking, hunting, and other backcountry recreation.

#### Key Attractions

Primitive and semi-primitive recreation are the main attractions in this area. Government Canyon is a major drainage into Sycamore Canyon.

## Capability

### **Natural Rating: MEDIUM**

This PWA contains some unique plants and habitats. Non-native species may be present in isolated spots but there are no documented concerns. No known springs or seeps are present in the area. The night sky is clear and unaltered by light pollution.

### **Undeveloped Rating: HIGH**

The area appears natural and free from human influence.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: HIGH**

The rugged nature of this PWA provides for challenging/primitive recreation opportunities. The opportunity for a feeling of solitude is high.

### **Special Features Rating: MEDIUM**

This section of the Sycamore Canyon PWA is marked by rugged cliffs and contains some very large old junipers. There are opportunities for scientific research and environmental education.

### **Manageability Rating: HIGH**

The boundary would be easily managed due to its boundary at the canyon rim and adjacent existing wilderness. There is a potential for resource conflicts as motorized trails access the area from the Prescott NF. However, this has not been observed on the Kaibab portion of the PWA.

### **OVERALL CAPABILITY RATING: HIGH**

The ratings for this area were partially based on its proximity to the Prescott NF PWA "Sycamore C" (PWA-03-09-027). Overall capability rating: 13/15=87% (high)

## Availability

### **Timber, Vegetation, and Fire Management Rating: HIGH**

Although a substantial amount of pinyon-juniper fuelwood is present in the Prescott NF's portion of this PWA, the steep slopes on the Kaibab NF portion would make the area inaccessible to fuelwood gatherers. Other management activities are unlikely to occur in this area due to its steep nature.

### **Recreation Rating: MEDIUM**

Although this area is classified as semi-primitive motorized, the steepness and ruggedness of the canyons would preclude motorized vehicle use.

### **Wildlife and Plants Rating: HIGH**

Wilderness designation would provide additional protection for any sensitive species residing within the PWA.

**Livestock Operations Rating: HIGH**

Although this PWA falls within an active grazing allotment, the steepness of the canyons discourages livestock use. The area contains no improvements requiring the use of mechanized equipment.

**Lands and Minerals Rating: HIGH**

No patented lands, active mining claims, or surface occupancy leases are known to exist within the PWA.

**Heritage and Cultural Resources Rating: MEDIUM**

Given the steep and rugged character of the canyon in this area, a low to moderate density of sites would be expected.

**OVERALL AVAILABILITY RATING: HIGH**

Overall Availability rating: 16/18=89%.

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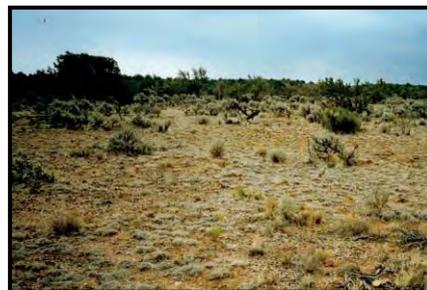
**Willis Canyon – PWA 03-07-002**

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**Description**

**Acres, Location, Landforms**

The 6,418 acre Willis Canyon PWA lies north and west of Highway 89A midway between Fredonia, AZ, and Jacob Lake. This PWA lies within the Willis Canyon Inventoried Roadless Area. Willis Canyon and other nearby drainages represent the major topographical features in the area.



**Vegetation**

The major vegetation types are Ponderosa pine transitioning to pinyon-juniper and sagebrush.

**Surroundings and Land Ownership**

This PWA lies entirely within the Kaibab NF. The northwest portion borders BLM lands. The entirety of the PWA lies within the Grand Canyon Game Preserve.

**Access and Boundaries**

The majority of the boundary is bordered by FS road 248D on the north and northeast and by FS road 248A on the east side. Le Fevre Canyon defines the western boundary.

**Current Uses**

Current uses include livestock grazing, hunting, and limited dispersed camping.

### **Key Attractions**

N/A

## **Capability**

### **Natural Rating: MEDIUM**

Non-native species (cheatgrass) are evident in isolated spots. There are no known seeps or springs. The night sky is clear with little to no interference from light pollution. The area has low habitat diversity, and no TES or rare plants are known to exist.

### **Undeveloped Rating: MEDIUM**

The area has several minor improvements (including a fenceline and soil tank) but is relatively free of human disturbance.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: MEDIUM**

Some of the area has the potential for challenging and primitive recreation and much of the area is classified as semi-primitive non-motorized. A feeling of solitude is possible, but signs and sounds of civilization are likely due to its proximity to the highway.

### **Special Features Rating: MEDIUM**

There is a possibility of scientific, environmental or cultural research opportunities. The area has no unique or rare plants.

### **Manageability Rating: MEDIUM**

While the boundary is readily identifiable, preventing motorized access may prove problematic. There are a number of easy access opportunities, and there will likely be resource conflicts.

### **OVERALL CAPABILITY RATING: MEDIUM**

The total score for Willis is  $10/15 = 67\%$ .

## **Availability**

### **Timber, Vegetation, and Fire Management Rating: LOW**

Future management activities such as treatment of invasive species may occur in this area.

### **Recreation Rating: MEDIUM**

Some portions of the area could provide for semi-challenging and primitive recreation. Most of the area is classified as semi-primitive non-motorized.

### **Wildlife and Plants Rating: LOW**

The major vegetation types are ponderosa pine transitioning to pinyon-juniper and sagebrush. There are no federally listed or sensitive species within the PWA.

**Livestock Operations Rating: LOW**

An active livestock allotment is present within the area. Existing range improvements include three fences, two dirt tanks, and two wildlife guzzlers. There is another dirt tank and 1.7 miles of additional fence that has been approved through the NEPA process. Construction projects and maintenance will require use of mechanized equipment.

**Lands and Minerals Rating: HIGH**

No known patented lands, mining claims, surface occupancy leases, or abandoned mines or quarries are present within the PWA.

**Heritage and Cultural Resources Rating: MEDIUM**

Cultural resource surveys in this area are limited. Surrounding lands and sample surveys in the vicinity have found moderate to high densities of sites. The high-severity fires that have occurred in the area could have highly impacted any sites that were present. This high level of uncertainty provides the medium rating for this resource category.

**OVERALL AVAILABILITY RATING: LOW**

Overall availability: 7/18=39% (low).

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**Grassy and Quaking Aspen Canyons – PWA 03-07-099**

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**Description**

**Acres, Location, Landforms**

The Grassy and Quaking Aspen Canyon PWA is 232 acres in size and is comprised of two separate, steep canyons (Grassy Canyon [top] and Quaking Aspen Canyon [bottom]). They are the upper portions of two canyons that run into Grand Canyon National Park and are located near the end of the 223 Road.



**Vegetation**

The vegetation in these canyons is quite variable, depending on aspect. Vegetation includes ponderosa pine, oak, juniper, mixed-conifer, and some aspen and New Mexico locust.



**Surroundings and Land Ownership**

This PWA lies entirely within the Kaibab NF. It borders proposed wilderness on the North Rim of Grand Canyon National Park. The PWA is contained within the Grand Canyon Game Preserve and Kaibab Squirrel National Natural Landmark.

### **Access and Boundaries**

These two canyons are easily accessed via FS Road 223. The canyons lie on either side of the 223 Road and the canyon rims are readily apparent.

### **Current Uses**

This area receives little use. Uses that may occur are hunting and primitive back-county hiking.

### **Key Attractions**

The main attractions in this PWA are primitive and semi-primitive recreation. There are views into Grand Canyon National Park from the western boundary, these side canyons drain directly into and may provide undeveloped access to the Grand Canyon.

## **Capability**

### **Natural Rating: HIGH**

Non-native species, including cheatgrass and bull thistle occur above the rim, but are not currently evident within the PWA. There are two springs in Quaking Aspen Canyon, but their reliability and overall water availability are unknown. The night sky is clear. These areas represent a diverse canyon habitat with a medium mix of ecological conditions.

### **Undeveloped Rating: HIGH**

There is an old road at the head of Grassy Canyon that shows on maps. However, a field visit found that the road was unidentifiable less than 100 meters from the 223 Road.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: HIGH**

The rugged nature of these canyons provides for challenging/primitive recreation opportunities. A feeling of solitude is pervasive.

### **Special Features Rating: MEDIUM**

There are a number of distinctive rock outcrops.

### **Manageability Rating: MEDIUM**

The boundary of the area (the canyon edge) is easily recognized and identified on the ground. The area is somewhat isolated from areas of activity. The main access road (FR 223) could cause some resource conflicts.

### **OVERALL CAPABILITY RATING: HIGH**

Overall capability rating: 13/15=87% (high)

## Availability

### **Timber, Vegetation, and Fire Management Rating: HIGH**

Future management activities in this area are unlikely due to its steep, remote nature.

### **Recreation Rating: MEDIUM**

Although this area is classified as roaded natural, the steepness of these two canyons would allow only non-motorized use. There exists the remnant of an old road a short way down Grassy Canyon.

### **Wildlife and Plants Rating: HIGH**

The area may be used by Mexican spotted owl and California condor.

### **Livestock Operations Rating: HIGH**

The PWA falls within a grazing allotment; however, the steepness of the canyons discourages access and use by livestock. There are no improvements that require maintenance.

### **Lands and Minerals Rating: HIGH**

No known patented lands, mining claims, surface occupancy leases, or abandoned mines or quarries exist within the PWA.

### **Heritage and Cultural Resources Rating: MEDIUM**

There is only one recorded site in Quaking Aspen Canyon (a historic cabin foundation). No traditional cultural properties are located within the canyons. Because there is water (springs) it is likely the area would have been used in prehistoric/historic times.

### **OVERALL AVAILABILITY RATING: HIGH**

Overall availability rating:  $16/18=89\%$  (high)

## **Jacks Canyon – PWA 03-07-999**

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### **Description**

#### **Acres, Location, Landforms**

The Jacks Canyon PWA is 156 acres in size and encompasses the steep (greater than 40 percent slope) portions of Jacks Canyon, which is a tributary to Sycamore Canyon. The PWA is adjacent to the Sycamore Canyon Wilderness and is characterized by steep canyon walls and limestone outcroppings.



### **Vegetation**

Pinyon-juniper and shrub vegetation is present on the upper slopes of the canyon, and denser canyon vegetation (ponderosa pine, oak, mixed conifer) grows at the lower elevations.

### **Surroundings and Land Ownership**

Jacks Canyon is contained entirely within the boundaries of the Kaibab NF. Sycamore Canyon Wilderness is adjacent to the southeastern portion of the PWA.

### **Access and Boundaries**

The area can be accessed by FS roads 126 and 127. Sycamore Canyon Wilderness comprises the southeastern boundary of the PWA, and the remainder of the boundary generally follows either the canyon rim or breaks to steep (greater than 40 percent) slopes.

### **Current Uses**

The area is used for backcountry recreation and hunting.

### **Key Attractions**

Jacks Canyon is adjacent to Sycamore Canyon, which is characterized by dramatic rock formations and opportunities for backcountry recreation.

## **Capability**

### **Natural Rating: MEDIUM**

Non-native species may be present in isolated areas. No springs or seeps are known to exist within the PWA. The night sky is clear with little interference from light pollution. The area contains a mix of habitat, ecological conditions, and natural resources due to variations in elevation and aspect.

### **Undeveloped Rating: HIGH**

Two open roads and various old road spurs are located nearby, but no developments are known to be present within the boundaries of the PWA.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Rating: HIGH**

This PWA is relatively small but links to Sycamore Canyon Wilderness, which provides opportunities for challenging recreation and feelings of being isolated from civilization. Most of the area is classified as semi-primitive motorized, but the steepness of the canyon would likely preclude motorized use.

### **Special Features Rating: HIGH**

The PWA contains some distinct canyon formations, and has the potential to support study of desert riparian systems and environmental education. Additionally, the area falls within Mexican spotted owl critical habitat and supports populations of Flagstaff pennyroyal, a Forest Service rare/sensitive plant.

**Manageability Rating: MEDIUM**

Jacks Canyon is somewhat isolated from areas of activity, with open roads under the Travel Management Rule located nearby. The majority of the boundaries follow either breaks to steep slopes or the canyon rim.

**OVERALL CAPABILITY RATING: HIGH**

Overall capability rating: 13/15 = 87%.

**Availability**

**Timber, Vegetation, and Fire Management Rating: MEDIUM**

There is a potential need for future noxious weeds treatments in the area.

**Recreation Rating: MEDIUM**

Although open roads are located nearby, most of the PWA is classified as semi-primitive non-motorized. Furthermore, the steepness of the canyon would likely limit mechanized and motorized vehicle use.

**Wildlife and Plants Rating: HIGH**

Jacks Canyon is located within Mexican spotted owl critical habitat; wilderness designation would likely improve protection for MSO in the area. The area also supports populations of Flagstaff pennyroyal, a Forest Service rare/sensitive plant.

**Livestock Operations Rating: HIGH**

Although Jacks Canyon is located within an active range allotment, it does not contain any range improvements that would require periodic maintenance with mechanized equipment.

**Lands and Minerals Rating: HIGH**

No patented lands, mining claims, surface occupancy leases, or abandoned mines or quarries are known to exist within the PWA.

**Heritage and Cultural Resources Rating: MEDIUM**

Given the steepness and ruggedness of Jacks Canyon, a low to moderate density of heritage and cultural resources is expected to exist.

**OVERALL AVAILABILITY RATING: MEDIUM**

Overall availability rank: 15/18 = 83%.

Note: the following PWAs were not analyzed for availability or need because they received a low (less than 60%) capability rating.

## **Big Ridge – PWA 03-07-004**

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### **Description**

#### **Acres, Location, Landforms**

The 9,373-acre Big Ridge PWA is located along the eastern slope of the Kaibab Plateau and is at the far eastern side of House Rock Valley. It is approximately 100 miles north of Flagstaff, AZ, and 35 miles southeast of Kanab, UT. The area contains no unique/distinct features.

#### **Vegetation**

The dominant vegetation types in this PWA are pinyon-juniper with some ponderosa pine and mixed conifer in scattered areas. All of this area burned with mixed severity during the Warm Fire of 2006.

#### **Surroundings and Land Ownership**

This PWA is part of an inventoried roadless area (IRA) and contained entirely within the NKRD and Grand Canyon Game Preserve. The western portion of the PWA contains the Kaibab Squirrel National Natural Landmark.

#### **Access and Boundaries**

The PWA is bordered on the north by Hwy 89A, on the east by FS Road 220, and on the south by FS Road 224. FS Road 225 runs along the west side approximately a half mile from the estimated boundary. Access can be gained from any of these roads.

#### **Current Use**

There are ongoing invasive plant treatments within the PWA, otherwise it experiences little in the way of use.

#### **Key Attractions**

N/A

### **Capability**

#### **Natural Ranking: LOW**

Cheatgrass and Russian thistle are common in this PWA. Seeps and/or springs are absent. The night sky is clear with little to no interference from light pollution. The area has a medium mix of habitats including that for the Pediocactus on the eastern side. The area contains a limited amount of natural resource diversity. All of the area burned at moderate to high severity in the Warm Fire in 2006.

**Undeveloped Ranking: HIGH**

The area has only minor improvements and appears to be relatively free of human disturbance.

**Opportunity for Solitude or Primitive and Unconfined Recreation Ranking: LOW**

Few parts of the area would provide for challenging recreation opportunities. A feeling of being alone is possible, but signs of civilization are likely. The highway across House Rock Valley is visible and probably audible. The area is surrounded by open roads. There are few to no opportunities to engage in primitive recreation. Although the majority of the area is classified as semi-primitive non-motorized, portions of it are classified as roaded natural.

**Special Features Ranking: MEDIUM**

There are no distinct features within the PWA. The area has good potential for scientific research and/or cultural and historic findings. The Pediocactus is the only known unique or rare species.

**Manageability Ranking: LOW**

The many access points would make access difficult to control. The boundary on the entire west side would be difficult to locate and identify.

**OVERALL CAPABILITY RATING: LOW**

Overall capability: 5/15=33% (low)

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**Northwest NKRD – PWA 03-07-018**

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**Description**

**Acres, Location, Landforms**

The 12,109-acre Northwest NKRD (NW-NKRD) PWA is located along the far western edge of the NKRD on the slopes of the Kaibab Plateau. It is 15-20 miles east-southeast of Fredonia, AZ. The area contains no unique/distinct features.

**Vegetation**

The dominant vegetation types are pinyon-juniper with some ponderosa pine at higher elevations.

**Surroundings and Land Ownership**

This PWA lies within the NKRD and is bordered on the western edge by BLM land and a small amount of private land. The entire PWA is located within the Grand Canyon Game Preserve, and small portions of the eastern side fall within the Kaibab Squirrel NNL.

**Access and Boundaries**

It is bordered on the north and east by Hwy 89A, on the east by FS Road 422A, and on the south by FS Road 462. Access to the area is obtained from the FS Road 280 along the eastern edge and

via the Jacob Canyon trail that runs from FS Road 246 on the east, across the PWA to FS Road 243 in the southwest.

### **Current Use**

There is an active grazing allotment and an existing gravel pit just inside the western boundary. There are also existing, inactive gas and oil leases within the PWA boundary.

### **Key Attractions**

N/A

## **Capability**

### **Natural Ranking: LOW**

Non-native species are not evident in this PWA. Seeps and/or springs are absent. The night sky is clear with little to no interference from light pollution. The area is not known to contain habitat for unique, rare, or TES species as ecological conditions are limited. The area contains a limited amount of natural resource diversity.

### **Undeveloped Ranking: MEDIUM**

The area has several minor range improvements and a gravel pit on the west side.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Ranking: LOW**

Few parts of the area would provide for challenging recreation opportunities. A feeling of being alone is possible but signs of civilization are likely. Highway 89A parallels the northern and eastern boundaries of the area and is likely visible and audible. Additionally, the area is surrounded by open roads. There are few to no opportunities to engage in primitive recreation. Because of the surrounding roads the area is classified as semi-primitive motorized and roaded natural.

### **Special Features Ranking: LOW**

The area is not known to contain any distinct features, scientific research opportunities, resources or unique/rare plants and/or animals.

### **Manageability Ranking: LOW**

Areas of activity, such as gravel pits and motorized transportation, take place nearby and the area is easily accessed. It would be difficult to establish a recognizable and defensible boundary.

### **OVERALL CAPABILITY RATING: LOW**

Overall capability:  $2/15=13\%$  (low)

## Paradise Ridge – PWA 03-07-134

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### Description

#### Acres, Location, Landforms

The 10,444-acre Paradise Ridge PWA is located in the northwest corner of the Williams RD. The only notable feature in the PWA is Paradise Ridge, which runs approximately five miles in the north to south direction.

#### Vegetation

The dominant vegetation type is pinyon-juniper.

#### Surroundings and Land Ownership

This PWA lies entirely within the Kaibab NF and is located within the Double A Wild Burro Territory. There is extensive rock quarrying visible to the west and northwest of the area.

#### Access and Boundaries

The area is readily accessible from the north by FS Road 6, which forms the northern boundary, and FS Road 7, which forms the eastern boundary. The Burlington-Northern Santa Fe Railroad track forms the southern boundary, which is used by approximately 200 trains per day.

#### Key Attractions

The area is relatively isolated from human populations and contains wild and free-roaming burros.

### Capability

#### Natural Ranking: LOW

Non-native species are evident in isolated locations. Seeps and/or springs are absent. The night sky is clear with little to no interference from light pollution. The area does not contain habitats for unique, rare, or Threatened/Endangered species, as ecological conditions are limited. The area contains a limited amount of natural resource diversity.

#### Undeveloped Ranking: LOW

The area contains numerous constructed features (fences, tanks, two-track roads), and human disturbance is evident (agri-ax clipping, pushes, fuelwood cutting).

#### Opportunity for Solitude or Primitive and Unconfined Recreation Ranking: LOW

Few parts of the area would provide for challenging recreation opportunities. There is little opportunity to experience the feeling of being alone or isolated as visible and audible trains pass approximately every 15 minutes depending on the time of year. It is surrounded by open roads and there are few opportunities to engage in primitive recreation. The presence of surrounding roads and easy access to the area, it is classified as semi-primitive motorized and roaded modified.

**Special Features Ranking: LOW**

There are malpais cliffs in a small area and there could be opportunities for cultural research. There are no known unique/rare plants and/or animals.

**Manageability Ranking: MEDIUM**

An identifiable and recognizable boundary exists on three sides. While the area is somewhat isolated there would be some difficulty in managing access and other resource conflicts.

**OVERALL CAPABILITY RATING: LOW**

Overall capability rating: 2/15=13% (low)

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**Red Butte – PWA 03-07-088**

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**Description**

**Acres, Location, Landforms**

The 2,682-acre Red Butte PWA is approximately 2 miles west of Highway 64 on the Tusayan RD. As the name suggests, Red Butte it is a prominent landform that is visible for many miles. The Havasupai refer to it as “clenched fist mountain.”

**Vegetation**

The dominant vegetation type is pinyon-juniper.

**Surroundings and Land Ownership**

This PWA lies entirely within the Tusayan RD. Private and Arizona State lands lie to the south.

**Access and Boundaries**

The area is readily accessible. It is surrounded by FS Roads 305, 320, and 340. There is also a road that accesses a Forest Service microwave and lookout tower at the top.

**Current Use**

There is a Forest Service lookout and microwave tower at the top. Red Butte is culturally important to several local Tribes, and a hiking trail is used to access the summit.

**Key Attractions**

Red Butte is a unique landmark that is visible for miles. The summit provides panoramic views.

## Capability

### **Natural Ranking: LOW**

Non-native species such as Russian thistle are scattered throughout the Red Butte area. Seeps and/or springs are absent. The night sky is clear with little to no interference from light pollution. The area does contain a mix of habitats and conditions, including a small aspen clone. Overall, the area contains a limited natural resource diversity.

### **Undeveloped Ranking: LOW**

The area has visible improvements (microwave and lookout tower) and human disturbance is evident. Highway 64/180 is audible and visible from western portions of the PWA.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Ranking: LOW**

Few parts of the area would provide for challenging recreation opportunities. There is little opportunity for a feeling of being alone as the area is surrounded by open roads. There are some opportunities to engage in semi-primitive recreation. The Butte itself is classified as semi-primitive non-motorized.

### **Special Features Ranking: MEDIUM**

Red Butte represents a unique geological formation in an otherwise flat area. A panoramic view is accessible from the top. The area is significant to many local tribes. The area contains a low-elevation aspen clone as well as a golden eagle nest site.

### **Manageability Ranking: MEDIUM**

An identifiable and recognizable boundary exists on all sides. While it is somewhat isolated, there would be some difficulty in managing access and other resource conflicts.

### **OVERALL CAPABILITY RATING: LOW**

Overall capability:  $4/14=27\%$  (low)

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## **Red Point – PWA 03-07-098**

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### **Description**

#### **Acres, Location, Landforms**

The 7,385-acre Red Point PWA is located approximately 7-10 miles southeast of Jacob Lake on the North Kaibab RD within an inventoried roadless area. It lies on the east slopes of the Kaibab plateau and is characterized by a series of steep canyons. The southernmost portion of the PWA is adjacent to Saddle Mountain Wilderness, but is separated from this wilderness area by a major road.

### **Vegetation**

The dominant vegetation types are pinyon-juniper with some ponderosa pine and mixed conifer in scattered areas. The majority of this PWA burned at high severity in the Warm Fire of 2006.

### **Surroundings and Land Ownership**

This PWA lies entirely within the North Kaibab RD. It is contained within the Grand Canyon Game Preserve and partially overlaps the Kaibab Squirrel NNL.

### **Access and Boundaries**

The area is bordered by FS Road 224 on the north and the East Side Game Road (FS Road 220) on the east. Access could be gained by either of these two roads or from FS Road 633 from the west.

### **Current Use**

Other than hunting, the area receives little use.

### **Key Attractions**

N/A

## **Capability**

### **Natural Ranking: LOW**

Non-native species are evident in isolated locations. Seeps and/or springs are absent. The night sky is clear with little to no interference from light pollution. The area has no known habitat for unique, rare, or TES species as ecological conditions are limited. The area contains a limited amount of natural resource diversity. The majority of this PWA burned at high severity in the Warm Fire of 2006.

### **Undeveloped Ranking: HIGH**

The area has few/minor improvements and appears free of human disturbance.

### **Opportunity for Solitude or Primitive and Unconfined Recreation Ranking: MEDIUM**

Much of this area is steep and narrow, providing some opportunities for challenging recreation, particularly backpacking and hunting. However, the quality of recreation experience in this PWA would be substantially impacted by the post-fire conditions from the Warm Fire.

### **Special Features Ranking: LOW**

The area has some distinct features but limited opportunity for environmental or cultural research. The area has no known unique or rare plants.

**Manageability Ranking: LOW**

An identifiable and recognizable boundary exists on only two sides. A substantial portion of this PWA burned at high severity during the Warm Fire. Rehabilitation activities are planned. Nearby activity would be apparent.

**OVERALL CAPABILITY RATING: LOW**

Overall capability rating:  $5/15=33\%$  (low)

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**Sitgreaves Mountain – PWA 03-07-073**

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**Description**

**Acres, Location, Landforms**

The 10,016-acre Sitgreaves Mountain is located on the Williams Ranger District north of Interstate 40, approximately 6 miles northwest of the community of Parks and 10 miles northeast of Williams. Its 9,388-foot peak is visible for many miles around.

**Vegetation**

Vegetation transitions from ponderosa pine at the bottom of the mountain to mixed conifer at the top. There are also isolated pockets of aspen.

**Surroundings and Land Ownership**

This PWA lies entirely within the Williams RD. There is a substantial amount of nearby private land, mainly east and south of Sitgreaves Mountain.

**Access and Boundaries**

The area is readily accessible. It is surrounded by FS Roads 74, 76, and 141.

**Current Use**

Livestock grazing occurs along the lower slopes, and hunting and hiking take place across the mountain. Sitgreaves Mtn. is located near the community of Parks and receives recreational use from local residents.

**Key Attractions**

Sitgreaves Mountain is visible for miles. The summit provides panoramic views.

**Capability**

**Natural Ranking: MEDIUM**

Non-native species such as bull thistle and toadflax are evident in isolated locations. The area is highly departed from historic forest conditions and at high risk of an uncharacteristic fire. A portion of the area burned in the Eagle Rock fire in 2010. Seeps and/or springs were historically present on the east side, but these have been altered and are currently dry. . The night sky is clear

with little interference from light pollution, although the lights from Williams and Flagstaff are visible from some areas. . The area contains a diversity of natural resources as well as habitat for Mexican spotted owl and goshawk. A portion of the Eagle Rock Fire footprint overlaps some of the area.

**Undeveloped Ranking: MEDIUM**

The area displays evidence of numerous previous and present timber sales along the lower slopes, especially on the north and west sides. While it does not have a designated trail system, it does have a significant number of user-created ATV intrusions and jeep trails. The lower slopes would have a low rating while the upper slopes would likely rate as high.

**Opportunity for Solitude or Primitive and Unconfined Recreation Ranking: MEDIUM**

Given the variability of terrain and vegetation, the area provides some challenging recreation opportunities. The opportunity to experience semi-primitive recreation opportunities occurs on the higher slopes. The feeling of being alone is possible, but is restricted primarily to north-facing slopes. I-40 and the BNSF railroad are visible and audible from most of the southern side.

**Special Features Ranking: MEDIUM**

The ridges at Eagle Rock represent a unique feature. There may be cultural research opportunities. The area contains a Mexican spotted owl (MSO) protected activity center (PAC).

**Manageability Ranking: LOW**

ATV intrusions are significant and ongoing. Establishing a locatable and defensible boundary would be difficult.

**OVERALL CAPABILITY RATING: LOW**

Overall capability rating: 8/15=53% (low)

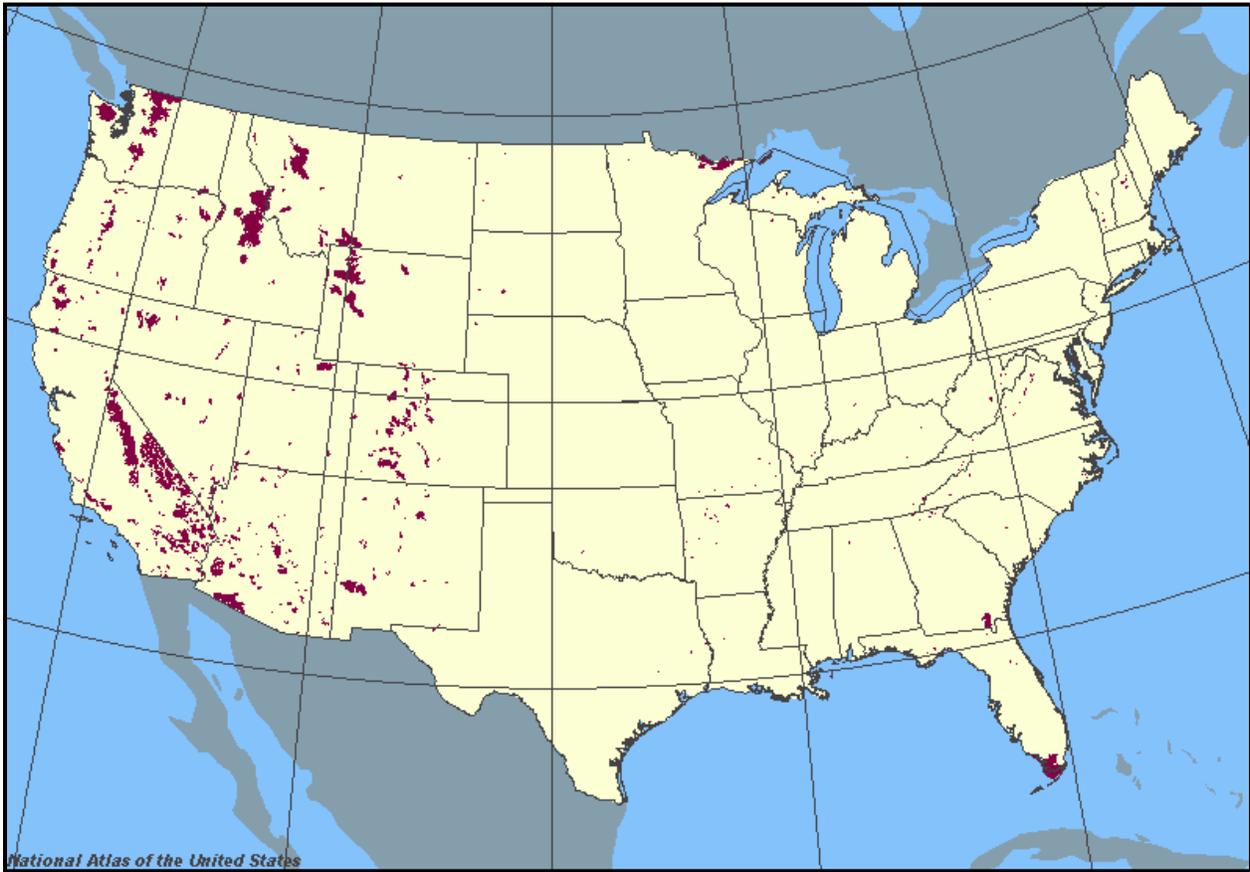
## Need Analysis

The purpose of this analysis is to identify the need for additional wilderness based on the regional distribution of wilderness and the representation of landforms and ecosystems within existing wilderness areas. The need for additional wilderness is determined by analyzing the degree to which an individual PWA contributes to the national wilderness system. Need analysis was performed only for the ten PWAs that passed the capability analysis.

There are almost 110 million acres of designated wilderness in the United States. Over half of these areas (57.4 million) are in Alaska. Of the remaining 52 million acres of designated wilderness in the lower 48 States, 15 million acres (29%) are located in California. Only Alaska and California have more wilderness acres than the state of Arizona. The 4.5 million acres of wilderness in Arizona account for almost nine percent of all wilderness acres in the lower 48 States. Table 5 displays data on total acres of designated wilderness and acres per capita for the U.S, in the lower 48, western U.S., and the Southwestern Region of the Forest Service (AZ-NM). Figure 3 shows the distribution of these wilderness areas across the contiguous United States.

**Table 5. Wilderness Acres, percent, and acres per capita, 2010**

Location	Acres	Percent	2010 Population	Acres Per Capita
<b>TOTAL U.S.</b>	<b>109,505,482</b>	<b>100</b>	<b>308,745,538</b>	<b>0.355</b>
<b>State</b>				
Alaska	57,425,569	52.4	710,231	80.855
Hawaii	155,509	0.1	1,380,301	0.113
<b>Remaining</b>	<b>51,924,404</b>	<b>47.4</b>	<b>306,655,006</b>	<b>0.169</b>
<b>LOWER 48</b>	<b>51,924,404</b>	<b>100</b>	<b>306,655,006</b>	<b>0.169</b>
California	15,011,483	28.9	37,253,956	0.403
Arizona	4,529,613	8.7	6,392,017	0.709
Idaho	4,522,562	8.7	1,567,582	2.885
Washington	4,423,405	8.5	8,724,540	0.507
Colorado	3,707,338	0.071	5,029,196	0.737
Montana	3,443,385	6.6	989,415	3.480
Nevada	3,368,796	6.5	2,700,551	1.247
Wyoming	3,111,232	.6	563,626	5.520
Oregon	2,471,951	4.8	3,831,074	0.645
New Mexico	1,651,360	3.2	2,059,179	0.802
Utah	1,160,277	2.2	2,783,885	0.417
<b>11 Western States</b>	<b>47,401,402</b>	<b>91.3</b>	<b>71,895,021</b>	<b>0.659</b>
<b>Eastern 37 States</b>	<b>4,523,002</b>	<b>8.7</b>	<b>234,759,985</b>	<b>0.019</b>
<b>4 Corners (AZ-NM-CO-UT)</b>	<b>11,048,588</b>	<b>21.3</b>	<b>16,264,277</b>	<b>0.679</b>
<b>Region 3 (AZ-NM)</b>	<b>6,180,973</b>	<b>11.9</b>	<b>8,451,196</b>	<b>0.731</b>



**Figure 3. Location and distribution of wilderness areas in the lower 48 States (source: [www.nationalatlas.gov](http://www.nationalatlas.gov)).**

This need evaluation is based on the process identified in FSH 1909.12 Subsection 72.3. Like capability and availability, need ratings are based on numerous criteria. Table 6 summarizes these criteria, and their ratings with respect to the Kaibab NF are described subsequently.

**Table 6. Potential wilderness area Need rating criteria**

Factor	Item	Evaluation Criteria
1	The location, size, and type of other wildernesses in the general vicinity and their distance from the proposed area	How many, what size (# of acres), and what types of other wilderness areas exist within the general vicinity (100 air miles) of the Kaibab National Forest?
		How far from the potential wilderness areas are the existing wilderness areas?
	Accessibility of existing and potential wilderness areas in the vicinity to population centers and user groups in the planning area	How accessible are existing and potential wilderness areas in the vicinity to population centers in the planning area?
2	Present visitor pressure on other wildernesses	What is the level of current use in Forest Service and other wilderness areas with the area?
	Trends in use, changing use patterns, and population trends	What are the factors that could affect future wilderness use and in what manner?

Factor	Item	Evaluation Criteria
3	The extent to which non-wilderness lands on the Kaibab NF or other federal land are likely to provide opportunities for unconfined outdoor recreation experiences	Are there non-wilderness lands within or near the Kaibab NF that are likely to provide opportunities for unconfined outdoor recreation experiences?
		If so, what types of lands are they, where are they located, and how might they meet demands for unconfined outdoor recreation experiences?
4	The need to provide a refuge for those species that have demonstrated an inability to survive in less than primitive surroundings, or the need for a protected area for other unique scientific values or phenomena	Are there species on the forest that require primitive surroundings for survival, or are there areas that need protection for other unique scientific values or phenomena?
5	Within social and biological limits, management may increase the capacity of established wilderness to support human use without unacceptable depreciation of the wilderness resource	Are there opportunities to alter management of existing wilderness to accommodate additional demand without unacceptable depreciation of the wilderness resources?
6	An area's ability to provide for preservation of identifiable landform types and ecosystems	Does the potential wilderness area contain any regionally under-represented ecosystem and landform types?

**Factor 1**

***Item 1: The location, size, and type of other wildernesses in the general vicinity and their distance from the proposed area.***

*1. How many, what size (# of acres), and what types of other wilderness areas exist within the general vicinity (within 100 air miles) of the Kaibab National Forest?*

One-hundred air-miles was used based on Kaibab NF wilderness visitor data provided in the latest National Visitor Use Monitoring (NVUM) report and published information on demographic and spatial factors. The latest NVUM report for the year 2010 (USDA Forest Service 2012) provides data on visits to wilderness areas on the Kaibab NF. These data indicate that over 60 percent of wilderness site visits in 2010 were by persons living in Coconino County. Almost 85 percent of all wilderness site visits on the Kaibab NF were from Coconino, Maricopa, Yavapai, and Kane (UT) counties. Past studies have shown that there is a negative correlation between wilderness recreation participation and distance, with participation decreasing as distance increases (Bowker et al. 2006, Hendee and Dawson 2002, Watson et al. 1989). Most wilderness visitors come from the same state in which the wilderness is located (Hendee and Dawson 2002).

Only one designated Wilderness Area (WA), Saddle Mountain, lies completely within the Kaibab NF. The majority of the Kanab Creek, about half of the Kendrick Mountain, and a portion of the Sycamore Canyon WAs also lie within the boundaries of the Kaibab NF. There are an additional 48 WAs within 100 air miles of the Kaibab NF boundary including 24 WAs within Bureau of Land Management (BLM)-administered lands, 23 WAs on adjacent National Forests (Tonto, Prescott, and Coconino National Forests), and one on National Park Service (NPS)-administered lands (Table 7). These Wilderness Areas total approximately 1.55 million acres. Figure 4 shows the location of the existing wilderness areas within 100 miles of the Kaibab NF.

**Table 7. Existing Wilderness Areas in General Vicinity (100 miles), by Agency**

<b>BLM</b>	<b>Acres</b>	<b>Forest Service</b>	<b>Acres</b>
Arrastra Mountain Wilderness	129,170	Apache Creek Wilderness	5,435
Aubrey Peak Wilderness	15,900	Ashdown Gorge Wilderness	8,305
Beaver Dam Mountains Wilderness	20,085	Box-Death Hollow Wilderness	24,140
Cottonwood Point Wilderness	7,555	Castle Creek Wilderness	24,480
Grand Wash Cliffs Wilderness	39,205	Cedar Bench Wilderness	16,585
Harcuvar Mountains Wilderness	25,465	Fossil Springs Wilderness	10,755
Harquahala Mountains Wilderness	11,195	Four Peaks Wilderness	24,105
Hassayampa River Canyon Wilderness	12,670	Granite Mountain Wilderness	9,850
Hells Canyon Wilderness	9,840	Hellsgate Wilderness	38,845
Jumbo Springs Wilderness	4,705	Juniper Mesa Wilderness	7,575
Kanab Creek Wilderness	7,170	Kachina Peaks Wilderness	18,855
Lime Canyon Wilderness	23,860	Kanab Creek Wilderness	66,635
Mount Logan Wilderness	15,360	Kendrick Mountain Wilderness	8,200
Mount Nutt Wilderness	505	Mazatzal Wilderness	248,860
Mount Tipton Wilderness	31,075	Munds Mountain Wilderness	18,000
Mount Trumbull Wilderness	8,155	Pine Mountain Wilderness	18,655
Paiute Wilderness	89,700	Pine Valley Mountain Wilderness	51,775
Paria Canyon-Vermilion Cliffs Wilderness	116,410	Red Rock-Secret Mountain Wilderness	50,310
Rawhide Mountains Wilderness	38,210	Saddle Mountain Wilderness	41,815
Swansea Wilderness	7,875	Salome Wilderness	18,690
Tres Alamos Wilderness	8,035	Sierra Ancha Wilderness	3,615
Upper Burro Creek Wilderness	27,155	Strawberry Crater Wilderness	11,270
Wabayuma Peak Wilderness	38,560	Sycamore Canyon Wilderness	58,820
Warm Springs Wilderness	33,870	West Clear Creek Wilderness	26,290
<b>Total BLM</b>	<b>721,730</b>	Wet Beaver Wilderness	6,720
		Woodchute Wilderness	5,790
		<b>Total Forest Service</b>	<b>824,375</b>
<b>National Park Service</b>	<b>Acres</b>		
Jimbilnan Wilderness	5,545		
<b>Grand Total: 1,551,650 acres</b>			

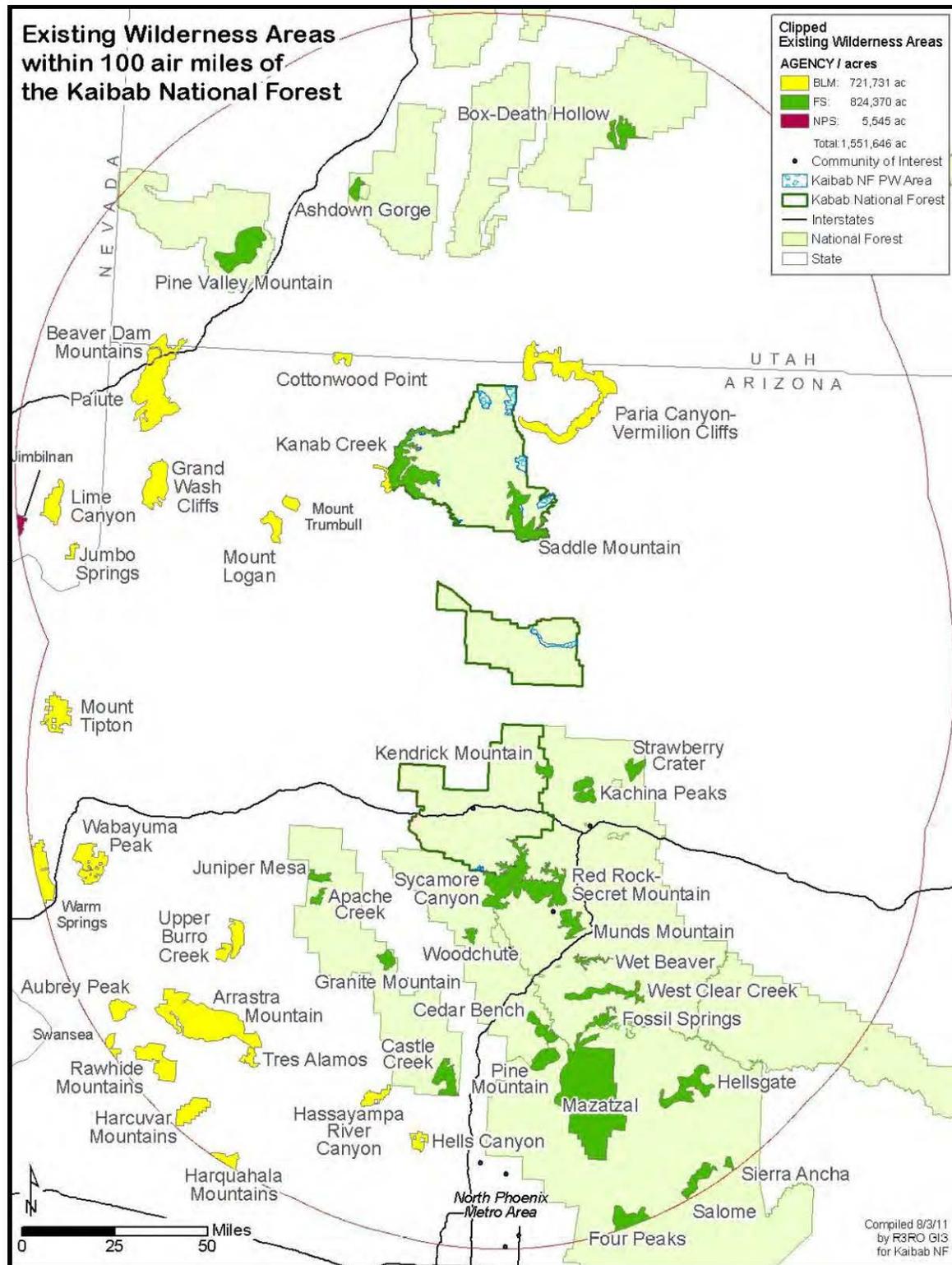


Figure 4. Existing wilderness areas within 100 miles of the Kaibab National Forest

**Item 1 (cont.): The location, size, and type of other wildernesses in the general vicinity and their distance from the proposed area.**

*2. How far from potential wilderness areas (PWAs) are the existing WAs?*

Each PWA has at least 10 existing WAs within 100 (air) miles. The proximity of PWAs to existing WAs within the general vicinity of the Kaibab NF is shown in Table 8.

**Table 8. Proximity of PWAs to Existing WAs within the general vicinity of the Kaibab NF**

Potential Wilderness Area	Number of existing WAs w/in 100 miles	Acres of existing WAs w/in 100 miles	Average distance <sup>1</sup> to existing WAs (mi)
Burro Canyon PWA 03-07-003	12	484,430	64
Coconino Rim PWA 03-07-079	17	416,410	72
Seegmiller PWA 03-07-035	13	424,852	71
South Canyon Point PWA 03-07-045	10	309,733	64
Willis Canyon PWA 03-07-002	11	476,230	64
Kanab Creek PWA 03-07-034	13	489,136	62
Saddle Mountain PWA 03-07-043	11	348,937	65
Sycamore Canyon PWA 03-07-057	25	807,157	54
Grassy/Quaking Aspen PWA 03-07-099	13	490,415	64
Jacks Canyon PWA 03-07-999	25	807,157	54

<sup>1</sup> Average Distance is the average of the distances between the PWA center and the center of each Existing WA

**Factor 1 (cont.)**

**Item 2: Accessibility of existing and potential wilderness areas in the vicinity to population centers and user groups in the planning area.**

*1. How accessible are existing and potential WAs in the vicinity to population centers in the planning area?*

Table 9 describes the acres of existing and potential wilderness within 100 miles of population centers in the plan area. As with Item 1, 100 air-miles was used based on Kaibab NF wilderness visitor data provided in the latest National Visitor Use Monitoring (NVUM) report (USDA FS 2012) and published information on demographic and spatial factors (Bowker et al. 2006, Hendee and Dawson 2002, Watson et al. 1989).

**Table 9. Accessibility of PWAs to select population centers**

Population Center	Population <sup>1</sup>	Acres of <i>existing</i> Wilderness <sup>2</sup>	Acres of <i>potential</i> Wilderness <sup>2</sup>	Acres per capita
Camp Verde-Cottonwood	10,871	1,178,488	8,741	109
Flagstaff	65,870	697,686	22,285	11
Prescott	39,843	1,234,707	8,741	31
Sedona	10,031	903,297	8,741	91
Williams	3,023	904,044	24,103	307
North Phoenix Metro <sup>3</sup>	250,172	5,881,220	2,962	24

<sup>1</sup> Source: US Census Bureau, 2010

<sup>2</sup> Existing and potential wilderness acres are within 100-miles of the population center.

<sup>3</sup> North Phoenix Metro Area includes the towns/cities of Cave Creek, New River, Paradise Valley, and Scottsdale.

The population center with the fewest total acres of existing wilderness (within 100 miles) and fewest acres per capita is Flagstaff. From Figure 5 it appears that the reason for this is the presence of the Navajo Reservation. These lands are held in trust by the federal government for the Tribe, in perpetuity. There are no designated wilderness areas on these lands. In terms of wilderness acres per capita, Flagstaff has 14 times more existing wilderness acres per person than the States of Arizona and New Mexico (see Table 5).

A primary purpose of the Factor 1 analysis is to identify those population centers that are “underserved”. This identification depends on the definition of “underserved”. When compared to the western United States or the Forest Service Southwester Region (R3), these PWAs are not near population centers that are “underserved.”

The average straight line distance to all wilderness areas within 100 miles was calculated for each of the population centers on the assumption that a 100-mile radius represented the reasonably expected distance for defining accessibility. This information is shown in Table 10.

**Table 10. Average distance to wilderness areas from population centers.**

Population Center	Average distance to <i>existing</i> wilderness <sup>1</sup>	Average distance to <i>potential</i> wilderness <sup>1</sup>
Camp Verde-Cottonwood	75	53
Flagstaff	94	74
Prescott	74	68
Sedona	81	48
Williams	82	67
North Phoenix Metro <sup>2</sup>	79	87

<sup>1</sup> Existing and potential wilderness acres are within 100-miles of the population center.

<sup>2</sup> North Phoenix Metro Area includes the towns/cities of Cave Creek, New River, Paradise Valley, and Scottsdale.

The average distance from the population centers to the 51 existing wilderness areas ranges from 74 miles for Prescott to 94 miles for Flagstaff. Only three of the potential wilderness areas (Coconino Rim, Jacks Canyon, and Sycamore Canyon Addition) are located south of the Grand Canyon. This is important when considering the average distance to PWAs from the population centers. All of the population centers, with the exception of parts of Flagstaff are located south of Interstate 40. Thus, while the average distances to PWAs are less than for the existing wilderness areas, only a few are within 100 miles of the population centers. For example, the only PWA that is within 100 miles of the North Phoenix Metro communities is the Sycamore Canyon Addition. Only two PWAs (Coconino Rim and Sycamore Canyon) are within 100 miles of Prescott and Sedona. The three northern-most PWAs (Burro Canyon, Willis Canyon, and Kanab

Creek Addition) on the North Kaibab Ranger District are not within 100 miles of any of the population centers.

**Factor 2**

**Item 1: Present visitor pressure on other wildernesses.**

1. *What is the level of current use in Forest Service and other wilderness areas within the area?*

This factor is similar to Factor 1 in that it is location-based. It differs in that it examines the ability of each PWA to meet future demand for wilderness. The first step assesses the current use of existing wilderness areas within the vicinity. Existing wilderness areas in the Southwestern Region (R3) experienced an estimated average annual 1.9 million visits, from 2000 – 2003, according to Round 1 of NVUM. During that period there were an estimated 9,500 visits annually to existing wilderness areas on the Kaibab NF.

Since the initial Round 1 survey, an additional two rounds of visitor use data have been collected for most Forests. However, there is no statistically valid trend information. The latest (Round 3) wilderness use estimates indicate a 30 percent decline in wilderness visits between 2003 and 2009 for both the Kaibab NF and R3 (Garcia and Zarnoch 2011).

The lack of statistically reliable visitor use information is not uncommon. In 1964, Wagar suggested that a careful understanding of regional supply and demand for different types of recreational experiences, including low density experiences, are more likely to produce wise decisions. Over 35 years later, Stewart and Cole (2001) echoed those sentiments in a study of number of encounters and quality of experience in the backcountry of the Grand Canyon. This continues to be an often recommended but seldom accomplished approach due to the nature of the task (Cole 2011).

Estimated wilderness use levels on the Kaibab NF are the lowest of all Forests in R3. This is reflected in visitors’ perception of how crowded existing wilderness area seemed to them. Table 11 summarizes mean perception of crowding in Kaibab NF wilderness areas on a scale of 1 to 10 where 1 denotes hardly anyone was there, and a 10 indicates the area was perceived as overcrowded.

**Table 11. Percent of wilderness site visits by crowding rating, Kaibab NF**

<b>Crowding Rating</b>	<b>Percent</b>
10 Overcrowded	0.0
9	0.0
8	0.0
7	8.3
6	7.7
5	16.7
4	9.0
3	18.0
2	7.7
1 Hardly anyone there	32.7

A third of wilderness visitors rated the area at the lowest possible rating for crowding. Eighty-six percent of the visitors gave a rating between 1-5, which indicates that overcrowding is not an issue.

*Wilderness Use Estimates – Bureau of Land Management and National Park Service (Grand Canyon)*

The BLM provided wilderness use information for a number of existing wilderness areas within the 100-mile vicinity (see Table 7 and Figure 4). Table 12 displays the BLM wilderness visitor use estimates for even-numbered years between 2000 and 2010.

**Table 12. BLM Wilderness Area visits, 2000, 2002, 2004, 2006, 2008, 2010.**

<b>BLM Wilderness Area</b>	<b>2000</b>	<b>2002</b>	<b>2004</b>	<b>2006</b>	<b>2008</b>	<b>2010</b>
Harquahala Mountains	2130	1790	1720	1231	1618	1597
Hells Canyon	482	567	266	289	187	685
Kanab Creek	177	104	88	84	108	120
Mount Nutt	294	422	491	579	381	376
Mount Tipton	45	25	20	11	29	44
Mount Trumbull	233	340	302	151	175	173
Paria Canyon-Vermillion Cliffs	6174	7357	8944	11165	6400	8080
Wabayuma Peak	80	187	135	130	99	69
Beaver Dam Mountains	ND <sup>1</sup>	68	65	157	143	ND
Cottonwood Point	ND	37	45	130	125	ND
Grand Wash Cliffs	10	25	54	ND	ND	ND
Mount Logan	78	167	557	100	ND	ND
Paiute	ND	5	24	ND	ND	ND

Source: BLM, RMIS, National Landscape Conservation System, 2011

<sup>1</sup>ND = No Data

The information in Table 12 includes only those areas within the 100-mile vicinity for which data were available. They are further divided by those areas where data were available for all years and those for which there are data gaps. Over 70 percent of all BLM wilderness area visits in 2010 were accounted for by the Paria Canyon-Vermillion Cliffs WA. A clear trend in visitor use is not readily discernable. It appears that wilderness visits either declined or remained somewhat stable between 2000 and 2010. The year 2008 was the onset of a severe economic decline in the United States. The economic downturn was accompanied by a precipitous decline in the number of BLM wilderness visits primarily to the Paria Canyon-Vermillion Cliffs WA. Many studies have shown a direct relationship between income and wilderness visits (Cordell et al. 1999, Cole 2001, Cordell et al. 2005, Bowker et al. 2006).

The National Park Service (NPS) sells backcountry permits to those using wilderness-like areas within the national parks. Visits to the backcountry of Grand Canyon National Park (GCNP) remained stable between 2000-2009 (Sullivan 2010). Of the 13,616 permits issued in 2009, 90% (12,191) were actually used. These permitted 38,574 people to participate in backcountry trips. Visitors from the United States accounted for 90% of those engaged in backcountry trips to the GCNP. Almost 40% of all U.S. visitors to GCNP backcountry were from Arizona.

*Wilderness User Characteristics*

Dawson and Hendee (2009) address the notion of “user characteristics” and note that the picture of the stereotypical wilderness user is young, athletic, wealthy, leisured, white, and urban. They point out that although there are some distinguishing socioeconomic characteristics among wilderness users, some

diversity does exist. They reference a number of studies that have documented these differences; however; the most recent study referenced was from 1992 (twenty years ago).

*Characteristics of wilderness users are well-known from many studies, and these characteristics are similar from area to area, even in different parts of the nation. In general, wilderness users, compared to the general population, tend to be young but with all age groups represented, predominately male but with increasing numbers of women, from urban areas but largely near the wilderness area visited, above average in income but rarely wealthy, well educated and in professional or technical occupations or students.” (p. 382)*

Specific characteristics discussed by Dawson and Hendee (2009) included age, gender, residence, income, education, and racial/ethnic minority participation. While these authors use the term “stereotype,” indicating a simplified/standardized conception of wilderness users, the characterizations appear to hold as shown by the data. Tables 13-15 provide demographic information for wilderness users on the Kaibab NF. Seventy percent of wilderness visitors on the Kaibab NF in FY2005 were between the ages of 20-49, and virtually all (98%) of the visitors were white.

**Table 13. Percent of wilderness site visits on Kaibab NF by gender**

Gender	Percent Of Wilderness Visits
Female	42.5
Male	57.5
<b>Total</b>	<b>100.0</b>

**Table 14. Percent of wilderness site visits on Kaibab NF by age**

Age Class	Percent Of Wilderness Visits
Under 16	6.2
16-19	4.0
20-29	21.7
30-39	20.8
40-49	27.9
50-59	12.8
60-69	6.6
70+	0.0
<b>Total</b>	<b>100.0</b>

Source: NVUM (USDA Forest Service 2006)

**Table 15. Percent of wilderness site visits on Kaibab NF by race**

Race	Percent Of Wilderness Visits
American Indian / Alaska	2.2
Asian	0.0
Black / African American	0.0
Hawaiian / Pacific Islander	0.0

Race	Percent Of Wilderness Visits
White	97.8
<b>Total</b>	<b>100.0</b>

## Factor 2 (cont.)

### **Item 2: Trends in use, changing use patterns, and population trends.**

#### *1. What are the factors that could affect future wilderness use and in what manner?*

As with current wilderness use estimates, projections of wilderness recreation visits are limited by a lack of reliable use data. Also, knowledge of the relationship between wilderness use and causal factors is limited. Dawson and Hendee (2009) provide a historical review of efforts to produce wilderness use projections over the past 50 years. Early projections were based on simple assumptions regarding linear relationships pertaining to population, income, and leisure time. They note that predicting these variables are almost as difficult as recreation use itself.

It wasn't until the early 1980s that wilderness use projections incorporated mathematical and statistical models. Still, a significant amount of uncertainty was reflected in the broad range of projected annual rates of increase (2.6 to 7.2 percent to the year 2020). While these differences may not appear significant, consider that over a forty year period 2.6 percent results in less than tripling of use while a 7.2 percent rate results in a sixteen-fold increase in use (Dawson and Hendee, p.388). Cordell and others (1990) estimated that wilderness demand would exceed supply by the year 2000 and would continue to increase through the year 2040 at a projected rate of 0.5 percent per year. Other published estimates during the 1990s projected wilderness use rate increases between 0.5 percent annually to 6.3 percent (Cole 1996, Loomis et al. 1999). Between 1989 and 1994 actual wilderness use increase was estimated to be 2.8 percent.

It is clear that the capacity to accurately project wilderness use is limited. While a handful of studies agree that use will increase there is little to no agreement on the rate of increase. Dawson and Hendee (2009) conclude that a 2 percent annual growth rate seemed reasonable for the near future. In an examination of demographic and spatial factors that could influence wilderness recreation participation, Bowker et al. (2006) found corroborating evidence to previous studies that income, gender, and "environmental awareness" are positively correlated with wilderness participation; while race (black and other), ethnicity (Hispanic), age, and urbanization negatively correlate to wilderness participation. They estimated an annual increase of approximately 0.6 percent between 2005 and 2050.

In Arizona, the retirement age population continues to grow (increasing age). Furthermore, Arizona had one of the highest poverty rates in the nation in 2010, at 18.6 percent of the population, according to recently released Census Bureau data (income). That was well above the national poverty rate of 15.1 percent, and tied with New Mexico for having the fifth-highest share of residents in poverty. Only Mississippi, Louisiana and Georgia had higher levels of poverty in 2010. Thirty percent of the population in Arizona is Hispanic and another 4 percent are black (US Census 2010). Thus, over a third of the population would not be considered "wilderness visitors" based on observed demographic trends.

Given the current level of wilderness recreation use on the Kaibab NF and other wilderness areas within the vicinity, all PWAs are rated low for this factor as it would likely be many years before visitor use pressure becomes an issue on the Kaibab National Forest.

**Factor 3**

***The extent to which non-wilderness lands on the Kaibab NF or other Federal lands are likely to provide opportunities for unconfined outdoor recreation experiences.***

- 1. Are there non-wilderness lands within or near the Kaibab NF that are likely to provide opportunities for unconfined outdoor recreation experiences?*
- 2. If so, what types of lands are they, where are the lands located, and how might they meet demands for unconfined outdoor recreation experiences?*

There are various land designations that are not wilderness that are capable of providing opportunities for unconfined outdoor recreation experiences within 100 miles of the Kaibab NF.

A wilderness proposal was prepared for Grand Canyon National Park in 1980; it was updated in 1993 and awaits further action. It proposed a wilderness designation for 1,109,257 acres, with an additional 29,820 acres of potential wilderness within Grand Canyon National Park. These areas offer visitors opportunities for solitude and primitive recreation and current management is designed to preserve the wilderness values and character (USDI, BLM 2011). Other National Park Service lands within 100 miles of the Kaibab NF include Zion and Bryce Canyon National Parks, Glen Canyon and Lake Mead National Recreation Areas.

The Forest Service uses the Recreational Opportunity Spectrum (ROS) to classify settings for recreational opportunities. The Semi-Primitive Non-Motorized and Primitive ROS classifications are likely to provide a “wilderness-like” setting. In addition, Inventoried Roadless Areas (IRA) may provide an unconfined outdoor recreation experience. These land designations imply that there are limited roads and, therefore, reduced evidence of human use. These lands can provide an unconfined recreation experience similar to wilderness. There are over 380,000 acres of these “wilderness-like” areas within 100 miles of the Kaibab NF.

There are also 1.2 million acres of Bureau of Land Management Wilderness Study Areas within 100 miles of the Kaibab NF. All of these wilderness-like areas total over 6 million acres (Table 16).

**Table 16. Wilderness-like areas in or near the Kaibab NF**

<b>Area Type</b>	<b>Acres</b>
BLM WSA	1,229,170
NPS managed like wilderness	3,113,209
USFWS proposed wilderness	0
FS IRA	381,037
FS WSA	0
FS ROS (P and SPNM codes) <sup>1</sup>	1,571,744
<b>Total "Like Wilderness" Within 100 mi of Kaibab NF</b>	<b>6,295,160</b>

<sup>1</sup> P = Primitive; SPNM = Semi-primitive non-motorized

To evaluate how these lands might meet “demands” for unconfined outdoor recreation experiences we examined accessibility of these areas to the population centers in a similar fashion to what was done under Factor 1, Item 2. The average distance to all wilderness-like areas within 100 miles (straight line distance) was calculated for each of the population centers (Table 17). The location of these areas is shown in Figure 5.

**Table 17. Average distance to wilderness areas from population centers**

Population Center	Average distance (miles) to like-wilderness areas, by type			
	BLM WSA	NPS	FS IRA	FS ROS <sup>3</sup>
Cottonwood-Verde Village	---	96	48	43
Flagstaff	---	82	65	52
Prescott	97	---	57	57
Sedona	---	90	50	39
Williams	---	76	69	54
North Phoenix Metro <sup>2</sup>	---	---	67	73

<sup>1</sup> --- indicates there were no like-wilderness areas of this type within 100 miles of the population center

<sup>2</sup> North Phoenix Metro includes Cave Creek, New River, Paradise Valley, and Scottsdale

<sup>3</sup> Includes only like-wilderness ROS codes (Semi-primitive non-motorized and Primitive)

A significant amount of “like-wilderness” lands exist within 100 miles of the Kaibab NF and the population centers that would provide numerous, easily accessible, opportunities for unconfined outdoor recreation experiences. All PWAs were rated “low” for Factor 3.

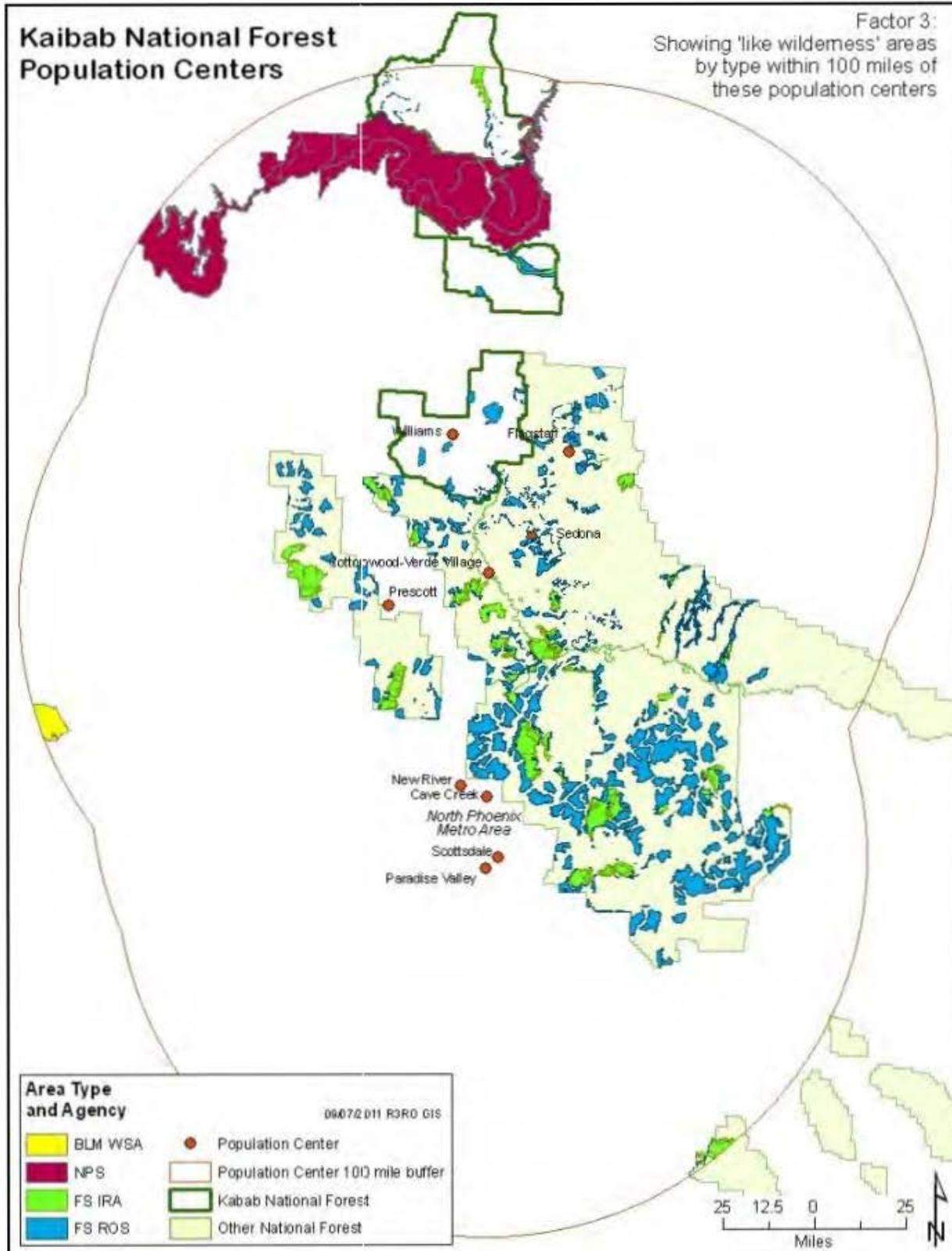


Figure 5. "Like-wilderness" areas within 100 miles of select population centers

#### Factor 4

***The need to provide a refuge for those species that have demonstrated an inability to survive in less than primitive surroundings, or the need for a protected area for other unique scientific values or phenomena.***

*1. Are there species on the forest that require primitive surroundings for survival, or are there areas that need protection for other unique scientific values or phenomena?*

After consulting with Forest wildlife and range staff it was determined that only one of the PWAs (Kanab Creek Addition) provided habitat for individuals of any species that required primitive surroundings for survival. Kanab Creek is the only PWA that received a “high” rating for this Factor. No species were identified that fit this description within any of the other PWAs. PWAs received a “medium” rating if they contained and/or provided habitat for federally listed or sensitive species that would benefit from wilderness protection. If a PWA had neither habitat nor species that required wilderness protection it received a “low” rating.

While three of the PWAs – Burro Canyon, Seegmiller, and South Canyon Point – have the pediocactus present, Forest specialists did not believe that wilderness designation would provide additional protection. All PWAs, except Kanab Creek Addition, were rated “low” for Factor 4.

#### Factor 5

***Within social and biological limits, management may increase the capacity of established wildernesses to support human use without unacceptable depreciation of the wilderness resource.***

*1. Are there opportunities to alter management of existing wildernesses to accommodate additional demand without unacceptable depreciation of the wilderness resources?*

The assessment for this factor was done collectively for the three existing wilderness areas on the Kaibab NF. Current wilderness use is low and is projected to remain so on the Kaibab NF for the foreseeable future (see Factor 2). They are currently well within social and biological limits and could experience significant increases in use without unacceptable depreciation or need for changes in management. It was determined that there is a “low” need to alter management for purposes of accommodating additional demand.

#### Factor 6

***An area’s ability to provide for preservation of identifiable landform types and ecosystems.***

*1. Does the potential wilderness area (PWA) contain any regionally under-represented ecosystem and landform types?*

In guidance set forth by R3, under-represented landforms and ecosystems/potential natural vegetation types (PNVTs) were defined as those that comprise less than 3% of existing wilderness in the Southwestern Region. Table 18 shows acres of under-represented landforms that occur within PWAs. Table 19 displays the number of acres of under-represented ecosystems/PNVTs that occur within the PWAs.

**Table 18. Under-represented landforms in PWAs**

Potential Wilderness Area	Under-represented Landform	Acres
Kanab Creek PWA 03-07-034	Cold Desert-Great Basin Sagebrush	450
Coconino Rim PWA 03-07-079	Kaibab Coniferous Forest	6,360
Coconino Rim PWA 03-07-079	Kaibab Woodland	1,390
Burro Canyon PWA 03-07-003	Kaibab Uplift	7,560
Willis Canyon PWA 03-07-002	Kaibab Uplift	6,430

**Table 19. Under-represented PNVTs in PWAs**

Potential Wilderness Area	Under-represented Ecosystem/PNVT	Acres
Kanab Creek PWA 03-07-034	Cottonwood Willow Riparian Forest	90
Kanab Creek PWA 03-07-034	Sagebrush Shrubland	705
Saddle Mountain PWA 03-07-043	Sagebrush Shrubland	20
Coconino Rim PWA 03-07-079	Sagebrush Shrubland	165
Burro Canyon PWA 03-07-003	Sagebrush Shrubland	655
Willis Canyon PWA 03-07-002	Sagebrush Shrubland	105
Seegmiller PWA 03-07-035	Sagebrush Shrubland	190
South Canyon Point PWA-03-07-045	Sagebrush Shrubland	4,585
Grassy/Quaking Aspen canyons PWA-03-07-099	Mixed Conifer-Frequent Fire	120

Areas that contained more than 1,000 acres of under-represented landform or ecosystem/PNVT were rated high. Areas that contained 100-1,000 acres were rated medium and those areas with less than 100 acres received a low rating.

Based on the regional distribution of wilderness, the representation of landforms and ecosystems within existing wilderness areas, and the degree to which an individual PWA would contribute to the national wilderness system for each of the six factors, need ratings for the PWAs are generally low. As a result, need was not a significant factor for determining the merit of any particular PWA. Table 20 summarizes the Need ratings assigned to the PWAs that passed the Capability analysis.

**Table 20. Summary of the Kaibab National Forest potential wilderness area need ratings**

Area Name, Size, PWA Number <sup>1</sup>	Need Rating Criteria							Public Input
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Need <sup>2</sup>	
<b>Kanab Creek Addition:</b> 4,710 ac PWA 03-07-034	Low	Low	Low	High	Low	Medium	<b>Low</b>	No specific comments
<b>Saddle Mountain Addition:</b> 1,296 ac PWA 03-07-043	Low	Low	Low	Low	Low	Medium	<b>Low</b>	No specific comments
<b>Grassy/Quaking Aspen Canyons:</b> 232 ac, PWA 03-07-099	Low	Low	Low	Low	Low	Medium	<b>Low</b>	Supported by Grand Canyon National Park
<b>Jacks Canyon:</b> 156 ac PWA 03-07-999	Low	Low	Low	Low	Low	Low	<b>Low</b>	No specific comments
<b>Sycamore Canyon Addition:</b> 988 ac PWA 03-07-057	Low	Low	Low	Low	Low	Low	<b>Low</b>	No specific comments
<b>Burro Canyon:</b> 10,735 ac PWA 03-07-003	Low	Low	Low	Low	Low	Medium	<b>Low</b>	Supported by various conservation groups in comments received on draft Plan/EIS
<b>Coconino Rim:</b> 7,750 ac PWA 03-07-079	Medium	Low	Low	Low	Low	Medium	<b>Low</b>	Supported by various conservation groups in comments received on draft Plan/EIS
<b>Seegmiller:</b> 6,168 ac PWA 03-07-035	Low	Low	Low	Low	Low	Low	<b>Low</b>	Supported by various conservation groups in comments received on draft Plan/EIS
<b>South Canyon Pt.:</b> 5,829 ac PWA 03-07-045	Low	Low	Low	Low	Low	Medium	<b>Low</b>	Supported by various conservation groups in comments received on draft Plan/EIS
<b>Willis Canyon:</b> 6,418 ac PWA 03-07-002	Low	Low	Low	Low	Low	Medium	<b>Low</b>	Supported by various conservation groups in comments received on draft Plan/EIS

<sup>1</sup> The Kanab Creek, Saddle Mountain, Sycamore Canyon, and Grassy/Quaking Aspen Canyon additions are included based on the "contiguous to existing wilderness" criterion. The remaining five PWAs are included based on the  $\geq 5,000$  acres criterion.

<sup>2</sup> Overall need rating: 16-18 = High ( $\geq 87\%$ ); 11-15 = Medium (60-86%);  $< 11$  = Low ( $< 60\%$ ).

## Public Involvement Process

Public involvement is an important and required component of the PWA identification and evaluation process. During the initial plan scoping period, the wilderness analysis process was shared and input was solicited from public meeting participants regarding areas to be considered for recommended wilderness, but little wilderness-specific input was received. Later in the scoping process, comments were received from a consortium of conservation groups in support of designating all inventoried roadless areas as well as Sitgreaves Mountain as PWAs. These groups' advocacy for Sitgreaves Mountain was later withdrawn in recognition of the need for future treatments to reduce fire risk in this area. Opportunities for public comment on PWAs were also provided at multiple public meetings over the course of the plan revision process.

Individual meetings were held with various entities including the Town of Fredonia, Arizona Game and Fish Department, and Grand Canyon National Park (GCNP). The Fredonia Town Council expressed opposition to recommending additional wilderness, noting a wilderness evaluation and designation process had already been completed with passage of the Arizona Wilderness Act of 1984. Arizona Game and Fish was generally only supportive of recommending additional wilderness that explicitly benefited wildlife, noting that wilderness designation can limit the ability to implement wildlife habitat improvement projects. Discussions with GCNP staff focused on PWAs adjacent to the Park. GCNP was supportive of recommending Grassy/Quaking Aspen and South Canyon Point PWAs.

During the formal public comment period for the draft Plan and Environmental Impact Statement, comments were received from several conservation organizations in support of recommending all PWAs in the draft proposed action<sup>1</sup> (Kanab Creek additions, Saddle Mountain Addition, Grassy/Quaking Aspen canyons, and Sycamore Canyon Addition), the PWAs in alternatives C and D (Burro Canyon, Coconino Rim, Seegmiller, South Canyon Point, and Willis Canyon), and Red Point for wilderness designation.

## Effects of Recommendation

This section discusses the potential effects of designating as wilderness and of managing as non-wilderness the PWAs evaluated in this report. Under both scenarios, it examines the effects on wilderness characteristics and values, non-wilderness resources and uses, and economic and social dimensions of the areas. Due to similarities in potential effects, PWAs were grouped for this analysis. PWAs adjacent to existing or proposed wilderness are addressed as Group 1 (Grassy/Quaking Aspen canyons, Jacks Canyon, Kanab Creek Additions, Saddle Mountain Addition, and Sycamore Canyon Addition); PWAs that are within existing inventoried roadless areas are addressed as Group 2 (Big Ridge, Burro Canyon, Red Point, Willis Canyon, and Coconino Rim); and the remainder of the PWAs (Northwest North Kaibab, Paradise Ridge, Red Butte, Seegmiller, Sitgreaves Mountain, and South Canyon Point) are addressed as Group 3. Where applicable, all PWAs are discussed together.

## Areas are designated as wilderness

If designated as wilderness, the PWAs identified in this report would be managed to protect or improve their wilderness character and provide for primitive and unconfined recreation experiences. Management would be in accordance with direction for wilderness areas provided in the Kaibab NF Land and Resource Management Plan, the Wilderness Act, and other applicable law, regulation, and policy.

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<sup>1</sup> Please see the "Summary of Results and Leadership Team Discussion" section (below) for detail on PWAs by plan revision alternative.

### *Effects on wilderness characteristics and values*

If designated as wilderness, maintaining and protecting wilderness characteristics and values would be the management emphasis for the PWAs. This would represent little change from current management for PWAs in Group 1, thus having little effect on their existing wilderness characteristics and values. Jacks Canyon and a large portion of the Kanab Creek Addition fall within the semi-primitive non-motorized or primitive ROS classes, so they currently offer opportunities for solitude and primitive, unconfined recreation. Although the Sycamore Canyon Addition and Saddle Mountain Addition fall within the semi-primitive motorized ROS class and Grassy/Quaking Aspen canyons and small portions of the Kanab Creek Addition fall within the roaded natural ROS class, the steepness and/or remoteness of these areas ensure they also support primitive recreation under current management. Furthermore, the steepness and/or remoteness of these areas would likely preclude intensive vegetation treatments and development, so wilderness designation would result in little change in management.

PWAs in Group 2 lie within inventoried roadless areas and are managed as semi-primitive non-motorized (ROS class) and therefore already possess some undisturbed character. Designation of these areas as wilderness has the potential to maintain or improve their wilderness character, but would also limit the ability to maintain or make progress toward desired conditions where needed. Large portions of the Big Ridge and Red Point PWAs burned at mixed to high severity in the Warm Fire of 2006. These areas could benefit from planting, weed treatments, and other watershed improvement projects that are typically less expensive and more effective when motorized and mechanized treatments are used. Areas that have missed fire return intervals are increased risk for high severity fire and colonization by invasive species, which has the potential to reduce wilderness character. Treatments to reduce fire risk and manage weed infestations are less expensive and more effective when motorized or mechanized means are used.

PWAs in Group 3 currently possess varying degrees of wilderness character. Red Butte and Sitgreaves Mountain are classified as semi-primitive non-motorized; Seegmiller and South Canyon Point are semi-primitive motorized; Northwest North Kaibab is semi-primitive motorized and roaded natural; and Paradise Ridge is classified as semi-primitive motorized and roaded modified. As with Group 2 PWAs, the designation of these areas as wilderness has the potential to maintain or improve their current wilderness character, but it would also limit vegetation and/or invasive species treatments requiring the use of motorized or mechanized equipment, leaving them at greater risk to high severity fire, insects and disease, and colonization by invasive species.

### *Effects on non-wilderness resources and uses*

If designated as wilderness, all activities occurring in the PWAs would be required to adhere to guidance for wilderness areas provided in the Forest Plan and other law, regulation, and policy. Resources and uses potentially affected by wilderness designation include recreation, wildlife, soils and watersheds, livestock grazing, production of wood products, mining and minerals extraction, heritage and cultural resources, and fire management.

From a recreation standpoint, wilderness designation would likely have little effect on PWAs in Groups 1 and 2, as their low accessibility currently provides for primitive, unconfined recreation and would preclude recreation development. In Group 3 PWAs, wilderness designation would provide additional opportunities for primitive, unconfined recreation on the Kaibab, but would eliminate the potential for developed, motorized, and mechanized recreation. However, because such recreation is currently limited in these areas and motorized travel off of designated routes is already prohibited, the overall effect would be minimal.

While wilderness designation may provide greater protection for wildlife and wildlife habitat, it would limit options for active management to improve habitat and protect it from high severity fire. The likelihood of habitat improvement through active management under current guidance is lower in the remote PWAs (e.g. Group 1) so wilderness designation would likely have little effect, but this possibility is greater in the less remote or larger areas (e.g. groups 2 and 3).

None of the PWAs contain perennial streams; only two (Grassy/Quaking Aspen canyons and Seegmiller) contain known seeps or springs. Although wilderness designation will likely have no direct effect on the soil and water resources of these areas, the reduced ability to implement vegetation treatments may leave the areas at greater risk of high severity fire and invasive species spread or colonization and subsequent degradation of watershed function.

Designation as wilderness would not preclude grazing within the PWAs where a grazing permit was in existence at the time of designation and where there is recent history of grazing use immediately prior to designation, or where grazing had temporarily been discontinued for purposes such as range restoration. Although maintenance of grazing infrastructure (fences, water tanks, etc.) within these areas could still be completed using motorized or mechanized means under the Congressional Grazing Guidelines (House Report 96-1126), such projects would require additional time for review and approval. This could result in degraded infrastructure and unintended resource impacts. None of the Group 1 PWAs contain infrastructure that would require motorized or mechanized maintenance. Many of the Group 2 and 3 PWAs do contain grazing infrastructure.

Wilderness designation would limit vegetation treatments in all PWAs to activities using non-motorized and non-mechanized means and would remove the areas from the suitable timber base. The likelihood of future treatments being proposed in Group 1 PWAs is relatively low given their remoteness, small size, and steep nature, so the effects of wilderness designation on vegetation in these areas would be minimal. Group 2 and 3 PWAs have a greater likelihood of future treatments being proposed, so wilderness designation would affect the types of treatments that would be allowed in these areas. A reduced ability to use motorized or mechanized means to implement treatments increases the susceptibility to high-severity fire, insect and disease outbreak, and compromised watershed function.

If designated as wilderness, all PWAs would be withdrawn from future mineral entry or leasing. The Coconino Rim PWA has abandoned and closed mines and the potential for valid existing rights to occur, but none of the other PWAs have known patented lands, mining claims, or surface occupancy leases. Furthermore, the North Kaibab and Tusayan districts have been withdrawn from future locatable mineral entry. As a result, designation would have no effect on existing activities and minimal potential effect on future entry or leasing.

The PWAs identified in this analysis contain varying known or expected densities of heritage and cultural sites. Wilderness designation would have both beneficial and detrimental effects to these sites and their administration. The potential for impacts to sites from vehicle damage or vandalism would be decreased by reducing their accessibility via motorized or mechanized means. However, administration of sites (e.g. monitoring, maintenance, stabilization, and rehabilitation) would become more challenging, as such activities could no longer be completed using motorized or mechanized means.

Wilderness designation would not preclude the use of wildland fire to move any of the PWAs toward desired conditions. However, the use of mechanized or motorized tools in fire operations would be limited in the wilderness areas, thereby potentially increasing their cost and reducing their effectiveness.

### *Economic and social effects*

It is difficult to quantify the economic effects of designating additional wilderness areas. There is some evidence that newly designated wilderness receives increased visitation for a period of time following its designation, but it is not certain that this level of visitation is sustained. If visitation does increase, it is expected that the economic contribution of recreation activities would increase with the additional visitor-days associated with lands with wilderness character (Eichman and Jaworski 2012).

It is unlikely that designation as wilderness would result in any meaningful increase in visitation of Group 1 PWAs, as these areas are generally small, remote, and adjacent to existing or proposed wilderness. Because PWAs in groups 2 and 3 are larger and not connected to existing wilderness, visitor interest following designation may be greater. However, many of these areas (Big Ridge, Burro Canyon, Northwest North Kaibab, Red Point, Seegmiller, South Canyon Point, and Willis Canyon) are located on the North Kaibab Ranger District, where wilderness visitation is generally low. Given their relatively remote locations it is expected that these PWAs would experience low visitation as well. Furthermore, their lower-elevation nature and effects from the Warm Fire (in the case of Big Ridge and Red Point) reduce their appeal for recreation. PWAs on the Williams and Tusayan districts (Coconino Rim, Red Butte, Paradise Ridge, and Sitgreaves Mountain) are more accessible and thus have a greater potential for visitation. Although Sitgreaves Mountain and the Coconino Rim offer scenic vistas they contain little in the way of hiking trails, so it is unlikely they will receive much additional recreational use over the long term if designated as wilderness. Red Butte currently receives moderate recreational use and wilderness designation is unlikely to change this. Paradise Ridge is relatively remote and low in elevation, so it is unlikely to receive substantial increases in use. Overall, it is expected that the economic impact from increased visitation if the PWAs are designated as wilderness would be minimal.

Designation of the PWAs as wilderness may affect other revenue-generating goods and services such as minerals extraction, livestock grazing, and forest products generation, as well as administrative costs associated with those areas.

Because there is little history of mineral extraction within the PWAs, the economic impact of the withdrawal of future mineral rights is expected to be minimal. More substantial impacts from restrictions associated with livestock grazing, timber harvest, and other vegetation treatments may occur. Livestock grazing would be permitted to continue, but there may be additional expenses associated with application of the Congressional Grazing Guidelines. These guidelines allow for continued use of motorized equipment for management activities within designated wilderness but require additional time and cost for the review and approval of projects. Wilderness designation would also impact the ability to implement vegetation treatments, as it would prohibit commercial timber harvest and preclude the use of motorized or mechanized equipment to complete work associated with vegetation management aimed at fire risk reduction or wildlife habitat improvement. This would increase treatment costs. The same is true for activities associated with recreation-related maintenance or construction activities.

In addition to market transactions, designation of additional wilderness can have a number of non-market effects. Goods and services such as the clean air and scenic vistas that wilderness can provide have both social and economic value. Wilderness is recognized as contributing to healthy lifestyles and economies through benefits derived from recreation as a “quality of life” factor to attract new businesses and residents. The social values associated with wilderness include community benefits, preservation of open space, scientific and educational values, biodiversity, promotion of ecosystem services and other forest-related amenity values, and an increase in primitive recreation opportunities (Loomis and Richardson 2001). For individuals who value resource protection above use, the designation of additional lands for wilderness on the Kaibab NF will provide value regardless of their intention to recreate on those lands (Eichman and Jaworski 2012).

## **Areas are managed as non-wilderness**

If managed as non-wilderness, the lands comprising the PWAs discussed in this report would be managed for multiple use, ecosystem restoration, and social and economic values.

### *Effects on wilderness characteristics and values*

Management as non-wilderness would have little effect on the existing wilderness characteristics and values of areas in Group 1. Jacks Canyon and a large portion of the Kanab Creek Addition fall within the semi-primitive non-motorized or primitive ROS classes, so they currently offer opportunities for solitude and primitive, unconfined recreation. Although the Sycamore Canyon and Saddle Mountain additions fall within the semi-primitive motorized ROS class and Grassy/Quaking Aspen canyons and small portions of the Kanab Creek Addition fall within the roaded natural ROS class, the steepness and/or remoteness of these areas ensure they also support primitive recreation. Furthermore, the steepness and/or remoteness of these areas would likely preclude vegetation treatments, motorized use, or other developments, so non-wilderness management would yield little change in these areas' wilderness characteristics and values.

Because PWAs in Group 2 fall within inventoried roadless areas, they currently possess some degree of undisturbed character and are managed under the semi-primitive non-motorized ROS class. Management as non-wilderness would potentially leave areas open to motorized or mechanized entry for specific purposes. However, their relatively remote, roadless nature as well as restrictions imposed by their management as semi-primitive non-motorized areas would likely limit the effects of recreation and administrative activities on their wilderness character. Furthermore, maintaining the possibility of more intensive vegetation management allows for added flexibility in implementing treatments that reduce the risk of high severity fire, improve wildlife habitat, and maintain or improve watershed function. Activities in these areas would be managed to maintain their roadless character and promote achievement of desired conditions, using best management practices and mitigation measures to protect resource values.

PWAs in Group 3 currently possess varying degrees of wilderness character. Red Butte and Sitgreaves Mountain are classified as semi-primitive non-motorized; Seegmiller and South Canyon Point are classified as semi-primitive motorized; Northwest North Kaibab is semi-primitive motorized and roaded natural; and Paradise Ridge is classified as semi-primitive motorized and roaded modified. Continued management of these areas as non-wilderness has the potential to reduce any wilderness character they currently possess but would also allow for treatments that reduce fire risk, improve wildlife habitat, and maintain or improve watershed function. As with other areas, projects would be designed to promote achievement of desired conditions and would utilize best management practices and mitigation measures to protect resource values.

### *Effects on non-wilderness resources and uses*

If managed as non-wilderness, there would be no withdrawal of mineral rights, implementation of grazing guidelines, or prohibitions on commercial timber harvest and motorized/mechanized use within the PWAs. Additionally, there would be increased flexibility in management of habitat, heritage and cultural resources, and fire.

There is currently little in the way of existing mining or mineral extraction within the PWAs. Furthermore, the North Kaibab and Tusayan ranger districts have been withdrawn from future locatable mineral entry. As a result, regardless of wilderness designation, it is unlikely that further mineral entry or leasing would occur within the PWAs under non-wilderness management.

If not designated as wilderness, grazing allotments within the PWAs would continue to be managed under current allotment management plans. No additional requirements for oversight and review of management plans would be implemented.

In non-wilderness areas, mechanical vegetation treatments would be allowed. The likelihood of future treatments being proposed in Group 1 PWAs is relatively low given their remoteness, small size, and steep nature, so there would be little difference between wilderness and non-wilderness management in these areas. Group 2 and 3 PWAs have a greater likelihood of future treatments being proposed, and non-wilderness management would allow mechanical treatments to occur and provide greater flexibility in designing and implementing treatments.

Non-wilderness management would likely have little effect on recreation in Group 1 and 2 PWAs, as the low accessibility of these areas currently provides for primitive, unconfined recreation and precludes most recreation development. Under non-wilderness management, opportunities for developed, motorized, and mechanized recreation would be preserved in all PWAs, especially those in Group 3. However, because such recreation is currently limited in these areas and motorized travel off of designated routes is already prohibited, the overall effect would be minimal.

Although non-wilderness designation would not necessarily provide greater protection for wildlife, wildlife habitat, and watershed function by prohibiting or limiting certain activities, options for active management to improve habitat and watersheds and protect them from high severity fire would be preserved. Although such activities are less likely in the remoter PWAs (e.g. Group 1), the possibility is greater in the less remote and larger areas (e.g. groups 2 and 3).

Non-wilderness management will maintain the current level of access to any heritage and cultural sites present within the PWAs, thereby preserving any potential for damage or vandalism. However, the administration of sites (e.g. monitoring, maintenance, stabilization, and rehabilitation) using motorized or mechanized means could still continue, thereby facilitating their protection.

Non-wilderness management would provide the greatest flexibility in wildland and prescribed fire management. This would help protect Forest resources from uncharacteristic fire effects and better allow for the use of fire to move the areas toward desired conditions.

If maintained as non-wilderness, the desired conditions, standards, guidelines, objectives, and suitability determinations outlined in the Forest Plan that are relevant to the management areas, vegetation types, and other ecosystem components overlapping the PWAs would be used to guide management of and activities occurring within these areas. For example, if the Kanab Creek additions are not designated as wilderness, the plan components related to the vegetation types (pinyon-juniper woodlands, sagebrush shrublands, semi-desert grasslands, and cottonwood-willow riparian forest), management areas (Grand Canyon Game Preserve and Kaibab Squirrel National Natural Landmark), ROS settings (primitive, semi-primitive non-motorized, and roaded natural), and scenic integrity objectives (moderate, high, and very high) occurring within the PWA would guide the area's management. Projects would utilize best management practices and mitigation measures where necessary to protect resource values.

### *Economic and social effects*

If not designated as wilderness, there would be no additional restrictions on recreation access, withdrawal of mineral rights, implementation of grazing guidelines, or prohibitions on commercial timber harvest that would occur with wilderness designation.

Under non-wilderness management, no additional restrictions on recreation access would be imposed within the PWAs. It is expected that the relatively low recreational use these areas currently receive will continue, so there will likely be little economic effect from any additional use the areas would receive through greater accessibility under non-wilderness management. Furthermore, if not designated as wilderness, there would be no increase in visitation of the PWAs due to a new designation. However, because it is not expected that wilderness designation would result in a substantial increase in visitation, the difference in economic effects due to additional recreation use would be minimal.

There is little history of mineral extraction within the PWAs, and it is expected that this will continue to be the case. Furthermore, the majority of the PWAs have already been withdrawn from future locatable mineral entry. As a result, the economic impact of not withdrawing the remaining areas from mineral entry is expected to be minimal. More substantial effects associated with livestock grazing, timber harvest, and other vegetation treatments may occur. Maintenance of grazing infrastructure and transportation of livestock would incur lower operating costs without imposition of additional restrictions. Managing the areas as non-wilderness would also increase flexibility in implementation of vegetation treatments, as commercial timber harvest and the use of motorized or mechanized equipment to complete work associated with vegetation management aimed at fire risk reduction or wildlife habitat improvement would not be prohibited. This could decrease treatment costs. The same is true for activities associated with recreation-related maintenance or construction activities.

The management of the PWAs for multiple use, ecosystem restoration, and social and economic values does not preclude management for values that are also associated with wilderness. The “quality of life” benefits derived from recreation are not exclusive to primitive or non-motorized activities. A non-wilderness area can provide a more diverse set of recreation opportunities that could appeal to a wider range of visitors, some of whom will not be seeking a wilderness experience. These opportunities could include mountain bike trails, off-highway vehicle routes, and developed camping or day use areas, although some of these activities would be incompatible with the desired conditions and landscape limitations associated with the Kaibab’s largely remote, often steep PWAs. Community benefits, preservation of open space, scientific and educational values, biodiversity, promotion of ecosystem services, and other forest-related amenity values can be derived from wilderness and non-wilderness areas alike.

## **Summary of Results and Leadership Team Discussion**

Table 21 summarizes the capability, availability, and need ratings for the 16 PWAs identified on the Kaibab National Forest as a part of the plan revision process, and lists the plan alternatives that recommend each area for wilderness designation. Of these, six were not evaluated for availability or need due to low capability ratings. Five PWAs (Kanab Creek Addition, Saddle Mountain Addition, Grassy and Quaking Canyons, Jacks Canyon, and Sycamore Canyon Addition) rated “high” for capability. With the exception of Jacks Canyon, these PWAs rated “high” for availability. All PWAs ranked “low” for need. As a result, considerations were primarily focused on capability and availability, with general recognition of the low need.

The leadership team and plan revision team discussed the individual characteristics of each PWA and the criteria/factors for capability, availability, and need. After considering the merits of each area, there was general support for recommending the areas for wilderness that had at least a combined rating of high/medium capability and availability in the proposed action.

The potential additions to Kanab Creek Wilderness would bring the area managed as wilderness to the rim, making it more identifiable and, therefore, manageable. The potential addition to Saddle Mountain Wilderness would add a unique landform, the “Cockscomb,” into the area managed as wilderness. Grassy

and Quaking Aspen Canyons are adjacent to proposed wilderness in the Grand Canyon National Park and would also bring the area managed as wilderness to the rim, improving manageability. These additions also received strong support from Grand Canyon NP. Jacks Canyon extends the boundary of the Sycamore Canyon Wilderness into a side canyon, improving its manageability.

Because the Sycamore Canyon Addition is less than 1,000 acres, it was only to be recommended by the Kaibab NF for wilderness designation if the adjacent PWA on the Prescott NF (Sycamore Canyon Contiguous C) was recommended in the Prescott’s revised forest plan. This portion of the Prescott NF was not included in their proposed action, so the Sycamore Canyon Addition is not recommended as a PWA under the Kaibab NF’s Alternative B (proposed action).

**Table 21. Capability, availability, and need ratings for Kaibab NF Potential Wilderness Areas**

PWA Number	Name	Acres	Capability	Availability <sup>1</sup>	Need <sup>1</sup>	Alternatives Recommending
03-07-034	Kanab Creek Addition	4,710	High	High	Low	B, C and D
03-07-043	Saddle Mountain Addition	1,296	High	High	Low	B, C and D
03-07-099	Grassy/ Quaking Aspen Canyons	232	High	High	Low	B, C and D
03-07-999	Jacks Canyon	156	High	Medium	Low	B, C and D
03-07-057	Sycamore Canyon Addition <sup>2</sup>	988	High	High	Low	C and D
03-07-003	Burro Canyon <sup>3</sup>	10,735	Medium	Medium	Low	C and D
03-07-079	Coconino Rim <sup>3</sup>	7,750	Medium	Medium	Low	C and D
03-07-035	Seegmiller	6,168	Medium	Medium	Low	C and D
03-07-045	South Canyon Point	5,829	Medium	Medium	Low	C and D
03-07-002	Willis Canyon <sup>3</sup>	6,418	Medium	Low	Low	C and D
03-07-018	NW NKRD	6,209	Low	-	-	None
03-07-134	Paradise Ridge	6,222	Low	-	-	None
03-07-004	Big Ridge <sup>3</sup>	6,143	Low	-	-	None
03-07-098	Red Point <sup>3</sup>	7,385	Low	-	-	None
03-07-088	Red Butte	1,237	Low	-	-	None
03-07-073	Sitgreaves Mountain	2,893	Low	-	-	None

<sup>1</sup>PWAs scoring below the 60% threshold for capability were not evaluated for availability or need

<sup>2</sup>Although Sycamore Canyon Addition received high capability and availability ratings, because of its small size it was only to be recommended for wilderness designation under the proposed action if the adjacent PWA on the Prescott NF was recommended.

<sup>3</sup>These areas overlap in large part with inventoried roadless areas

Following the discussion of what should be included in the proposed action (Alternative B) to be recommended for wilderness, there was discussion about which PWAs should be evaluated in detail in the alternatives to the proposed action. During the scoping phase for the plan, comments were received on the

initial capability and availability evaluations. Some commenters wanted all of the inventoried roadless areas and Sitgreaves Mountain to be recommended for wilderness. Other comments stated that no new areas should be recommended for wilderness, and others supported the recommendation of any capable areas contiguous to the Grand Canyon be proposed as wilderness.

Of the five inventoried roadless areas on the Kaibab NF, Big Ridge and Red Point rated low for capability. This is due in large part to the effects of the Warm fire of 2006, which burned these areas at generally high severity. These areas were considered, but not included in the alternatives to be analyzed in detail because of their lower capability and because they would benefit from management aimed at improving their ecosystem integrity. Such management would be more efficient and effective with the ability to use a variety of tools, and would likely improve these areas' wilderness capability over the long term. Similarly, Sitgreaves Mountain was eliminated from further consideration because of a low capability rating and the need for treatments aimed at reducing the risk of uncharacteristic fire. Not recommending these or other areas for wilderness designation at this time does not preclude their recommendation in the future. All of the remaining PWAs that received at least a medium capability rating were included in the alternatives to the proposed action in an effort to maintain a range of alternatives and provide the greatest amount of information for use in the decision.

## **Overview of Results**

The proposed action recommends four PWAs (Kanab Creek Addition, Saddle Mountain Addition, Grassy/Quaking Aspen Canyons, and Jacks Canyon), totaling about 6,394 acres, for wilderness designation. These areas would be managed under the "Recommended Wilderness Management Area" in the proposed plan. Alternatives C and D recommend the PWAs in the proposed action, plus six additional wilderness areas (totaling about 37,000 acres): Burro Canyon, Coconino Rim, Seegmiller, South Canyon Point, Sycamore Canyon addition, and Willis Canyon.

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## Appendix A: R3 Potential Wilderness Inventory Process

This document outlines the criteria to be used in determining an area for inclusion in the inventory of potential wilderness. Follow the steps below to create your inventory of potential wilderness areas as specified by FSH 1909.12, Chapter 70 - **Wilderness Evaluation**.

### **Important reminders<sup>2</sup>:**

- The application of the inventory criteria should rely on local knowledge and judgment regarding unique, site-specific conditions of each area being considered for placement on the inventory of potential wilderness.
- When delineating areas for the potential wilderness inventory; locate boundaries at prominent natural or semi-permanent human-made features to facilitate easy on-the-ground identification.

**Step One:** Create an initial list and map of areas using the following two criteria from FSH 1909.12 Ch 70, Section 71.1

1. Areas that do not contain forest roads, or other permanently authorized roads;
2. 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:
  - a. Area can be preserved due to physical terrain and natural conditions.
  - b. 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.
  - c. Area is contiguous to an existing wilderness, primitive area, Administration-endorsed wilderness, or other potential wilderness in other Federal ownership, regardless of their size.

**Step Two:** Utilize the **Criteria for Including Improvements** outlined in FSH 1909.12 Ch 70, Section 71.11 to identify areas from Step One that should be precluded from the potential wilderness inventory (*see attached Supplement A*). These would include areas such as timber harvest areas where logging and road construction are evident, mineral leases with surface occupancy, and developed recreation sites, as well as others. You may have GIS layers that relate to some of these criteria that would make them easy to identify.

**Step Three:** Apply the criteria for dealing with roaded areas, fingers, and other extrusions to exclude areas that do not meet the purpose of considering an area for potential wilderness (*see attached Supplement B*). Generally fingers or necks less than ½ mile in width can be used as an adjustment point. Explain the rationale for excluding the area from your inventory in the documentation.

**Step Four:** Review the areas resulting from the above three steps to determine if they meet the statutory definition of wilderness as outlined in Section 2(c) of the Wilderness Act: ***an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements<sup>3</sup> or human habitation, which;***

1. generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;
2. has outstanding opportunities for solitude or a primitive and unconfined type of recreation;

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<sup>2</sup> See FSH 1909.12, Chapter 70, Section 71.

<sup>3</sup> We recognize that the phrase in the Wilderness Act that says “*without permanent improvement*”, conflicts with the directives that allow improvements based on the criteria outlined in section 71.11. Please follow the criteria outlined in section 71.11 of the directives when considering areas with improvements.

**Discussion on Step Four:**

This step is where it is important to apply your local knowledge and judgment for the areas under consideration. Although there are no precise definitions for terms such as “primarily affected by the forces of nature” or “substantially unnoticeable”, Section 3 of General Technical Report on Monitoring Selected Conditions Related to Wilderness Character: A National Framework<sup>4</sup> provides interpretation of these phrases and terms from Section 2(c) of the Wilderness Act. It is important to note that although an area must meet the statutory definition of wilderness to be included in the inventory; this is meant to be a more cursory look at whether the area meets the definition based on initial look. The more in-depth review of how the area measures up in terms of wilderness character is done in the capability step of the evaluation. This will include a more thorough look at the characteristics as outlined in Section 72.1 – Capability, including manageability. In developing the inventory, it is sufficient for you to discuss and document reasons why a particular area is not being included in your inventory based on the criteria provided, your knowledge of the specific area, and professional judgment. For example, you may have an unroaded area adjacent to an existing wilderness or primitive area, but because of existing active mineral operations in that area that require surface occupancy, you find it is reasonable to not include the area in the inventory as per the criteria in FSH 1909.12 Ch 70, 71.11. Document your rationale for the planning record. Another example may include an area that is greater than 5,000 acres, part of which was recently burned in a wildfire. Containment lines and temporary roads are still apparent but are beginning to revegetate. Since these are not considered permanent improvements, it is prudent to include this area in your inventory. **(See example documentation in the form below for additional examples).**

**Step Five:** Use the form below (or some similar method) to document your results and rationale for including/excluding areas for your potential wilderness inventory. This will become part of your planning record.

**Step Six:** Prepare a final list (and map) of your potential wilderness areas that will be evaluated. Include the area’s common name, formal identification number (see below), acreage, and location on the forest. You must also include a list (and map) of existing wildernesses and primitive areas, and other areas as outlined in Section 71.2.

**Naming Scheme:** Final identification of potential wilderness areas should be in the following format:

**PW-03-XX-001**

**PW** = potential wilderness

**03** = Region 3

**XX** = insert your unit number

**001** = the # of the potential wilderness area, beginning with 001 and continuing in sequence (002, 003, etc).

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<sup>4</sup> See Monitoring Selected Conditions Related to Wilderness Character: A National Framework, USDA Forest Service, Rocky Mountain Research Station, General Technical Report RMRS-GTR-151, April 2005.

Kaibab National Forest Potential Wilderness Area Evaluation Report

<b>Sharkland National Forest</b>		<b>Yes = meets criteria</b>	<b>No = does not meet criteria</b>	<b>~ = not applicable</b>	
<b>STEP</b>	<b>Criteria</b>	<b>PW-example 1</b>	<b>PW-example 2</b>	<b>PW-example 3</b>	<b>PW-example 4</b>
<b>1</b>	Is at least 5000 acres, <b>or</b> is < 5000 acres and meets one of the following:	Yes	Yes	Yes	Yes
	a. can be preserved due to physical terrain and natural conditions, <b>or</b>	~	~	~	~
	b. is a self-contained ecosystem, such as an island, that can be effectively managed as a separate unit of the National Wilderness Preservation System, <b>or</b>	~	~	~	~
	c. is contiguous to an existing wilderness, primitive area, Administration-endorsed wilderness, or other potential wilderness in other Federal ownership, regardless of their size.	~	Contiguous to an existing primitive area	~	~
	Does not contain forest roads, or other permanently authorized roads.	Yes	Yes	Yes	Yes
<b>2</b>	Area removed due to criteria in 71.11. Document rational in proper box.	~	Area contains mineral leases/operations with surface occupancy	~	~
<b>3</b>	Area removed according to R3 criteria for addressing roaded areas, fingers, and extrusions	~	~	~	Area has multiple roads protruding inwards that are < ½ mile apart. After adjusting the boundary based on R3 criteria, area is less than 5000 acres
<b>4</b>	Meets the statutory definition of wilderness as outlined in sec. 2(c) of the Act: <i>an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which:</i>	Area contains multiple user-created ATV trails. However, these are not permanent improvements. The area otherwise meets the criteria.	~	Part of area was recently burned. Containment lines and temporary roads are still apparent but beginning to revegetate. Improvements are not permanent. Area otherwise meets criteria	~
	a. generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable	Yes	~	Yes	~
	b. has outstanding opportunities for solitude or a primitive and unconfined type of recreation	Yes	~	Yes	~
	<b>I = INCLUDE or E = EXCLUDE</b>	<b>I</b>	<b>E</b>	<b>I</b>	<b>E</b>

## **R3 Potential Wilderness Inventory Supplement**

### **A. Criteria for Including Improvements (FSH 1909.12 Ch 70, Sec 71.11)**

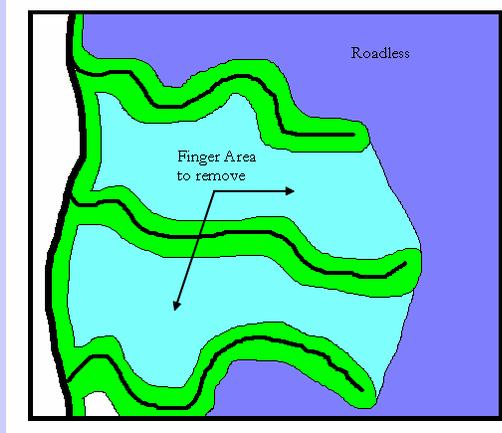
Areas may qualify for the inventory of potential wilderness even though they include the following types of areas or features:

1. Airstrips and heliports.
2. Cultural treatments involving plantations or plantings where the use of mechanical equipment is not evident.
3. Electronic installations, such as cell towers, television, radio, and telephone repeaters, and the like, provided their impact is minimal.
4. Evidence of historic mining (50+ years ago). Do not include areas of significant current mineral activity, including prospecting with mechanical or motorized earthmoving equipment. The inventory may include areas where the only evidence of prospecting is holes that have been drilled without access roads to the site. Potential wilderness also may include:
  - a. Areas that otherwise meet inventory criteria if they are covered by mineral leases having a “no surface occupancy” stipulation.
  - b. Areas covered by mineral leases that otherwise meet inventory criteria only if the lessee has not exercised development and occupancy rights. If and when these rights are exercised, remove the area, or portion affected, from the inventory unless it is possible to establish specific occupancy provisions that would maintain the area in a condition suitable for wilderness.
5. Structures or evidence of vegetative manipulation resulting from past management practices in National grasslands and prairies. National Grassland and Prairie areas that contain the following features may qualify for the inventory:
  - a. Areas where vegetation type conversions are reverting to native vegetation with minimal evidence of cultivation.
  - b. Areas with less than one mile of interior fence per section.
6. Federal ownership of less than 70 percent if it is realistic to manage the Federal lands as wilderness, independent of the private land.
7. Minor structural range improvements (FSM 2240.5), such as fences or water troughs. Exclude areas where nonstructural range improvements are readily visible and apparent. Areas with spray or burning projects are permissible if there is little or no evidence of the project.

8. Recreation improvements such as occupancy spots or minor hunting or outfitter camps. As a general rule, do not include developed sites. Areas with minor, easily removable recreation developments may be included.
9. Timber harvest areas where logging and prior road construction are not evident, except as provided in Section 71.12 for areas east of the 100<sup>th</sup> meridian. Examples include those areas containing early logging activities related to historic settlement of the vicinity, areas where stumps and skid trails or roads are substantially unrecognizable, or areas where clearcuts have regenerated to the degree that canopy closure is similar to surrounding uncut areas.
10. Ground-return telephone lines, electric lines, and powerlines if a right-of-way has not been cleared.
11. Watershed treatment areas if the use of mechanical equipment is not evident. The inventory may include areas where minor watershed treatment has been accomplished manually such as small hand-constructed gully plugs.

**B. Criteria for Roaded Areas, Fingers, and Extrusions**

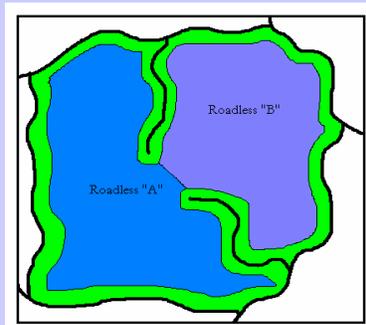
## Fingers



- Remove small fingers less than 1/2 mile across if they do not exhibit wilderness character
- adjust to manageable boundary

Consider the effect roads may have on wilderness character where the distance between roads is less than 1/2 mile. Consider whether the area retains a natural appearance with man's impact substantially unnoticeable.

## Extrusions - large

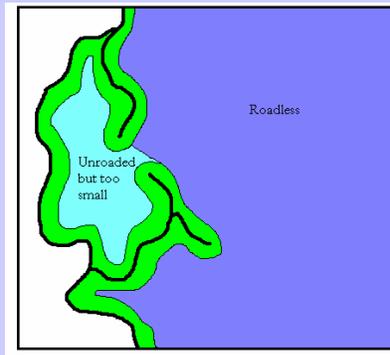


- Determine character of connection
- Keep intact if both sides are >5000 acres and connector has wilderness character
- Separate into two areas if common area is <1/2 mile or lacks wilderness character

Consider whether the connection between the roads retains wilderness character. Use the same 1/2 mile distance for fingers in your determination. Consider whether the area retains a natural appearance with man's impact substantially unnoticeable.

Consider whether the area retains a natural appearance with man's impact

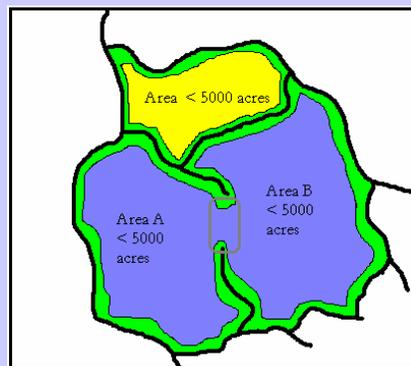
## Extrusions - small



- Determine size of extrusion and distance of opening (< ½ mile)
- Eliminate areas < 5000 acres that would not be considered on their own if they do have wilderness character
- Consider effect to total area

substantially unnoticeable.

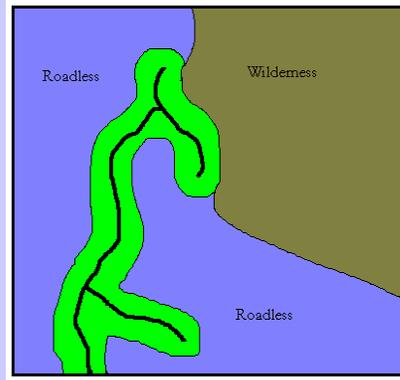
## Extrusions - mixed/small areas



- Determine size of each extrusion
- Consider area of connection if less than ½ mile
- Eliminate areas < 5000 acres that would not be considered on their own if they do have wilderness character
- Consider effect to total area

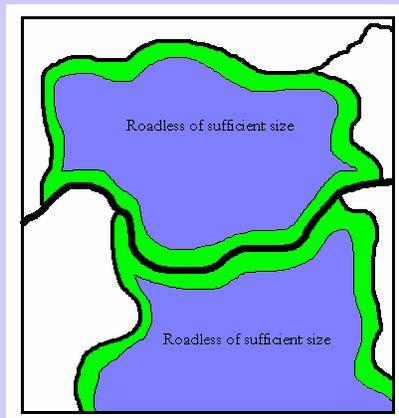
Consider areas that might be affected by narrow connections between roads. If the distance is less than ½ mile do the resulting polygons retain wilderness character? If not, eliminate. If so, if the total area is greater than 5000 acres include in the inventory.

## Contiguous Areas



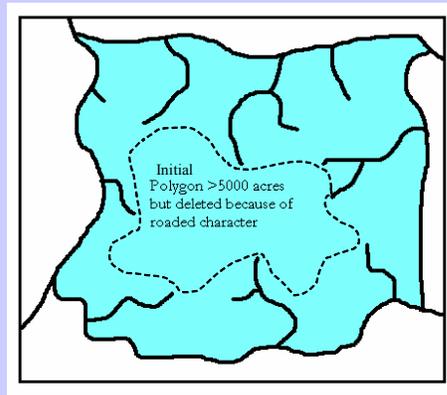
- Consider all contiguous areas regardless of jurisdiction
  - BLM wilderness
  - BLM study areas
  - BLM roadless
  - NPS lands

## Separated Areas



- Consider each if >5000 acres
- Consider effect of road corridor on wilderness character
  - could unit be managed as one
  - could road be closed

## Roaded Network



- Eliminate areas < 5000 acres after deleting portions of the roaded network
- Assumes remaining area does not have wilderness character and is < 5000 acres.

In heavily roaded areas an initial polygon greater than 5000 acres may be created that is adversely affected by the road network. But if after considering the effects of roads less than ½ mile distant, the resulting unroaded area is less than 5000 acres, eliminate the area from the inventory.