



United States
Department of
Agriculture

Forest
Service

Southwestern
Region



Environmental Assessment for The Arizona Trail – Peaks Segment

Sandy Seep to Kelly Tank

Coconino National Forest

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Printed on recycled paper – July 2003Content

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Chapter 1 – Purpose and Need

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- Chapter 1: Purpose and Need
- Chapter 2: Alternatives
- Chapter 3: Environmental Consequences
- Chapter 4: Agencies and Persons Consulted
- Appendices

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Peaks Ranger District Office in Flagstaff, Arizona.

Background

The Arizona Trail is a long-distance trail traversing Arizona from its Mexico to Utah borders. Three state planning documents reflect the widespread support for construction of the Arizona Trail. The development of each of these documents included extensive public contact and involvement: the 1994 Arizona Statewide Comprehensive Outdoor Recreation Plan (SCORP), the 1994 Arizona State Trails Plan, and the 1995 Arizona Trail Management Guide. In addition, the 1986 Land Management Plan (Forest Plan) of the Coconino National Forest¹ identifies the Arizona Trail as a priority for completion.

The Forest Service has reinforced the vision to complete the Arizona Trail by entering into a Memorandum of Understanding with the Arizona Trail Association and an Intergovernmental Agreement with Arizona State Parks. Much of the Arizona Trail has been completed across the state. The segment discussed here is one of the last remaining large connections. Currently, segments of the Trail are completed or are scheduled for construction in the Peaks and Mormon Lake Ranger Districts.

Cultural values of Native American tribes were a prominent factor that helped the ID team identify the proposed action. In addition, the proposed action maintains wilderness values by avoiding the Kachina Peaks Wilderness.

Other concerns include the many Protected Activity Centers (PACs) for Mexican spotted owls in the area. This proposed action avoids some owl PACs and passes through others.

¹ Forest Plan has been amended seventeen times.

One goal of the proposed Arizona Trail route is to provide a quality high elevation experience with scenic views for hikers, mountain bikers, and horseback riders. A designated trail corridor would provide planned, well-engineered trail routes. Constructing a trail would provide opportunities for long distance use on the entire Arizona Trail, shorter trips, and other daytime use. Currently, some social trail use occurs along the proposed route, especially in the Shultz Pass Road and Fort Valley areas. A light concentration of hiking occurs on social trails on the slopes of San Francisco Mountain near Hart Prairie. A Forest system trail could serve as a collector to channel hiking use to a well-designed Arizona Trail route.

The Forest Plan identifies the Arizona Trail as a priority for completion and describes the segments on the Blue Ridge and Mormon Lake Districts. However, the same Forest Plan direction (written below) also describes the objectives for this proposed portion of the Arizona Trail.

The Forest Plan states... ”This trail will be a non-motorized pathway. The route will use public lands to ensure public access; use existing trails, where use of the trail as part of the Arizona Trail does not cause substantial negative impacts; allow day-long, weekend, or week-long travel segments; accommodate hikers, equestrians, cross-country skiers, and back-country bicyclists where physically possible and where management permits; provide representation of the various life zones, geologic features, native vegetation, wildlife, cultural resources and resource management practices of the Coconino National Forest; be in harmony with other federal, state, and local government entities, and private landowners; and allow for continued production of outputs from forest resources as stated in the Forest Land Management Plan. Final trail location, design, construction, and signing to be accomplished by Forest staff and private sector/volunteer partnerships” (Forest Plan page 52).

Purpose and Need for Action

There is a need to:

- Plan and construct a non-motorized trail to the standards established in the Forest Service Trails Handbook and Arizona Trail Management Guide. Provide hiking, equestrian, and mountain biking opportunities.
- Identify and/or construct, as needed, Arizona Trail support features such as trailheads, water sources, and locations to replenish supplies of food and other essential items.
- Identify a trail route that provides a high quality recreational experience and that provides a portion of the Arizona Trail.
- Identify a trail route that represents a balance between recreation demands and cultural values of Native American tribes. Take steps to mitigate negative effects to culturally sensitive areas.
- Identify an Arizona Trail route that balances recreational uses with the protection of wildlife habitat. Take steps to mitigate negative effects to threatened, endangered, and sensitive species. Strive for positive human/wildlife habitat interactions.

- Interpret unique landscape features along the Arizona Trail route to foster understanding and help protect features, such as, dendroglyphs², wildfire areas, and historic railroads.

This action responds to the goals and objectives outlined in the Coconino Forest Plan, and helps move the project area towards desired conditions described in the PLAN.

Proposed Action

The ID team developed a group of actions to identify the Proposed Action. The Proposed Action represents the ID team's best effort at progressing towards desired conditions for the Arizona Trail. A list of actions, including specific design features was described. The Proposed Action is described under Alternative A. Actions presented will allow for continued recreation use along the trail corridor under specific conditions and management direction that considers soil, water and vegetative conditions, wildlife needs, heritage resources and recreation experience. The proposed action meets the intent, standards, and guidelines of the Forest Plan. The inclusion of this segment of the trail will be an amendment to the Plan to include Arizona Trail designation on the Peaks Ranger District.

Decision Framework

Gene Waldrip, Peaks District Ranger of the Coconino National Forest, is the Forest Service official responsible for deciding whether or not to construct this segment of the Arizona Trail in this project area as proposed, or in an alternative location or manner. If the decision were made to construct the trail, it would also be designated in the Coconino Forest Plan. A portion of the Arizona Trail passes through lands administered by the Rocky Mountain Forest and Range Experiment Station – Fort Valley Experimental Forest.

Public Involvement

This project was listed in the Schedule of Proposed Actions on October 2001 and all subsequent issues. A meeting with Arizona Game and Fish personnel was held on December 21, 2001. A Proposed Action was mailed on January 11, 2002 to a mailing list of 768 people who expressed interest in the project, were on the Forest Plan mailing list, or who were otherwise determined to be interested or affected (adjacent landowners, organizations, agencies). In addition, as part of the public involvement process, the agency conducted a public field trip on May 18, 2002 and a meeting with homeowners on May 19, 2002. Consultation with tribes began with Cultural Resource Advisory Team (CRAT) meetings December 1996 and March 2000 and a meeting with Timothy Begay (Navajo Cultural Specialist) and Roger Henderson (Archaeologist) at the Peaks Ranger District, August 1996. Consultation was continued via a letter with Proposed Action sent to affiliated tribes on February 5, 2002. A sight visit with Hopi Elders is tentatively scheduled for August 2003. In addition, a news release was issued at the time the proposed action was available. A field trip was held on June 24, 2002 attended by USFS, Arizona Game and Fish and US Fish and Wildlife Service (USFWS) service personnel. The Proposed Action was posted on the Coconino website. A meeting was held on July 12, 2002, where USFS, Arizona Trail Association, USFWS, Arizona Game and Fish Department, and Grand Canyon Trust shared concerns. Using the comments from the public and other agencies the ID team developed a list of issues to address. Meeting notes, field trip notes, and comment letters are located in the Project File.

² A dendroglyph is a historic carving on a tree, primarily aspen in this vicinity.

Issues

The Council for Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." A summary of the comment analysis is located in the project record file (PRD#28). Explanation of rationale used for determining significance is located in the project record file (PRD#26).

As for significant issues, the Forest Service identified 4 topics raised during scoping. These issues include:

Issue #1: Having a portion of the trail motorized will diminish non-motorized experience, cause safety concerns and user conflicts. And it will be difficult to limit motorized use to only that portion³.

The miles of motorized use trail will measure this issue by alternative.

Issue #2: The proposed route will cause increased (and unacceptable) human disturbance to Mexican spotted owl (MSO) habitat during nesting and rearing young within Protected Activity Centers (PACs) and goshawk nesting and rearing young (PFAs).

This issue will be evaluated by the miles of trail within MSO PACs and goshawk PFAs, the proximity of the trail to nesting areas, topography and vegetation factors that influence site distance and sound levels adjacent to trail.

Issue #3: The proposed route will cause more people to go to Little Springs, thus adding to current levels of use during the day. This may; a) make it difficult for animals to use the water, b) disturb bear foraging, c) disturb MSO using the area⁴, d) increase stepping on unique plants and e) impact cultural values.

This issue will be evaluated by the miles of Arizona Trail within the Little Springs PAC, the number of social trails that intersect the Arizona Trail in the Little Springs area and the distance of this section of the Arizona Trail from trailhead parking. A qualitative evaluation will describe how much the Arizona Trail is contributing to current recreation impacts in the area under the different alternatives.

Issue #4: The proposed route does not include the Snowbowl parking area; people are hiking down the hill from the lot anyway. People will travel cross-country to reach the proposed Arizona Trail. Also, the proposed route lacks access for too long of a portion. People may park along Snowbowl Road if we don't provide a trailhead in the area.

This issue will be evaluated by a qualitative estimate of trail use as associated with trailhead locations under different alternatives, and the expected resource impacts of cross country dispersed use versus managed trail use.

³ Coconino National Forest Plan identifies the Arizona Trail as a non-motorized pathway.

⁴ Note: nighttime impacts are not an issue because no camping within ½ mile of trail in PACs or within ¼ mile of water source.

Chapter 2 – Alternatives

This chapter describes and compares the alternatives considered for the Arizona Trail-Peaks Segment project. It includes a description of each alternative considered. Maps are located at the end of this document. This section presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternatives Not Analyzed in Detail

Project record document #33 summarizes the variety of comments received to the Proposed Action. The Interdisciplinary (ID) Team discussed options for a trail route in other areas of the San Francisco Peaks. Placing the Arizona Trail on the east side of the mountain, and using existing trails, was not analyzed in detail because it would require traversing wilderness, the east side is less fragmented or “pristine” than the west side, similar threatened and endangered wildlife concerns occur on both sides, and the east side contains more culturally sensitive areas.

The ID Team discussed the option of the existing Kachina Trail, but chose not to analyze this route in detail because mountain bikes can not use the Kachina Trail because it lies within the wilderness and portions of the trail are not suited to horses (PRD#33).

How the Alternatives Were Developed

All action Alternatives are the same for the equestrian trail opportunity from Sandy Seep to Sunset Trailhead, and for the City of Flagstaff’s Urban Trails System (FUTS) connection at Buffalo Park to the Oldham/Rocky Ridge trail.

Alternative A is the proposed action. Alternative A was adjusted slightly in the Little Springs area thus partly responding to Issue#3. Two design features were added to Alternative A. The first included taking forest/meadow edge into consideration when conducting final trail layout. The objective is to reduce the number of places where the trail is located on the edge. This design feature was developed from discussions with Arizona Game and Fish Department. The second design feature includes obliterating two poorly located social trails in the area between Little Spring and Bismarck Lake and designing an improved and better located loop trail from Bismarck trailhead connecting to the proposed Arizona Trail and looping back to Little Spring. This loop uses an existing trail and a two-track road located within a previously designated motorized restricted use area. This was developed from discussions with US Fish and Wildlife Service to provide a more managed situation, and to lessen impacts of dispersed, off trail uses.

Alternative C was developed to respond to Issue#1 and contains no motorized uses. After further review of the Fort Valley trail system⁵, it was determined that parallel trails would be appropriate because of the high levels of use in the area, and the need for connections for both motorized and nonmotorized single track trail. A trail that provides for motorcycle use was approved under the Fort Valley decision. A new parallel nonmotorized section (approximately 2 miles) is needed in order for the Arizona Trail to be entirely nonmotorized. The development of parallel trails has been generally discouraged as recreation management practice; especially when the ID team was

⁵ Per the Decision Notice and Finding of No Significant Impact for the Fort Valley Ecosystem Restoration Project

considering proposed trail routes in the wilderness that would have required parallel trails for mountain bike use. However, the Fort Valley area has less traditional cultural and biological sensitivity than the wilderness, and using parallel trails is the only way to accommodate previous decisions made with participation from motorized users in the Fort Valley area. Because of the creation of motorized trails under the Fort Valley decision, the need for motorized access on the Shultz Creek trail is diminished. Therefore this alternative would convert the Shultz Creek trail from a combined motorized/nonmotorized single-track trail to a nonmotorized trail⁶. Alternative C includes the adjustment for a loop trail in the Little Springs area and the design feature for edge habitat similar to Alternative A. Therefore this alternative partly responds to Issue#3.

Alternative D was developed to address Issue#2 and Issue#3. This alternative is the same as Alternative C in the Dry Lake Hills and Fort Valley area, but travels a different route from the Fort Valley area towards the north. This alternative does not pass through any MSO PACs north of Shultz Creek⁷. All Arizona Trail route alternatives are the same in they pass within 1.0 mile of Little Springs. Alternative A and C include the Bismarck Loop, passing alongside Little Spring. Alternative D does not include this loop.

Option A1 and C1 which is the creation of a trailhead connection at Humphrey's Trailhead in the Arizona Snowbowl lower parking lot is in response to Issue#4. Under these options a short loop trail would be created for people who are only visiting the parking area for views, picnics etc, or who want a very short interpretive trail experience⁸. The rationale for creating the interpretive loop trail is to manage the current large numbers of people that fan out from the parking area. Discussions with Arizona Game and Fish department personnel supported a short loop trail in an effort to maintain turkey use of the area. In addition to the loop trail, a 0.4-mile connection would be designated from the parking lot to the Arizona Trail.

For all alternatives the concept of identifying water sources along the trail route was dropped from consideration. Rather individuals must plan for limited water availability along the trail and carry their own water.

Items Common to All Action Alternatives

Design Features and Coordinating Requirements

The following items are part of the proposed trail design and management,

- A Conservation Measure for the Biological Assessment and Evaluation is to close and obliterate social trails that intersect the Arizona Trail route except for the Little Springs area. In an effort to manage existing and anticipated use of this area a loop trail was designed to provide access to Bismarck Lake and Little Springs while reducing negative impacts by obliterating poorly located social trails.

⁶ The Flagstaff/Lake Mary Ecosystem Area Forest Plan Amendment 17 directs the FS to 'consider converting the Shultz Creek Trail to a nonmotorized trail' (Forest Plan page 206-105).

⁷ There are two PACs within the Dry Lake Hills trail system where the Arizona Trail would be designated on existing Forest System trail.

⁸ Separate from this analysis and decision, a composting or other self contained toilet will be installed at this site.

- A Conservation Measure for the Biological Assessment and Evaluation is to create no-camping area within ½ mile radius of the Arizona Trail in the four MSO PACs. Inform and enforce Statewide no camping within ¼ mile of open water rule.
- Install self-closing gates at allotment fence crossings in conjunction with arched aboveground cattle guards if needed, i.e., for cattle using a pasture.
- The current motorized restricted use in the vicinity of Domingo Tank north to Bismarck Lake is not changed with this decision.
- Designs trail width to approximately 24".
- Cut trees as needed for the proposed Arizona Trail route construction. Where possible, avoid cutting snags, pine or fir trees greater than 9 inches diameter, or oak trees larger than 5 inches diameter at root collar.
- Conduct pre-construction surveys, as needed, for Forest Service sensitive plant species (*Astragalus rusbyi* and *Penstemon nudiflorus*). Conduct surveys in potential habitat along the route prior to Arizona Trail construction. The surveys would provide for optimum detection and protection of sensitive plants. Personnel involved in the trail construction would be trained in the identification of these plants to expedite survey efforts.
- Lay out the trail to minimize impacts to sensitive plants or significant archeological features. As needed, a biologist/botanist or an archaeologist would be consulted to verify plants or features and to monitor trail routing.
- Develop a noxious weed risk assessment. Conduct pre-construction surveys for noxious weeds and Implement Best Management Practices as identified in the *Coconino National Forest Noxious Weed Strategy* through the weed risk assessment. Prior to final Arizona Trail construction, crews would be trained to identify noxious weed species. Should populations be found, workers would consult with District wildlife and recreation staff to determine a course of action to eradicate plants and/or prevent spread.
- Annually search for noxious weeds at trailheads. Train the trail stewards to recognize and report weeds.
- Design trail to pass in and out of the forest edge (the place where meadows meet the tree line), to lessen impacts to turkey, deer and other wildlife.
- A Conservation Measure for the Biological Assessment and Evaluation is to survey Mexican spotted owl restricted habitat within ½ mile of the proposed Arizona Trail route. For one year, the Forest Service would conduct surveys of Mexican spotted owl in restricted habitat areas within ½ mile of the trail. This would occur in the year prior to or during the year of trail construction.
- Encourage Arizona Trail users to keep pets on a leash.
- As much as possible, leave downed logs intact to maintain habitat for the prey of raptors.

- A Conservation Measure for the Biological Assessment and Evaluation is that no new construction will occur during the Mexican spotted owl breeding season (3/1 through 8/31) within Mexican spotted owl PACs.
- Where appropriate, place signs and other interpretative tools at historic railroad grades and dendrogllyph sites for information and protection purposes.
- Follow the Archaeological Clearance Report for this project. The Report will document the archaeological inventory, results of consultations with the Tribes, and compliance with the National Historic Preservation Act of 1966, as amended. The Report will contain site-specific protection measures for implementation, including monitoring requirements.
- Outfitter guides and permitted group uses or events will be evaluated under separate NEPA analyses and decisions⁹.
- The primary season of use of the proposed Arizona Trail route would be mid-May through mid-October. The route may also be signed as a cross-country ski trail.
- Location of trail is at least ½ mile from known Mexican spotted owl nest and roost sites.
- Best Management Practices for trail building as identified in the *Forest Service Trails Handbook* and *Specifications for Construction and Maintenance of Trails*.

Alternatives

The following alternatives are considered in detail. See the maps located at the end of this document.

Alternative A – Proposed Action

Alternative A is the Proposed Action as follows,

Construct and/or Designate the Arizona Trail corridor from Sandy Seep to Kelly Tank (see map). This segment is approximately 31.0 miles. The estimates below show the different types of trail designation.

- 15.8 miles of current Forest Service System Trail (Dry Lake Hills and Fort Valley Areas) – 4.4 miles of this trail will also have motorcycle use.
- 1.2 miles of social trail¹⁰ would be converted to Forest Service System Trail.
- 1.3 miles of two track roads located within a previously designated motorized restricted use area would be converted to trail.

⁹ Appendix A contains a summary of how the FS approves or disapproves outfitter guide and group use/event requests.

¹⁰ A social trail is a non Forest Service system trail that is created by forest users

- 1.5 miles of roads currently open to vehicles that would be closed to vehicles and converted to nonmotorized trail.
- 11.8 miles of new single-track construction.
- The Bismarck Loop, which utilizes 1.1 miles existing trail and 1.3 miles of two track roads, located within a previously designated motorized closure.

This analysis applies to a corridor that is one-quarter mile wide. The proposed Arizona Trail route would be a 24-inch tread located within the corridor based on the on-the-ground layout.

Under this Alternative, the Forest Plan will be amended to apply the current Forest Plan language as written for the Arizona Trail on the Blue Ridge, Long Valley, and Mormon Lake Districts to the segments of trail located on the Peaks Ranger District (Fisher Point to the Forest boundary).

Use the Buffalo Park, Sunset and Sandy Seep Trailheads. Construct a new trailhead at Kelly Tank.

In addition, the trail route is adjusted for edge habitat (moving in and out of edge with on the ground layout) and adjusted for Little Springs. The adjustment moves the trail east and closer to the Wilderness boundary to create more distance between Little Springs and the Arizona Trail while creating the Bismarck Loop connecting to the Arizona Trail.

Option A1 includes an additional trailhead at the Humphrey's trailhead at the parking area of Arizona Snowbowl and a connector trail of 0.4 miles.

Alternative B – No Action

Under the No Action alternative, no Forest Service system trail corridor would be implemented.

Alternative C

Alternative C is the same as Alternative A except in the Fort Valley area. This alternative places the Arizona Trail on Shultz Creek Trail and removes motorized use on the Shultz Creek Trail. This Alternative creates a new nonmotorized section of trail that parallels the existing planned motorized trail in the Fort Valley area.

Alternative C has,

- 12.2 miles of current Forest Service System Trail (Dry Lake Hills and Fort Valley Areas)
- 1.2 miles of social trail¹¹ would be converted to Forest Service System Trail.
- 1.3 miles of two track roads located within a previously designated motorized closure area.

¹¹ A social trail is a non Forest Service system trail that is created by forest users

- 15.4 miles of new single-track construction (approximately 3.5 miles in the Fort Valley area).
- 1.5 miles of trail currently open to motorized use that will be closed to motorized use.
- The Bismarck Loop, that utilizes 1.1 miles existing trail and 1.3 miles of two track roads, located within a previously designated motorized closure.

Option C1 includes the additional trailhead at the Humphrey's trailhead at the parking area of Arizona Snowbowl and a connector trail of .4 miles.

Alternative D

Alternative D – is a new location that swings further west in the lands between Hart Prairie and H 180. This alternative is nonmotorized, avoids all northern goshawk PFAs, all MSO PACs north of Shultz Creek, and follows roads slated for closure as much as possible¹².

Alternative C has,

- 12.2 miles of current Forest Service System Trail (Dry Lake Hills and Fort Valley Areas).
- 2.0 miles of roads currently open to vehicles that would be closed to vehicles (except for administrative use).
- 6.2 miles slated for obliteration that will be converted to trail.
- 12.8 miles of new single-track construction.

¹² Sometimes closed roads are poorly located causing resource impacts and/or diminished recreation experience. To place a trail on such a road is not appropriate.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

	Alt A	Alt B	Alt C	Alt D
Entire Route Nonmotorized	No	N/A	Yes	Yes
Effects MSO PACs	Yes - most are same as Alt. C	No	Yes	Yes
Effects Little Springs	Some effects offset by social trail management	Least – no change to social trails.	Same as A	Least No change to social trails
Provides Snowbowl Parking Link	Yes	N/A	Yes	Yes
Provides Arizona Trail	Yes	No	Yes	Yes
High Quality Recreation Experience	Less than C, more than D	N/A	Most	Least
Human – Wildlife Interactions	Most	Least- social trails continue	More favorable than A, less than D	Less

Chapter 3 - Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for the comparison of alternatives presented in the chart above.

Applicability of the Forest Plan, Laws, Regulations, Policies and Other Direction

Plans of Other Agencies

The Council for Environmental Quality regulations implementing NEPA require a determination of possible conflicts between the Proposed Action and the objectives of federal, state, and local land use plans, policies, and controls for the area. The Arizona Trail – Peaks Segment designation does not conflict with objectives of other Federal, State, and local land use plans, policies and controls for the area.

Forest Plan Management Direction and Consistency

The proposed action and alternatives are consistent with the Forest Plan (PRD#43). This document tiers to the Final Environmental Impact Statement and Land and Resource Management Plan (Forest Plan) for the Coconino National Forest (Record of Decision, 1987) and all subsequent amendments. The Forest Plan provides direction for all resource management programs, practices, uses, and protection measures for the Coconino National Forest. The table below shows the Management Areas where the alternative routes pass through.

Management Areas¹³ crossed by miles of Arizona Trail for each alternative

Alternative	MA 3	MA 4	MA 5	MA 6	MA 7	MA 8	MA 9	EXP
A	19.91	1.94	1.94	4.13	0.08	0.42	1.17	1.78
C	17.47	2.37	1.93	4.12	0.08	0.42	1.19	2.26
D	19.90	2.21	2.64	4.76	0.08	0.42	0.44	2.37

Consistency with the Forest Plan applies only to the specific activities described in the alternatives. Not all desired conditions in the Forest Plan can be achieved with a single on the ground action. Often many actions are necessary in order to meet the desired conditions identified by the management direction.

The Forest Service uses many design features, mitigation measures and preventive measures in the planning and implementation of land management activities. The application of these measures begins during the planning and design phases of a project. Some are described in the Forest Plan and additional direction comes from the Regional Guide and applicable Forest

¹³ MA 3 is Ponderosa Pine and Mixed Conifer less than 40% slope, MA4 is Ponderosa Pine greater than 40% slope, MA5 is aspen, MA6 is unsuitable pine, MA7 is pinyon and juniper less than 40% slope, MA8 is pinyon and juniper greater than 40% slope, MA9 is mountain meadow and EXP is experimental forest.

Service manuals and handbooks. These are described in the Items Common to All Alternatives Section of Chapter 2.

Management guidance for management indicator species, other wildlife and fish resources, and diversity of plant and animal populations, is found in several key documents. The 1982 National Forest Management Act Regulations (Planning Regulations) at 36 CFR 219 set forth a process for developing, adopting, and revising land and resource management plans for the National Forest System (CFR 219.1), and identify requirements for integrating fish and wildlife resources in Forest Land Management Plans (CFR 219.13 and CFR 219.19). Key provisions for fish and wildlife resources require that fish and wildlife habitat be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area, where a viable population is considered to be one that has the estimated numbers and distribution of individuals to ensure its continued existence is well distributed through the planning area (CFR 219.19). By definition, the planning area is the area covered by a regional guide or forest plan (CFR 219.3). The Forest Planning Regulations require that certain species, whose population changes are believed to indicate the effects of management activities, be selected and evaluated in forest planning alternatives (CFR 219.19).

To this end, Region Three Forest Service Sensitive species have been evaluated. Within the project area, there are 12 species that are found or have potential habitat. Findings include “no impact” for six of these species and “may impact individuals but not likely to trend toward Federal listing” for the remaining six species.

Additionally, the Planning Regulations require that the population trends of management indicator species (MIS) be monitored and relationships to habitat changes determined (CFR 219.19). Specific management direction for MIS is also found in Forest Service Manual (FSM) 2600. Policy and direction that tiers to CFR 219.19 is provided for MIS for application at the Forest Plan and project levels relative to species selection, habitat analysis, monitoring and evaluation, and other habitat and planning evaluation considerations, in FSM 2620. FSM 2630 provides guidance on improving MIS habitat, and conducting habitat examinations, and project level evaluations for MIS within the project area.

Within the project area there are 12 MIS species that are found or have potential habitat. There are no habitat impacts for any of these MIS species. There are no human disturbance impacts to three of the species. There are human disturbance impacts expected for northern goshawk, turkey, elk, deer, pygmy nuthatch, juniper titmouse and Mexican spotted owl. However, implementation of any alternative will not result in effects that change the population’s trend on the forest.

Applicable Laws and Regulations to All Alternatives

Shown below is a partial list of federal laws and executive orders pertaining to project-specific planning and environmental analysis on federal lands. While most pertain to all federal lands, some of the laws are specific to Arizona.

- Multiple-Use Sustained-Yield Act of 1960 – This law is followed by this project because it is consistent with the Forest Plan.
- National Historic Preservation Act of 1966 (as amended) – This law is followed by this project and the appropriate documentation will be located in the project file.

- Wild and Scenic Rivers Act of 1968, (as amended) – there are no wild and scenic rivers within the project area.
- National Environmental Policy Act (NEPA) of 1969 (as amended) – The effects of the project have been analyzed and are disclosed in this Environmental Assessment.
- Clean Air Act of 1970 (as amended) – There are no effects to air quality from any alternative.
- Endangered Species Act (ESA) of 1973 (as amended) – Analysis and disclosure of effects is complete, documentation meets standards of this law and consultation with US Fish and Wildlife Service is underway and will be completed prior to a decision.
- Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (as amended) – This law is met because this project is consistent with the Forest Plan.
- National Forest Management Act (NFMA) of 1976 (as amended) – See the Forest Plan Direction and Consistency section above. This project meets the intent of this law by consistency with the Forest Plan.
- Clean Water Act of 1977 (as amended) – There is no effect to water quality.
- American Indian Religious Freedom Act of 1978 – The effects will be analyzed and disclosed in the Cultural Resources report.
- Archeological Resource Protection Act of 1980 – The effects on archaeological sites will be analyzed and disclosed in the Cultural Resources report.
- Cave Resource Protection Act of 1988 – There are no caves affected by this project.
- Executive Order 11593 (cultural resources) – See NHPA above.
- Executive Order 11988 (floodplains) – There are no floodplains within the project area.
- Executive Order 11990 (wetlands) – There is no construction within wetlands or disposition of wetlands to other ownership, nor easement through wetlands.
- Executive Order 12898 (environmental justice) – See the Environmental Justice section of this chapter.
- Executive Order 12962 (aquatic systems and recreational fisheries) – There are no aquatic systems or recreational fisheries affected within this project.

Other Guidance

Where other guiding documents exist, they are specifically described for the resource where they apply; examples are the Mexican spotted owl recovery plan.

How the Alternatives Meet the Purpose and Need

Purpose and Need Statements: Plan and construct a non-motorized trail to the standards established in the Forest Service Trails Handbook and Arizona Trail Management Guide. Provide hiking, equestrian, and mountain biking opportunities. Identify and/or construct, as needed, Arizona Trail support features such as trailheads, water sources, and locations to replenish supplies of food and other essential items.

Conclusion: Alternatives A, C and D all meet the need for completing the Arizona Trail. All the action alternatives meet the design criteria in the Arizona Trail Management Guide. However, Alternative D does not meet the Arizona Trail Association’s objective of traveling near or to prominent land features. Alternative B does not meet this purpose and need.

Purpose and Need Statement: Identify a trail route that represents a balance between recreation demands and cultural values of Native American tribes. Take steps to mitigate negative effects to culturally sensitive areas.

Conclusion: Alternatives A, C and D are all located outside of the Kachina Peaks Wilderness. All alternatives are within a Traditional Cultural Property (TCP). Location of Alternatives A and C are of less concern to tribes than options further upslope and in the wilderness. However, Hopi expressed concern about recreation use in the vicinity of Alternatives A and C. Most support trails that provide a more managed situation, and lessens impacts of dispersed, off trail uses. Alternative D has the least concern from a traditional cultural value standpoint. Alternative B does not raise traditional cultural concerns.

Purpose and Need Statement: Identify an Arizona Trail route that balances recreational uses with the protection of wildlife habitat. Take steps to mitigate negative effects to threatened, endangered, and sensitive species. Strive for positive human/wildlife habitat interactions.

Conclusion: None of the effects to wildlife habitat are significant under any Alternative. Alternative D has the least effect on Mexican spotted owl habitat, followed by A and then C. Alternative D has the least effect on northern goshawk habitat, followed by C and then A. There are no known bear maternity areas affected by any alternative. Alternative D is expected to have the least bear/human encounters, followed by C and A, which are similar. Alternative D does not pass through key nesting and brooding turkey habitat and therefore has the least impact. Alternatives A and C pass through key nesting and summer turkey habitat (impacts are lessened by design feature along edge). There are no known mountain lion dens along any alternative trail route. Alternative D has the least chance of encounters followed by C and A which are similar. All alternative routes pass through elk calving habitat and effects are not substantial. Alternative B does not meet this purpose and need.

Purpose and Need Statement: Identify a trail route that provides a high quality recreational experience and that provides a portion of the Arizona Trail.

Conclusion: Alternative C provides the highest level of recreation trail experience because it is 1) nonmotorized, 2) travels through a variety of vegetation types including high elevation vegetation, and 3) contains vistas along the route. Alternative A is the next highest recreation trail experience followed by Alternative D.

In addition, Alternatives A and C both provide for ‘collecting’ social trail use and encouraging use on a well-designed trail. The Bismarck Loop and subsequent social trail obliteration will improve

resource conditions by better managing recreation use in the Little Spring area. Alternative D has the same effect in the areas west of Hart Prairie. The trail option at Snowbowl (Option A1 and C1) also improves resource conditions by better managing use at this high visit area. Alternative B makes no changes in current social trails at Little Springs.

Objective Statement: Interpret unique landscape features along the Arizona Trail route to foster understanding and help protect features, such as, dendroglyphs¹⁴, wildfire areas, and historic railroads.

Conclusion: All action alternatives provide for interpretation of these features.

Analysis of Significant Issues

The following section describes environmental effects as they relate to the significant issues. Information is organized into 1) affected environment, 2) direct and indirect effects and 3) cumulative effects. There are no direct or indirect effects from trail designation or construction under Alternative B, no-action.

Issue #1 having a portion of the trail motorized will diminish non-motorized experience, cause safety concerns and user conflicts. And it will be difficult to limit motorized use to only that portion.

Alternative A: Alternative A includes 4.4 miles of trail where single track motorized use (motorcycles) would share the trail with nonmotorized users. Safety concerns would exist on this portion of the trail especially where motorcycles pass or come upon horses. The number of motorcycles that would use the trail is unknown, but would be expected to increase over time, as the trail became better known. Increases in the number of trail users increases safety concerns.

Many nonmotorized trail users do not like the presence of motor noise. This effect is usually short and lasts for the time it takes a motorcycle to pass a horse rider, mountain biker or hiker. Other distant noises occur in the project area, the primary noise being a background sound of cars traveling along highway 180 and the Snowbowl road. The occasional motorcycle would only have slight noise impacts and disturbance to people that did not like motor noise. Higher numbers of motorcycles on the trail would increase this impact.

When the ID team designed the proposed action, the ID team felt that motorized use could be limited to only the section of the trail where it was designated. This would be done through signing and trail stewards (volunteers that monitor trail activity).

Alternative B: Current nonsystem, social motorized trail use would continue under this alternative. The occasional motorcycle can be heard in the area. There is no conflict with Arizona Trail users because there would be no Arizona Trail under this alternative.

Alternative C: A parallel trail allows for motorcycles to use Fort Valley area as approved through the Fort Valley decision. The parallel nonmotorized pathway for hikers, mountain bikers,

¹⁴ A dendroglyph is a historic carving on a tree, primarily aspen in this vicinity.

and horse riders eliminates the direct of contact with motorcycles. Distant motorcycle noise will still be heard.

Alternative D: same as C.

Issue #2 The proposed route will cause increased (and unacceptable) human disturbance to Mexican spotted owl (MSO) during nesting and rearing young (PACs) and goshawk nesting and rearing young (PFAs).

Mexican Spotted Owl

Affected Environment

The Mexican spotted owl occupies mixed conifer and ponderosa pine/gambel oak vegetation, usually characterized by high canopy closure, high stem density, multi-layered canopies within the stand, numerous snags, and down woody material.

The exact relationship between human disturbance and owl success is unknown. Owls are most susceptible to human disturbance effects at nest sites and during the breeding season of March 1 through August 31. This season overlaps with the summer season that usually sees high levels of outdoor recreation use.

Protected Activity Centers (PACs) of not less than 600 acres have been delineated around activity centers for PACs in the project area using boundaries of known habitat polygons and topographic features.

Current Forest Plan language says to “Generally allow continuation of the level of recreation activities that was occurring prior to listing” and listing occurred in 1993. There was little quantitative data at that time to describe the level of recreation activities, so it is difficult to describe quantitatively whether or not use levels are similar. In general use is high and trends are upward for portions of all of the MSO PACs affected, and the Arizona Trail is expected to elevate these trends. At the same time road and trail management has reduced use in portions of many of these PACs and channeled use onto managed roads and trails in others. This trend for road and trail management is expected to continue.

The affected environment of individual PACs follows,

Shultz Creek PAC - Currently there is 1 mile of single track Forest Service system trail used by motorcycles, hikers, mountain bikes and horses. Incidental activities already taking place in the general area include vehicles sight seeing/driving along Shultz Pass Road, camping, horseback riding, hiking, biking, motorcycling, and picnicking. The birds have either habituated to the current recreation activity associated with the trail and road or have already moved due to human disturbance. We do not know how these owls have responded to recreational activities within the PAC.

Weatherford PAC – Currently there is 1 mile of existing Forest Service system trail within this PAC. Uses along this trail include horse, mountain bike and hiking. Extremely dense mixed

conifer vegetation and steep topography buffers the activity center from trail activity. The Shultz Pass Road intersects the lower ¼ of this PAC. Monitoring has documented occupancy of this PAC 15 of the past 17 years.

Snowbowl PAC - Currently there are 0 miles of Forest Service system trail and very few user-created trails. Monitoring has shown reproduction for 8 of 15 years. The Snowbowl Road intersects this PAC. There is an existing trail in the Viet Springs area owned and administered by the AZ Game and Fish Department. Incidental use in the area includes vehicle travel on Snowbowl Road, camping, horseback riding, hiking, biking, picnicking and heavy recreational use at Viet Spring.

Little Springs PAC - Currently there are .15 miles of Forest Service system trail within this PAC. There are two well-established user-created trails. Most people stay on established social trails but some off-trail hiking occurs. Incidental use in the general area includes camping, horseback riding, hiking, biking, and picnicking. Since listing in 1993, there have been increases in recreation activity within this PAC that have been offset by motorized closures and riparian habitat improvement projects.

Orion PAC – Currently there are 0 miles of Forest Service system trail although there are large amounts of user created trails. The Fort Valley Ecosystem Restoration project identified recreation impacts to the owls from dispersed camping and the development of social trails. A decision was made to seasonally restrict camping, reroute the trail system and implement trail closures within the PAC to reduce disturbance to resident owls. Efforts to seasonally restrict camping within the PAC were completed in the summer of 2000. To date, the replacement trail system has not been completed; therefore social trails have not been closed in the PAC. Work is ongoing to complete the trail system and obliterate social trails and completion is expected in 2003. Continued recreation use on these social trails is adversely affecting these birds.

Direct and Indirect Effects

Common to all action alternatives is the implementation of design features that help reduce impacts to owl habitat. In alternatives A and C these include adjusting the trail further east in the Little Springs PAC, developing a loop trail from Bismarck Lake to Little Spring and closing social trails to reduce impacts in the Little Springs area, no camping within ½ mile radius of the Arizona Trail in MSO PACs, timing restrictions for trail construction activities, locating the trail at least ½ mile from known nest and roost sites, implementing a trail steward program to assist with compliance and monitoring. These items are listed in detail in the Items Common to All Alternatives section of Chapter 2. In Alternative D there is no new construction in PACs.

Common to all action alternatives, trail use will not alter primary habitat components or reduce prey base habitat. Alternatives A and C may adversely affect owls because trail route is constructed within PACs.

Shultz Creek PAC – Designation of the Arizona Trail segment under Alternative C will increase human activities of hiking, mountain biking and horse riding, but will reduce motorized use and camping in and near the PAC. Alternatives A and D do not pass through or alongside this PAC.

Weatherford PAC – Designation of the Arizona Trail on .65 miles of the existing trail under Alternatives A, C and D will not increased disturbance. Current monitoring indicates a tolerance to a high level of use within ¼ mile of known active nest sites. The addition of increased numbers of people further away will not increase disturbance levels.

Snowbowl PAC – Approximately .83 miles of new trail will pass through this PAC under Alternatives A and C. The trail does not intersect nest areas. The Arizona trail will increase hiking, horse and mountain bike use, and will not increase camping within the PAC. Monitoring has indicated a tolerance for high levels of use within .10 mile of nest areas. Alternative D does not pass through this PAC.

Little Springs PAC – Approximately .69 miles of new trail passes through the PAC under Alternatives A and C. This will increase hikers, mountain bikes and horses within the PAC and will not increase overnight camping. The Arizona Trail does not bisect the two well-established social trails that are located elsewhere in this PAC and identified for obliteration. One closed road bisects the Arizona Trail and this connection will be used for the northern portion of the Bismarck Loop. The Arizona Trail will not increase a specific recreation use within an activity center or in direct vicinity of known MSO roost and daytime locations. In fact, the Bismarck Loop is a conservation measure designed in coordination with US Fish and Wildlife Service to reduce impacts in this sensitive area. The dense vegetation and topographic features between the Arizona Trail and roost areas will reduce the potential for noise to carry to the roost area. Alternative D does not pass through this PAC but passes .4 mile from its boundary.

Orion Springs PAC – No portion of the Arizona Trail will pass through this PAC in any alternative. All alternatives intersect with the Fort Valley trail system just south of the Orion Springs PAC providing an opportunity for trail users to use the Fort Valley system. The new Fort Valley trail will not intersect nest sites.

Cumulative Effects

Shultz Creek PAC – There are no other projects completed in the recent past, underway or planned that would have effects additive to effects from the Arizona Trail. There is a continued emphasis on closing social trails as they occur¹⁵.

Weatherford PAC – Same as Shultz Creek PAC.

Snowbowl PAC – Recreation use of the Viet Springs area (1/4 section owned by the Arizona Game and Fish Department) is expected to continue to be high with an emphasis on hiking. The effects of the Arizona Trail are additive to effects at Viet Springs. The Arizona Snowbowl Facilities Improvement Proposal incorporates the Snowbowl PAC but is not expected to have an adverse effect to these owls. The Veit Springs property owned by Arizona Game and Fish Department is part of a proposed land exchange with the US Forest Service. The land exchange may or may not occur and use of the area will not change with a change in ownership.

Little Springs PAC – The Little Springs Restoration project was implemented in 1996/1997 and included road obliteration, extension of the Bismarck Motorized Restricted Use Area, and spring habitat improvement. Social trail use is expected to continue and to increase over time. The Arizona Trail will slightly add to the overall use of the Little Springs area. Cross-country use is likely because a system trail is not provided. Trail stewards can help remind people to stay on the trail. This cumulative effect is not expected to be significant.

Orion PAC – The Fort Valley Ecosystem Restoration project is underway. Completion of the system trails and closure of the social trails is expected to reduce disturbance to owls from recreation impacts from dispersed camping and the development of social trails. A decision was

¹⁵ Per the FLEA Amendment 17.

made to seasonally restrict camping, reroute the trail system and implement trail closures within the PAC to reduce disturbance to resident owls. Efforts to seasonally restrict camping within the PAC were completed in the summer of 2000. To date, the replacement trail system has not been completed; therefore social trails have not been closed.

Northern Goshawk

Affected Environment

Northern goshawks live in ponderosa pine and mixed conifer forests in a variety of forest structures. Post Fledgling Family Areas (PFAs) are generally stands of intermediate canopy cover for nesting, while more open areas are used for foraging. The Coconino Land Management Plan contains a guideline to *limit human activities in or near nest sites and post-fledgling family areas during the breeding season so that goshawk reproductive success is not affected by human activities.*

The Fort Valley PFA is located west of the Dry Lake Hills – current uses within this PFA include 1.5 miles of Forest Service system trail designated in the Fort Valley decision. Incidental use in the area includes, horseback riding, hiking, biking, motorcycling, picnicking and heavy recreational use from residents in the area. There is increased emphasis on removing social trails within the PFA.

The Veit PFA is located south of Veit Springs – Currently there are 0 miles of Forest Service system trail and very few user-created trails. The Snowbowl Road intersects this PFA. There is an existing trail in the Viet Springs area owned and administered by the Arizona Game and Fish Department. Incidental use in the area includes vehicle travel on Snowbowl Road, camping, horseback riding, hiking, biking, picnicking and heavy recreational use at Viet Spring area.

The Whitehorse PFA is located between Walker Lake and White Horse Hills. The 1996 Hockderffer Fire burned through the nest stand and 60% of this PFA. Monitoring indicates the PFA has not been occupied since 1993. The PFA boundary was revised in 1998 to include additional unburned habitat. The PFA was monitored four years following the fire with no response or location. Recreation has been somewhat reduced in this area as a result of the fire damage that occurred.

Direct and Indirect Effects

Approximately 1.1 miles of existing (Fort Valley) trail will pass through the Fort Valley PFA under Alternative A. This trail route was identified in the Fort Valley decision and is located away from nest sites to reduce disturbance. The designation and subsequent increased use of this portion of trail as the Arizona Trail is not expected to limit reproductive ability in this PFA. Alternatives C and D do not pass through this PFA.

The Veit PFA is crossed by the Arizona Trail under Alternative A and C by approximately .83 miles of new construction. Although constructing a trail through a PFA is not consistent with the guideline to limit human activities, the actual location of the trail meets the intent of minimizing human disturbance to the nest by moving the trail as far away as possible. Although nesting goshawks, particularly the male, may be aware of hikers within the PFA, it is unlikely that hikers would disrupt nesting behavior because the trail is greater than 1/2 mile from nest stands. Alternative D does not pass through this PFA.

The Whitehorse Hills PFA is crossed by the Arizona Trail under Alternative A and C by approximately 1.9 miles of new trail. This PFA was unoccupied prior to the 1996 Horseshoe fire and monitoring indicates it has not been occupied for 8 consecutive years. The trail route is located away from potential nest habitat within the revised PFA to reduce potential disturbance if the PFA becomes reoccupied. Alternative D does not pass through this PFA.

Cumulative Effects

The Fort Valley PFA – The project biologist determined that combined effects from the Fort Valley and A1 projects will not adversely affect this species and improves habitat for the species over the long term. Effects from Alternative A are additive. However, the combined effect is not significant.

The Veit PFA – the Veit Springs property owned by Arizona Game and Fish Department is part of a proposed land exchange with the US Forest Service. The land exchange may or may not occur and use of the area will not change with a change in ownership. The Arizona Snowbowl Facilities Improvement Proposal incorporates the Veit PFA but is not expected to impact these goshawks.

The Whitehorse PFA – the past fire activity in this PFA impacted northern goshawk habitat and effects from the Arizona Trail are additive.

Issue #3 The proposed route will cause more people to go to Little Springs, thus adding to current levels of use during the day. This may; a) make it difficult for animals to use the water, b) disturb bear foraging, c) disturb MSO using the area, d) increase stepping on unique plants and e) impact cultural values.

Little Springs Area

Affected Environment

Wildlife uses of water – Currently wildlife access the spring site in-between the times that people are present. People are present mostly during late morning, mid-day and the afternoon during the summer months. Other water sources are available in the general area including springs and seeps within the wilderness. The current State law of no camping within ¼ mile of water discourages camping in close vicinity to the spring.

Bear foraging – Currently bear use the Little Springs area in-between the times that people are present. When bear are unable to forage at the Little Springs site, they are able to find food elsewhere in the general area. Game and Fish Department has not reported problems with bear/human encounters in the Little Springs area. Bear generally avoid humans unless bears become habituated to human foods. Trailheads will include information on proper techniques for minimizing bear-human conflicts.

MSO – see discussion of Issue #2.

Unique plants – riparian vegetation occurs in a small patch at the spring site. People and wildlife currently trample these plants during the summer months. The plants are maintaining themselves

but are not expanding. The spring and its associated vegetation provides potential habitat for other rare species in the Little Springs area including Navajo Mountain Mexican voles, mountain silverspot butterfly, blue-black silverspot butterfly, and northern leopard frog.

Cultural values – The Little Springs area has historical and cultural values. The spring was the base camp for C. Hart Merriam who developed a description of life zones that is commonly used today. The springs are part of the larger traditional cultural property as identified by local Native American tribes and springs in general hold high cultural value. Currently, the spring site is in moderate to good condition. Generally there are plants holding soil in place, the spring is running into its natural drainage, and litter is not prevalent. One social trail leading into the Little Spring area is poorly located and causing erosion because of its steep grade. This social trail and others will be obliterated in Alternatives A and C. Roads have been closed to discourage motorized use in the area.

Direct and Indirect Effects

The Arizona Trail as described under Alternatives A and C and D will only slightly contribute to impacts at Little Spring. Alternatives A and C include a direct trail link from the Arizona Trail to the Little Springs area. Although use in the area may increase it will be better managed. Off trail hiking is not expected because a system trail is provided.

Wildlife uses of water - The State law of no camping within ¼ mile is already in place and along with the camping closure associated with the trail will extend no camping away from the spring. This will enhance the opportunity for wildlife to access the spring site as a water source.

Bear foraging – The addition of the Arizona Trail under Alternatives A and C will increase the potential for human/bear encounters in the general area. The occasional loop trail hiker may increase the potential for bear encounter around the Little Spring site, but this increase is very minimal when considered with existing use. The restrictions of no camping will reduce potential for human-bear conflicts in this area.

Unique Plants - Trampling of plants at the spring site, or other unique plants in the area is likely to occur at similar levels regardless of the alternative chosen for the Arizona Trail.

MSO - Effects to Mexican spotted owl area discussed above.

Cultural Values – As mentioned above, the Arizona Trail would contribute to human uses at the spring site only slightly from the occasional loop trail hiker. This increase is not expected to adversely affect cultural and archaeological values. Culturally sensitive places will be avoided in all alternatives. There are no structures associated with the C. Hart Merriam Base camp. This historical site is maintained currently and would continue to be maintained under any of the Arizona Trail alternatives. Managing use and reducing dispersed recreation will minimize impacts to cultural resources.

Cumulative Effects

The Little Springs Restoration project was implemented in 1996/1997 and included road obliteration, extension of the Bismarck Motorized Restricted Use Area, and spring site improvement. The runoff from the spring was re-channeled back into its natural drainage. Disturbance from road obliteration and fence construction is no longer evident and the area has re-vegetated.

Little Spring and the surrounding area may be part of a larger planning effort for the San Francisco Peaks area that is tentatively scheduled to begin in 2004. It is expected that the desired conditions for the area will be more active management of social trail use with an emphasis on an established trail system.

There are no other projects planned, currently underway or proposed that would have effects additive to the effects of the Arizona Trail.

Recreation activities will continue including hiking, biking and horse riding on the social trails within the area. Traffic will continue at the outer perimeter of the area along the 418 and 151 roads. There will continue to be some cross-country travel by off-trail users. The Arizona Trail adds slightly to impacts from this general dispersed recreation use, however the closure of social trails and concentrating use on a developed trail is expected to reduce dispersed recreation use in the area.

Issue #4 the proposed route does not include the Snowbowl parking area – people are hiking down the hill from the lot anyway. People will cross country to trail. Also, proposed route lacks access for too long of a portion. People may park along Snowbowl Road if we don't provide a trailhead in the area.

Humphreys Trailhead Area at the Lower Snowbowl Parking Lot

Affected Environment

The lower parking lot of Snowbowl currently provides summertime parking for the Humphrey's Peak trail, and people seeking a high elevation viewpoint. The paved snowbowl road sees high levels of traffic during the summer and people often park at the lower parking lot for picnics. Many people do not hike on the Humphrey's trail; rather they stay in the vicinity of the parking area and walk a short distance out into the meadow. It is estimated that over 30,000 people visit this site during the summer months. The District intends to establish a restroom facility (composting toilet) at the site.

Direct and Indirect Effects

If a trail link were established to the Arizona Trail as described in option A1 and C1, there would be a very slight increase in the numbers of people driving to the lower parking lot at Snowbowl. This increase would be those people driving to the lot for the purpose of hiking that portion of the Arizona Trail. The slight increase is not expected to affect the plants or wildlife of the area more than they are already being affected by current use.

The loop trail proposed as a part of the connection would channel use onto an interpretive loop trail located to limit effects to turkey and other wildlife. This would lessen the amount of people that walk randomly into meadows. Interpretive signs would include messages about the unique habitat and high mountain qualities, discourage littering, discourage off trail hiking, and provide for education.

If the trail link was not provided, it is possible that some people would be parking at the parking lot or along Snowbowl road and hike cross-country to access the Arizona Trail. It is unknown how many people would do this.

There is not a trail link necessary under Alternative D.

Cumulative Effects

No other projects are planned, underway or proposed that would increase the numbers of people that use the lower parking lot at Snowbowl during the summer.

The Arizona Snowbowl Facilities Improvement Project currently in the planning stages, may have short term effects on plants and wildlife habitat during construction in the summer months. The additive effect from the Arizona trail, to these short-term construction effects is not expected to be significant.

Threatened or Endangered Species

Effects related to Mexican spotted owl are located under Issue#2 above. Adverse affects are expected due to building trail in PACs (PRD#38).

There is no effect from any alternative on Bald Eagle (PRD#38).

There is no effect from any alternative on potential black-footed ferret habitat (PRD#38).

Forest Service Region Three Sensitive Species

Species that are known to occur or have potential habitat along the alternative trail routes are listed in the table below. No alternative will result in a trend toward federal listing or loss of viability. Effects on Region Three Forest Service Sensitive Species

SPECIES NAME	DETERMINATION	WHY
American Peregrine Falcon	“No impact.”	Nearest nest location over 2.5 miles from trail. Foraging habitat up to 20 miles from nest. No key foraging impacted.
Northern Goshawk	“May impact individuals, but not likely to result in trend toward federal listing or loss of viability”	All alternatives pass through potential habitat for northern goshawks. No impacts to habitat. Alt. A and C pass through PFAs. No disturbance in nesting stands. Potential disturbance in foraging habitat and unoccupied nesting habitat. See discussion.
Northern Leopard Frog	“May impact individuals, but not likely to result in trend toward federal listing or loss of viability”	Potential habitat at Little Springs. No historic habitat. AZ Trail is 1 mile from Little Spring. Bismarck Loop may increase use at spring slightly in Alternative A and C.
Mountain Silverspot Butterfly	“May impact individuals, but not likely to result in trend toward federal listing or loss of viability”	Potential habitat for host plant at Little Spring. Trail location approximately 1 mile from Little Springs. Bismarck Loop may increase use at spring slightly in Alternative A and C.
Blue-black Silverspot Butterfly	“May impact individuals, but not likely to result in trend toward federal listing or loss of viability”	Potential habitat for host plant at Little Spring. Trail location approximately 1 mile from Little Springs. Bismarck Loop may increase use at spring slightly in alternative A and C.
Spotted Skipperling	“No impact.”	No habitat will be impacted by trail construction.
Freeman’s Agave Borer	“No impact”	No habitat will be impacted by trail construction.

SPECIES NAME	DETERMINATION	WHY
Agave Borer		
Aryxna Giant Skipper	“No impact”	No habitat will be impacted by trail construction.
Early Elfin	“No impact”	No habitat will be impacted by trail construction.
Rusby’s Milkvetch	“May impact individuals, but not likely to result in trend toward federal listing or loss of viability ”	Trail location will be surveyed prior to or along with construction. Plants will be avoided. Soil and vegetation disturbance during trail construction may impact potential habitat. Individual plants along portions of existing trail may be trampled although trail edges provide habitat.
Flagstaff Beardtongue	“No impact”	Trail location will be surveyed prior to or along with construction. Plants will be avoided.
Navajo Mountain Mexican Vole	“May impact individuals, but not likely to result in trend toward federal listing or loss of viability”	Suitable habitat. Soil and vegetation disturbance during trail construction may impact runways and potential habitat. Social trail closures would improve habitat.

Management Indicator Species

A working draft forest-wide assessment entitled "*Management Indicator Species Status Report for the Coconino National Forest*" dated 7/1/02 summarizes current knowledge of population and habitat trends for species identified as management indicator species (MIS) for the Coconino National Forest (USDA Forest Service, 2002a). Population trends need to be monitored as the Forest Plan is implemented, and relationships to habitat changes over time determined (36 CFR 219.19).

The table below lists MIS for the project and impacts. No alternative will impact population trends of MIS. Because turkey habitat was an important feature in the design of the project, a detailed discussion follows this table.

MA	MIS	HABITAT SPECIFICS	IMPACTS
3,4	Northern goshawk	Occupied nesting habitat in Alts. A and C.	No impacts to nesting activity (see issue#2 above). No impact to habitat.
3,4	Pygmy nuthatch	Snag dependant, secondary nester, prefers large yellow pine. Social species.	No habitat impacts. No trees greater than 9” diameter are cut. Potential human disturbance along trail zone of influence.
3,4	Turkey	Key reproductive and summer habitat in Alt. A and C.	Human disturbance. Trail modification to reduce impacts (see discussion).
3,4	Red squirrel	Mixed conifer dependant species.	No habitat impacts. No trees greater than 9” diameter are cut. No effect to cone caches.
3,4	Mexican spotted owl	Nesting habitat in Alt. A and C. Passes through four designated PACs.	Human disturbance concerns in Alt. A, C, and D (see discussion).
3,4,7,8,9	Elk	Key reproductive areas in Alt. A, C, and D.	Human disturbance (see discussion).
3,4	Abert squirrel	Pole-sized ponderosa pine.	No habitat impacts. No trees greater than 9” diameter are cut.
3,4	Hairy woodpecker	Snag dependent, primary cavity excavator/nester.	No habitat impacts. No trees or snags greater than 9” diameter are cut.
9	Antelope	Found in grasslands. No key antelope areas identified.	No impacts.
7,8	Juniper titmouse	Found in pinyon-juniper woodland. Secondary cavity nesters prefer juniper trees.	No habitat impacts. No juniper trees will be cut. No new construction in habitat.
5,7,8	Mule deer	Key reproductive and summer habitat in Alt. A, C, and D.	No habitat impacts. Human disturbance concerns in all alternatives.
5	Yellow-bellied sapsucker	Nests primarily in aspen. Nest trees are a minimum 10”diameter.	No habitat impacts. No trees or snags larger than 9” diameter are cut.

Turkey Habitat

Affected Environment

Key habitat attributes for turkeys include: availability of roost trees in summer and winter range which consist of groups of large yellow pines; uneven aged overstory structure; nesting areas; mast from ponderosa pine, pinyon pine, juniper and oak; riparian areas around springs and seeps, and small openings for seedhead and invertebrate production. Mast production is vital to how well turkeys overwinter and it is tied to the amount and timing of precipitation.

A turkey nesting area of 1,470 acres is identified in the area of Little Springs, Bismarck Lake and Lew Tank. Turkey utilizes edge habitat between adjacent forest and meadow that provides important breeding and brooding habitat for turkey in this area and south to Alfa Fia Tank. There is an existing trail providing nonmotorized access to Bismarck Lake.

Turkey population trends tend to vary depending on location. This project falls within Game Management Unit 7, which shows a relatively stable trend for turkey (USFS 2002).

Environmental Consequences

Turkey is the big game species most intolerant of humans. Human disturbance can cause turkeys to abandon areas and nests. They have superior eyesight, and depending on topography and cover, may be affected by hikers up to ½ mile away. Turkeys tend to avoid humans and move when hearing people approaching. There are key use areas that are around waters and in small openings and along edge. If too much of an area is criss-crossed by roads or trails turkey may be very much affected. Lindezey (1967) reported that turkeys are not compatible with heavily used recreation areas and even occasional use in some areas may cause nest abandonment. Wright and Speake (1975) noted that foot traffic had an adverse effect on the use of an area by turkeys.

There is a slight direct effect to plants in nesting and foraging habitat where the 24” tread for the trail is constructed. No effects to other habitat attributes will occur in any alternative.

Nesting and Brooding – Alternatives A and C intersect turkey nesting habitat. The turkey nesting area of 1,470 acres is identified in the area of Little Springs, Bismarck Lake and Lew Tank. All alternatives pass within 1 mile of Little Springs and alternatives A and C pass within less than ¼ mile of Bismarck Lake and alongside Lew Tank. Alternatives A and C incorporate a loop trail from Bismarck Trailhead to Little Springs. This loop is designed to better manage existing use in this area and provide a more managed situation to lessen impacts of dispersed, and off-trail use. Alternatives A and C pass through or near small openings and larger meadows used for foraging during the summer months. The design feature of moving the trail in and out of edge habitat will lessen effects. Trail use is expected to be heaviest during the day from mid-morning to mid-afternoon. Turkey will utilize these areas more in the evenings. Turkeys will likely utilize areas away from the trail for nesting and forage along the trail when hikers are not present. For alternatives A and C the trail impacts only a portion of the available nesting and brooding habitat and will not cause significant stress or reduction of reproductive success.

Alternative D also passes through some openings and small meadows used by turkey for foraging but does not intersect nesting habitat. The effect is less than alternative A and C in that alternative D will not reduce available nesting habitat by means of disturbance.

Roosting- yellow pines will not be removed in any of the alternatives and therefore no roost trees will be impacted. No roosts have been identified within the corridor for any alternative.

Current dispersed use of the lower parking lot at Snowbowl is likely limiting turkey utilization of this area. Alternative A1 and C1 may focus recreation use at the Snowbowl trailhead but will likely continue to limit turkey utilization of the meadow edge within a turkey's line of sight of the loop trail.

Cumulative Effects

The effects to turkey habitat are additive to similar effects from the Snowbowl Facilities Improvement Project. If approved, there would be short-term effects to turkey habitat along the pipeline corridor and in the Hart Prairie area during construction. The cumulative effects from the Arizona Trail and the Snowbowl Facilities Improvement project are not significant.

There are no other projects recently completed, underway or planned that effect turkey habitat in the project area.

Recreation activities will continue along each of the alternative trail routes. Hiking, biking and horse riding occurs on many of the Forest roads in the vicinity of Alternative D. Some social trails and roads also exist and receive use in the vicinity of the Alternative D route.

In the vicinity of the Alternative A and C routes, there is primarily nonmotorized recreation on social trails and also some cross-country travel. This use affects turkey and is additive to turkey impacts along the Arizona Trail. This is offset by the likelihood that more people will stay on the established Arizona Trail route and the amount of social trail and cross country use may diminish.

Migratory Bird Species

President Clinton signed Executive Order 13186 on January 10, 2001, placing emphasis on conservation of migratory birds. This order requires that an analysis be made on the effects of Forest Service actions on Species of Concern listed by Partners in Flight, the effects on Important Bird Areas (IBA's) identified by Partners in Flight (Latta, et al., 1999), and the effects to important overwintering areas. There are no IBA's within the alternative trail routes. The following is a description of the species' status within the alternative trail routes and an analysis of effects for each alternative. The following tables summarize each migratory bird species of concern by habitat.

Migratory Bird Species

PRIORITY SPECIES	STATUS IN THE PROJECT AREA	FINDINGS
Olive-sided Flycatcher	BBS data indicates that this species exists in low numbers, but is stable to slightly increasing within the alternative trail routes.	Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. No impact on habitat is expected.
Cordilleran Flycatcher	It is expected that this species is static to increasing within the alternative trail routes.	Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. No impact on habitat is expected.
Purple Martin	BBS data indicates that this species is static to slightly declining in the alternative trail routes. Nesting sites in snags.	Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. No impact on habitat is expected.

Migratory Birds - Pinyon-juniper habitat priority species

PRIORITY SPECIES	STATUS IN THE PROJECT AREA	FINDINGS
Gray Flycatcher	Status of gray flycatchers is expected to be static to increasing. Expected to be common in alternative trail routes.	Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. No impact on habitat is expected.
Pinyon Jay	Mixed stands of pinyon-juniper occur over large areas and pinyon heavily impacted by drought and beetle kill. In general, trees greater	Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of

PRIORITY SPECIES	STATUS IN THE PROJECT AREA	FINDINGS
	than 75 years old are preferred in large numbers. Pinyon jays were common on the area prior to beetle kill. Their presence and breeding behavior is dependent upon availability of pine seed crops. Social species.	influence. No impact on habitat is expected. May be less tolerant to disturbance than solitary species.
Gray Vireo	Gray vireos generally occur at naturally low population densities. Within the alternative trail routes, rare open stands of mature pinyon-juniper are interspersed with areas of young trees. In general, mature stands of pinyon-juniper within the alternative trail routes have much higher tree densities than the preferred 280 trees per hectare, thus limiting the availability of habitat for this species. Common in the alternative trail routes. Considered to be stable within the project area.	Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. No impact on habitat is expected.
Black-throated Gray Warbler	They are common within the alternative trail routes and are considered to be stable to increasing.	Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. No impact on habitat is expected.

Migratory Birds - High elevation grassland habitat priority species

PRIORITY SPECIES	STATUS IN THE PROJECT AREA	FINDINGS
Ferruginous Hawk	No known nesting. Fall migratory use in grasslands in the Hart Prairie area. No key foraging. This species is expected to be static within the alternative trail routes. More potential foraging in Alt. A and C, than D.	None of the alternatives are expected to impact this species.

PRIORITY SPECIES	STATUS IN THE PROJECT AREA	FINDINGS
Swainson’s Hawk	No known nesting. Swainson’s hawks occupy grassland habitats within the alternative trail routes, although habitat is limited to short grass prairie habitats. Woodland encroachment into these grasslands and global decreases in this species numbers are expected to be resulting in static to decreasing numbers of Swainson’s hawks within the alternative trail routes. More potential foraging habitat in Alt. A and C, than D.	None of the alternatives are expected to impact this species.
Burrowing Owl	Habitat is limited to grasslands along the alternative trial routes. Burrowing owls are not documented in area. Considered to be declining throughout the majority of their range. Population numbers vary with burrow availability. Within the alternative trail routes, they are expected to be stable to slightly declining. Trail passes through more potential habitat in Alt. A and C, than D.	None of the alternatives are expected to impact this species.

Migratory Birds - high elevation riparian habitat species

PRIORITY SPECIES	STATUS IN THE PROJECT AREA	FINDINGS
MacGillivray’s Warbler	Potential habitat in springs. No fragmentation of this high valued habitat. Trail passes through more potential habitat in Alt. A and C, than D.	Any alternative should not alter habitat. Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. Alternatives A and C may slightly increase disturbance near Little Spring.

<p>Red-faced Warbler</p>	<p>Potential habitat in springs. No fragmentation of this high valued habitat. Trail passes through more potential habitat in Alt. A and C, than D.</p>	<p>Any alternative should not alter habitat. Trails in forests likely disrupt songbird breeding activities and/or displace birds from the zone of influence. Alternatives A and C may slightly increase disturbance near Little Spring.</p>
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There is limited information regarding songbird's tolerance to human disturbance. In general, a simplification of bird communities occurs along recreational trails with generalist species more abundant near trails and specialists less common. Animals that feed in social groups (pinyon jay, pygmy nuthatch) are thought to respond quicker to disturbance than solitary ones because of increased vigilance and the past experiences of other individuals (Knight and Cole 1995). Miller *et al* (1998) found the majority of species were found in reduced numbers near trails, the zone of influence of trails appears to be about 240 feet. Certain species, exhibited reduced numbers as far as 320 feet away from trails.

Miller also maintains that consolidation of trails to certain areas (i.e. edges of forest and grassland) will reduce the fragmentation of large blocks of habitat, maintaining less-disturbed areas for species sensitive to fragmentation. New trail construction is designed to consolidate dispersed use and reduce fragmentation.

Elk

Because many people commented on the effects of the alternative trail routes on elk habitat, a brief description of effects is included here.

There is no significant impact to elk or elk habitat from any alternative.

Affected Environment

The project area is in summer elk habitat. Elk move off the slopes of the San Francisco Mountains to water and feed in evening, night, and early morning hours. Elk calving and deer fawning have been documented in several areas around the San Francisco Mountains.

Overall elk are considered to be stable on the Coconino National Forest and Game Management Unit 7 shows a general increasing trend (USDA Forest Service 2002). Productivity tends to be high and herds are located in all habitat types. The objective of the Arizona Game and Fish Department is to maintain a stable to gradually declining population over time, with specific objectives for specific areas (AGFD 2001). Elk are found throughout the project area.

Direct and Indirect Effects

Elk and deer will most likely be displaced up to ¼ mile either side of the trail where it passes through forested areas. The amount of cover provided by vegetation and topography influence the actual distance. Elk will commonly use areas at night after humans have left. In the future, numbers of hikers may reach a level that results in elk avoidance of the trail during daytime hours.

Alternative A and C would cause disturbance in calving and fawning areas. The trail transects an area along the western side of the San Francisco Mountains and White Horse Hills used for elk calving and deer fawning for approximately four miles (roughly 1,270 acres if the zone of influence for calving/fawning is ¼ mile from the trail). Over 15,000 acres along the western edge of these mountains have been identified as being used for elk calving and deer fawning. The trail could reduce the area for calving/fawning, reducing the available area by 4%. Due to the large area available for elk and deer fawning, reducing the area by 4% would not have a measurable impact on reproduction of elk and deer in the project area.

Alternative D would have less impact to elk calving and deer fawning.

The no action alternative may impact elk and deer due to unmanaged social trails in the calving area.

The Arizona Trail falls into GMU 7 and the goal of the Arizona Game and Fish Department is to stabilize or continue reductions of elk in the project area (AGFD 2001).

Cumulative Effects

Recreation activities will continue along each of the alternative trail routes. Hiking, biking and horse riding occurs on many of the Forest roads in the vicinity of Alternative D. Some social trails and roads also exist and receive use in the vicinity of the Alternative D route. Cumulative impacts from this general recreation use and the Arizona Trail use are not significant.

In the vicinity of the Alternative A and C routes, there is primarily nonmotorized recreation on social trails and also some cross-country travel. This is offset by the likelihood that more people will stay on the established Arizona Trail route and the amount of social trail and cross country use may diminish. Cumulative effects are not significant.

The Bismarck Lake Closure area is a motorized restricted use area was a cooperative project with U.S. Forest Service, Arizona Game and Fish Department, The Rocky Mountain Elk Foundation, Coconino Sportsman and The Wilson Trust. This project was intended to close roads to motorized use and improve habitat quality for this elk summer range.

Bear

Because many people asked about impacts to bear habitat a brief description is included here. The Little Springs area is discussed in more detail under Issue#3.

Affected Environment

Bears are widely distributed in Arizona. Black bears likely inhabit the San Francisco Peaks Wilderness and surrounding areas. They are known to forage in the Little Springs area. There are no known reproductive or den sites or travelways in or near the project area.

Homes in this vicinity of black bear habitat may increase attractants to bears and therefore increase potential human-bear interactions.

Direct and Indirect Effects

Limited research is available concerning the effects of recreational use of roads and trails on black bears. Brody and Pelton (1989) found that black bears did not restrict their movements in reaction to road density with established home ranges. Trails displace black bears less than open roads (Joslin 1999).

As human populations and the pursuit of recreation increase, conflicts between people and black bears will probably also increase. Education at trailheads will focus on controlling attractants and appropriate responses to bear encounters.

Alternatives A and C pass between bear habitat and private homes therefore hiker encounters with black bear may be greater than in alternative D.

Cumulative Effects

Recreation activities will continue along each of the alternative trail routes. Hiking, biking and horse riding occurs on many of the Forest roads in the vicinity of Alternative D. Some social trails and roads also exist and receive use in the vicinity of the Alternative D route. Cumulative impacts from this general recreation use and the Arizona Trail use are not significant.

In the vicinity of the Alternative A and C routes, there is primarily nonmotorized recreation on social trails and also some cross-country travel. This is offset by the likelihood that more people will stay on the established Arizona Trail route and the amount of social trail and cross country use may diminish. Cumulative effects are not significant.

Mountain Lion

Because many people asked about impacts to mountain lion habitat and the potential for human encounters with lion the section briefly discusses lion habitat related to the alternative trail routes.

Affected Environment

Mountain lions are highly specialized predators adapted to thrive in a broad diversity of habitats. Mountain lion populations are thought to be slightly increasing and have a well-distributed, healthy population on the Coconino National Forest.

Homes in this vicinity of mountain lion habitat may increase attractants to lions and therefore increase potential human-lion interactions.

Direct and Indirect Effects

The main concern with lions is the potential for the trail to increase lion/human encounters. As human populations and the pursuit of recreation increase, lion-human interactions will probably also increase. Habituation and food conditioning of lions are factors in several human-lion interactions. Gradual habituation begins with humans living and recreating in lion habitat and lions feeding on human refuse, pets, or natural prey near campgrounds and residences (McBride and Ruth 1988, Aune 1991).

Education at trailheads will focus on keeping pets on leash, controlling attractants and appropriate aggressive responses to lion encounters.

Habitat fragmentation - Beier (1995) found that lions avoided corridors with excessive noise, lighting and domestic dogs yet readily used corridors without lighting, quiet motors, and trails heavily used by hikers, bicyclists, and equestrians (Joslin 1999). The trail is not expected to deter lions from using or moving through the vicinity.

Cumulative Effects

Recreation activities will continue along each of the alternative trail routes. Hiking, biking and horse riding occurs on many of the Forest roads in the vicinity of Alternative D. The Nordic Center rents Mountain bikes in the summer months in a portion of this area. Some social trails and roads also exist and receive use in the vicinity of the Alternative D route. Cumulative impacts from this general recreation use and the Arizona Trail use are not significant.

In the vicinity of the Alternative A and C routes, there is primarily nonmotorized recreation on social trails and also some cross-country travel. This is offset by the likelihood that more people will stay on the established Arizona Trail route and the amount of social trail and cross country use may diminish. Cumulative effects are not significant.

Habitat Fragmentation

Affected Environment

Analysis of Global Information System (GIS) data on the area west of the wilderness boundary and east of the private lands shows evidence of old roads. Old roads are no longer open to motorized travel, however mountain bikers, hikers and equestrians use them. In addition to the many roads that cross the area, many uninventoried social trails are also prevalent as noted by the ID Team. Private property is interspersed throughout most of the area. Forest Road 151 parallels the trail routes and is within 1-2 miles of each alternative.

Highway 180 and FR 151 provide access to motorized and nonmotorized traffic in the Hart Prairie area. Hart Prairie, including FR151 and 794 is documented to have 62,000 RVD'S¹⁶ in an average year. Of those, a percentage hike, drive and mountain bike off existing roads. Currently there are no system trails in this area. Off-trail and road usage can be expected to continue, and in turn lead to more fragmentation, without the establishment of Forest Service system trail and the obliteration of social trails.

Direct and Indirect Effects

While new trail construction, under Alternatives A, C and D would lead to additional habitat fragmentation, these effects are mitigated by the closure and obliteration of intersecting social and system trails and roads. Under Alternatives A and C, the construction or designation of the trail will add some fragmentation will add to an already fragmented area. Construction and designation of the Arizona Trail in this area, tied to social and system trail closure and obliteration is expected to reduce habitat fragmentation, by collecting use to a single trail alignment. Many people tend to stay on established trails so the amount of social trail use may lessen as a result of the Arizona Trail (Dawson and Hendee 2002). The addition of the Bismarck Loop and subsequent obliteration of social trails is expected to reduce fragmentation in the Bismarck Lake/Little Springs area.

Alternative D slightly adds to fragmentation but moves toward the desired condition in that it closes roads used for the route. Alternative D does not improve management or the fragmentation situation in the Bismarck Lake/Little Spring area, however.

¹⁶ RVD is a person recreating for any period of time within a 12 hour period.

Analysis of Other Aspects of the Environment

Where the Arizona Trail would be designated on existing Forest Service system trail, there are no direct effects to soil or water quality, plants, or recreation experience.

Air Quality

There is no affect to air quality from any alternative. There is no effect to the existing forest structure, types of trees or tree densities from any alternative.

Plants

Direct and Indirect Effects

There is a slight direct effect to plants where the 24-inch tread for the trail is constructed. The trail will remove a linear corridor of plant material from the area, but this will not affect the overall condition of the Forest understory in the area. Trail design includes avoidance of sensitive plant locations so there is little effect from the trail to these species.

Trail design includes identification of any non-native or invasive weed species that may exist and actions to prevent spread and/or eradicate the plants. Trailheads will be monitored annually to see if recreation users have transported non-native or invasive plants from other areas to the trailheads. There are few known populations of non-native or invasive plants along any of the alternative routes. Surveys have documented noxious weeds in the parking areas associated with the proposed Snowbowl Trailhead. These areas are currently and will continue to be monitored and treated on an annual basis. No alternative is expected to increase non-native and invasive weed species in the trail route areas.

Cumulative Effects

The effects to the understory plant community along the alternative trail routes is additive to similar effects from the Snowbowl Facilities Improvement project. There will be short-term effects to plants within the Snowbowl permit area and along a proposed pipeline. The cumulative effects from the Arizona Trail and the Snowbowl Facilities Improvement Project are not significant. The same measures of control and eradication of nonnative and invasive plant species will be undertaken for the Snowbowl project.

Soil and Water Quality

Shultz Creek Area

Maintenance items should include rerouting small segments of the Shultz Creek trail slightly in order to reduce impacts on riparian vegetation. Water drainage could be improved by redesigning waterbars and grade dips. District soil and water specialists should work with the trail layout specialist to accomplish this.

Efforts should be made to continue to encourage users to stay on the trail tread. When large numbers of users are present on the trail, some people move off the trail to allow others to pass.

Sometimes bikes travel off the trail to go around hikers or horses. This occurs within about 10-20 feet either side of the existing trail tread and can contribute to erosion. Continue to observe recreation use of this trail and correct of trail impacts if they occur. The trail can be widened in appropriate locations to allow for users to pass each other and to reduce off trail use. At some time, it may be necessary to evaluate options for reducing total numbers or types of use.

General Trail Route

Trail maintenance and new trail construction will follow Best Management Practices and accepted trail standards as listed in the Forest Service Trails Handbook and Arizona Trail Management Guide. The trail will be designed and constructed to “lay lightly” on the land, following contours and conforming to standards for slope grades for moderate multi-use non-motorized trail. By keeping trail grade slopes in accepted ranges (generally from 5 to 12 percent), routing the trail through appropriate soils, designing and constructing drainage structures were needed, and armoring drainage crossings, on-site and off-site erosion will be minimized and insignificant. Given that trail will be well designed and located there are no perennial waters directly affected by any alternative trail location. There are minimal off-site erosion effects under any alternative.

Environmental Consequences

Even with maintenance items described above, there will continue to be some off-site erosion from the trail into the creek. The effect occurs under the no-action alternative and existing use levels. Most of the actual soil that comes off in a precipitation event is within the actual stream channel. This effect is not significant. Maintenance activities described above can help keep the tread out of the creek itself, thereby reducing this effect. Additional recreational use that results from the Arizona Trail designation (Alternative C and D) is not expected to have a significant effect (PRD#39).

Current motorized use of the Shultz Creek trail is not contributing extensively to soil and water impacts on Shultz Creek segment because the motorized use is a small percentage of the total use. Removing motorized use under Alternatives C and D may slightly offset the increased total use on the trail.

There are infiltration galleries in the vicinity of Shultz Tank used by the Doney Park Water Company. Use of the Sunset Trailhead and existing trail in the Shultz Creek Tank area will not affect the infiltration galleries. Currently, (no action) ruts are developing at the Shultz Pass Trailhead due to use in wet weather. Another maintenance item is to improve the surfacing at this trailhead.

For Alternatives A and C, the designation of a loop trail from Bismarck Lake connecting to the Arizona Trail and looping back around to Little Springs and the subsequent obliteration of social trails within the Little Springs area will bring trails up to Forest Service standards in this area.

Recreation Experience

Affected Environment

The type of experience a person has while recreating on National Forest trails varies based on the personal observations and expectations of each person. However a high quality recreation experience can generally be described as follows,

- The diversity of vegetation
- The number and quality of vistas/viewpoints
- The number and quality of geographic or natural features
- The sights and sounds of buildings and highways
- The naturalness of the landscape and evidence of manipulation by humans
- The number of encounters with others
- Many people appreciate an easy to find trail that prevents getting lost

Many of these items are described in the recreation setting¹⁷ for the area. Currently the trail routes pass through a combination of Roded Natural, Semi-primitive Non-motorized and Semi-primitive Motorized settings.

Currently recreational trail use consists of a combination foot, horse, mountain bike, and motorized use of old two-track roads, social (user-created) trails, and also a limited amount of cross-country travel.

Direct and Indirect Effects

Diversity of Vegetation – Alternative A and C passes through a wider variety of vegetation types than Alternative D. Alternatives A and C generally passes through 25 miles of ponderosa pine, 3.5 miles of mixed conifer or limber pine, 2 miles of aspen and 2 miles of open grassland. Alternative D passes through approximately 26.5 miles of ponderosa pine, 1 mile of mixed conifer and limber pine, 2.5 miles of aspen and 2 miles of grassland. There is a diversity of vegetation available on social trails in the area under Alternative B.

Vistas and Viewpoints – Alternative A and C have a greater number of vista's and viewpoints than Alternative D. This is especially the case as the routes travel north from the Snowbowl road crossing to Kelly tank. There are multiple places along the Alternatives A and C route that provide long distant views from the San Francisco Mountain to the west. It gives a person the feeling of being 'on the mountain' and some of the prominent landmarks that can be seen include Kendrick Mountain, Sitgreaves Mountain and in the distance, Bill Williams mountain. Under Alternative D, there are few, if any similar vista opportunities. Views east to the top of the San Francisco Peaks can be achieved under all alternatives. Alternatives A and C give the sense of being closer to the peaks. The Alternative D route provides a view of more of the mountain at one time and is also of high quality. For the portions of the trail routes in the Dry Lake Hills and Fort Valley areas the opportunities for vistas are the same for all the alternatives in that there are very few in these areas. Vistas can be found by hiking cross-country, on old two track roads or social trails under Alternative B.

¹⁷ The Forest Service uses the Recreation Opportunity Spectrum (ROS) categories as a tool to describe forest settings.

Geographic and Natural Features - Opportunities are similar under all the alternatives as trail passes through stands of ponderosa pine, interspersed with open meadows, and cut by rocky drainages. Evidence of the landscape's volcanic history is evident, with volcanic boulders and rocks of all sizes dotting the hillsides and drainages.

Sights and Sounds of Buildings and Highways –The sights and sounds of buildings and highways are similar by Alternative in the Dry Lake Hills and Fort Valley areas. All alternatives in the Fort Valley area are approximately 1-3 miles from Highway 180 and occasional background vehicle noise can be heard. All trail routes cross the Snowbowl road and people will hear and see vehicles when they are close to the road. From Snowbowl road north to Kelly Tank the trail routes are different. Alternatives A and C are farther away from Hwy 180 than Alternative D. There is virtually no noise from Hwy 180 for Alternatives A and D. However, Alternatives A and C pass closer to residential homes in the Hart Prairie and the voices or dogs barking may be heard intermittently. Alternative D passes closer to Hwy 180 and a steady highway noise will be heard in the background along a portion of this route. Alternative D passes near private land as well and the occasional voice or dog barking may be heard. Similar effects as described above occur for the two track roads, social trails and cross country hiking that occurs under Alternative B.

The Naturalness of the Landscape and Evidence of Alterations by Humans – Evidence of human use of the landscape is evident along all of Alternative routes. The Alternatives are similar in the Dry Lake Hills and Fort Valley areas. In the Fort Valley areas all routes pass through areas with recent evidence of thinning and prescribed burning. For the portion of the routes from Snowbowl road north to Kelly Tank, Alternatives A and C pass through areas with some old road tracks and some social trails. There is little evidence of past tree cutting along the Alternative A and C routes for this portion. Alternative D has the most evidence of human use with multiple open roads and evidence of firewood cutting. Cattle may be seen along any of the Alternative routes per current range permits; however, cattle are more frequently seen along the Alternative D route. Similar effects as described above occur under Alternative B where people travel on old two track roads, social trails or cross-country.

The Number and Frequency of Encounters with Others – The number and frequency of encounters is similar for all the alternatives, however the type and duration of those encounters does vary between Alternatives A and C and Alternative D. The frequency of encounters and type of encounters can have a significant impact on the quality of a recreational trail experience. Non-motorized users are often suffering negative impacts on their experience after encounters with motorized users. Mountain bikes can have negative impacts on equestrian users.

Current use of system trails and social trails in the Mount Elden and Dry Lake Hills areas would lead to a number of encounters under all the alternatives. These encounters would be primarily of short duration as Arizona Trail users pass mountain bikers, hikers and horseback riders. In the Dry Lake Hills and Mount Elden areas of the Flagstaff urban interface these encounters would be more frequent on weekends and on weekday evenings, when usage peaks. The number and frequency of encounters under Alternatives C and D in the Fort Valley area would be less than the Dry Lake Hills area and be primarily with other hikers, bikers and horseback riders. Both of these alternatives cross Snowbowl Road where trail users would encounter highway traffic (discussed later in this section).

While Alternative D shares a similar route to Alternatives A and C through the Elden/Dry Lake Hills and Fort Valley areas (and in turn similar numbers and frequency of encounters), it passes through areas fragmented with many roads and social trails in the Hart Prairie area. The proposed

route of Alternative D through the Hart Prairie area skirts private lands, follows many old two-track roads, and is crossed by a number of open forest roads. Unlike the other alternatives, the type of encounter along this route could largely be with motorized users, including motor vehicles where the trail crosses or follows open forest roads.

Designated Forest Service Trail Versus Social Trail Experiences – There is a discernable difference between recreational experiences on designated, engineered and maintained Forest Service system trails and social, user-created trails. While trail planners strive to design and construct trails that seem to have “just happened” and that blend into their environment, this requires much thought and care. As such, a well-designed and constructed trail will guide the users through the environment subtly and in such a manner that resource impacts are minimized. Social, user-created trails, however, are most often not designed or planned, but rather just occur from repeated use. As such, their route often follows drainages, contains steep grades and has little or no erosion control structures. These routes can be circuitous and tend to have many spurs and side trails. The experience of a Forest Service system trail can be seen as not only a more positive and satisfactory experience for most users, but safer and less impactfull as well.

Wilderness Values

Affected Environment

Because all alternatives pass outside of the wilderness, wilderness values are impacted only by off trail hiking. Off trail and cross-country hiking does not normally affect wilderness values, as long as the amount of this use is insignificant. However, if the numbers of cross-country travelers becomes to great, there could be negative effects to wilderness character and resource. Established and designated trail opportunities have a tendency to reduce off-trail and cross-country use, and the establishment of the Arizona Trail should be expected to limit this potential affect on wilderness values.

Direct Effects

There are no direct effects from any alternative from any trail route.

Indirect Effects

Off trail hiking is expected to be similar under all alternatives. As was discussed earlier, off-trail use and the creation of social trails is often a result of a lack of appropriate and satisfactory trail opportunities (Dawson and Hendee, 2002). While all off-trail use cannot be eliminated or prevented, Alternative D presents the least opportunity for such a use having an indirect effect on wilderness values as its proposed route is the furthest from the wilderness boundary.

Fire Risk

Although not raised as a significant issue, this topic is described here because of interest raised from public comment.

Global Information System (GIS) overlay of fire starts and system trails (motorized and non-motorized) shows less than 3 % of fire starts within 300 feet of trials. The percentage of non-

motorized starts would be expected to be even lower. In addition, current fire restrictions will occur as needed forest wide.

There were 979 human caused fires recorded from 1994 through 1998 on the Coconino National Forest. Of those, 26 were within 300 feet of a system trail. This equates to less than 3 percent of the total human caused fires over this time period. Of the 26 fires recorded, campfires caused 15, 1 from smoking, 1 from debris, 1 from children and the remaining 8 were of an unknown cause.

We do however see an increase in human caused fires associated with roads. Fires from escaped campfires occur in both designated and dispersed campsites, adjacent to roads.

Forest Service regulation allows for fire restrictions to be imposed during times of increased fire danger. This can include campfires and smoking restrictions as well as Forest Closure. The Arizona Trail will be under the same restrictions as other National Forest Lands.

Designated camp spots are located along the Ft. Valley portion of the Arizona Trail and will provide camping for trail users. The portion of the Arizona Trail that borders the western side of the San Francisco Peaks wilderness is at a high elevation (8,900') with an abbreviated fire season due to cooler temperatures and more moisture.

Camping will be restricted within the Little Springs and Bismarck Lake areas due to mitigation for the Mexican spotted owl and restrictions for camping within ¼ mile from any water source further reducing potential for escaped campfires. In the area of White Horse Hills the fire danger is greatly reduced due to the past fire history in the area.

Public Health and Safety

Trails in general do not pose a public health and safety concern. Where the Arizona Trail crosses paved roads measures will be taken to ensure safe crossing.

Environmental Justice

The issue of environmental equity and justice in natural resource allocation and decision making is receiving increasing political and social attention. Following President Clinton's Executive Order 12898 (Federal Register, February 1994) all Federal land management agencies have been mandated to address environmental justice in nonwhite and/or low-income populations, with the goal of achieving environmental protection for all communities regardless of their racial and economic composition.

Alternatives A, B, C, and D do not result in disproportionate impacts to low-income populations, nor do they impact minority populations.

Chapter 4 - Consultation and Coordination

The Forest Service consulted the following individuals, Federal, state and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Brian Poturalski and Andrew Johnson –
Recreation Planners

Cary Thompson – Interdisciplinary
Team Leader and Wildlife Biologist

Debbie Kill – NEPA Specialist

John L Nelson – Recreation Staff

Heather Cooper - Archaeologist

FEDERAL, STATE, AND LOCAL AGENCIES:

U.S. Fish and Wildlife Service

Arizona Game and Fish Department

Coconino County

City of Flagstaff

SHPO Arizona State Parks

TRIBES:

Dine' Medicine Man's Association

Fort McDowell Yavapai Nation

Hopi Tribe

Hualapai Tribe

Havasupai Tribe

Navajo Nation

Pueblo of Acoma

Pueblo of Zuni

San Carlos Apache Tribe

San Juan Southern Paiute Tribe

Tonto Apache Tribe

Yavapai-Apache Nation

Yavapai-Prescott Tribe

White Mountain Apache Tribe

OTHERS:

Grand Canyon Trust

Arizona Trail Association

The Nature Conservancy

Homeowners in Hart Prairie and
Whitehorse Hills Area – mail list 145
names

Forest Plan Mail List – 500+ names

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APPENDIX A – CRITERIA FOR EVALUATION OF SPECIAL USE PERMIT APPLICATIONS

Applications for special use permits for Outfitter and Guide operations or special events on National Forest lands, and trails, are analyzed through an established, multi-step process and approved or disapproved by the appropriate line officer (district rangers or forest supervisor).

There are, essentially, three major steps to the analysis or screening process. These include a primary screening of nine criteria established in 36 CFR 251.54(e)(1)(i-ix). A second level of screening reviews five criteria established in 36 CFR 251.54(e)(5)(i-v). If a permit passes through to this level various Forest Service natural resource specialists evaluate it for its direct or indirect environmental impacts. If appropriate a permit is evaluated for a categorical exclusion from the NEPA process as set out in FSH 1909.15, Chapter 30, 31.1b. If the application meets these categorical exclusion criteria and does not trigger any of the seven extraordinary circumstances as contained in FSH 1909.15, Chapter 30,31.1b., it can be considered for approval.

For outfitter and guide applications an additional analysis of the proposed activity is conducted to determine if the forest can sustain the additional level of use.