[3410-11p]

DEPARTMENT OF AGRICULTURE

Forest Service

Notice of Availability of Draft Environmental Impact Statement, New Special-Use Permits for Recreation Residences on the Safford Ranger District, Graham County, Arizona

AGENCY: Forest Service, USDA.

ACTION: Notice of availability.

SUMMARY: In accordance with the National Environmental Policy Act of 1969 (NEPA) and the President's Council on Environmental Quality regulations, the Forest Service, Coronado National Forest, announces the public availability of a Draft Environmental Impact Statement (DEIS) that discloses the potential environmental impacts of the issuance of special-use permits (SUPs) for recreation residences on the Safford Ranger District, Graham County, Arizona.

DATES: The DEIS will be available for a 45-day public review and comment period that begins on the date of publication of this Notice of Availability (NOA) in the Federal Register. No public meetings are planned to be held during the public review period.

ADDRESSES: Copies of the DEIS have been sent concurrently with publication of this NOA to interested parties and Federal, State, and local government agencies and officials. An electronic copy of the DEIS is also available for public review on http://www.fs.fed.us/r3/coronado. Copies of the DEIS will be available for public review at the following locations:

*Safford Ranger District: 711 S. 14th Ave., Suite D, Safford, AZ and

*Coronado National Forest Supervisor's Office: 300 W. Congress St., 6th Floor, Tucson, AZ.

Requests for copies of the DEIS as an electronic file, compact disk or paper copy format may be made by contacting Ms. Celeste A. Gordon, Recreation and Special-Uses Program Manager, Coronado National Forest, on (520) 388-8422 or by electronic mail at cgordon@fs.fed.us.

You may submit written comments on the DEIS by hand delivery, U.S. postal mail, facsimile, and electronic mail (email). Only comments received during the 45-day period following publication of this NOA will be considered prior to a decision on the proposed action. Only parties who offer comment during this period will be granted the right to appeal the decision.

Copies by postal mail should be sent to Ms. Celeste A. Gordon, Coronado National Forest, 300 W. Congress St., Tucson, AZ 85701. Hand delivery of written comments to the same address may occur between 7:30 a.m. and 4:00 p.m., Monday through Friday, excluding Federal holidays.

Facsimiles may be sent to Ms. Gordon at (520) 388-8305, and email to comments-southwestern-coronado@fs.fed.us. Envelopes and the subject line of email and facsimiles should be identified as "Safford Recreational Residence DEIS".

Comments on the DEIS should be as specific as possible. It is also helpful if comments refer to line numbers, pages, and/or chapters of the DEIS. Comments may address the adequacy of specific analyses in the DEIS and the merits of the alternatives formulated and discussed in the document (refer to CEQ regulations at 40 CFR 1503.3).

Please note that comments received, including the names and addresses of those who comment, will be considered part of the public record of this NEPA review and will be available for public inspection upon request under the authority of the Freedom of Information Act (FOIA).

FOR FURTHER INFORMATION CONTACT: For information on the Forest Service Special Uses Program, please contact Ms. Celeste A. Gordon, Recreation and Special-Uses Program Manager, Coronado National Forest, at the above address, or by telephone at (520) 388-8422. Questions on the Forest Service NEPA process or FOIA requirements may be directed to Ms. Andrea Wargo Campbell, Forest NEPA Coordinator, at the above address, and by telephone on (520) 388-8352.

SUPPLEMENTARY INFORMATION: The U.S. Forest Service has offered a recreational residence program on National Forest System lands since the 1920's. The program was initiated with the objective of encouraging city-dwellers to enjoy the national forests by permitting them to construct vacation homes on specified plots. It expanded through the 1960's to encompass a total of 19,000 cabins nationwide before the program was discontinued.

There are now about 15,000 Forest Service cabins nationwide, each of which is maintained under the terms and conditions of SUPs issued by the managing Forest. Though some cabins have been traded on the open market, many are still owned by the descendants of the individuals who built them.

Eighty-eight (88) recreational residences are located on the Safford Ranger District of the Coronado National Forest near Safford, Arizona. Fourteen are found in an area known as Old Columbine, and 74 are found at Turkey Flat. The owners of these

recreational residences hold Forest Service SUPs that allow each unit to be occupied under specific terms and conditions.

The Forest Service's proposed action is to issue 88 new special-use permits for occupancy and use of recreation residences on the Safford Ranger District upon their expiration. There would be no change in the use of the residences upon issuance of a new permit. Each new permit term would be valid for a period of 20 years.

A DEIS was prepared to evaluate the potential impacts of the proposed action and three alternatives, which are summarized as follows:

*Alternative 1 (no action) would allow the recreational residences SUPs to expire and, in accordance with Forest Service policy, permits would be issued for a 10-year transitional occupancy period, after which permit holders would be required to remove structures and other improvements.

*Alternative 2 is the proposed action, which is to issue new SUPs for the all 88 Safford District recreational residences. Alternative 2 is the Forest Service's preferred alternative.

*Alternative 3 would authorize new SUPs for 74 Turkey Flat permit holders for a 20-year period, and the 14 permits for residences within the Old Columbine tract would be allowed to expire. Transitional permits would be issued to Old Columbine permit holders for a 10-year transitional occupancy period, after which structures and other improvements would be removed.

* Alternative 4 would authorize new SUPs for the 14 Old Columbine residences. The 74 permits for Turkey Flat tract would be allowed to expire. New permits would be issued to

Turkey Flat permit holders for a 10-year transitional occupancy period, after which structures and other improvement would be removed.

The NEPA review of the proposed action included public meetings, field reviews, and interactions with various local, state and Federal agencies. Issues identified during the scoping period led to the development of the alternatives analyzed in the DEIS. The DEIS discloses the results of an analysis of the potential for direct, indirect and cumulative effects of the action alternatives and the no-action alternative in detail. The alternatives, including the proposed action, were designed to conform to existing laws and regulations and to provide for resource protection.

Authorization: National Environmental Policy Act of 1969 as amended (42 U.S.C. 4321-4346); Council on Environmental Quality Regulations (40 CFR parts 1500-1508); U.S. Department of Agriculture NEPA Policies and Procedures (7 CFR part 1b), Forest Service NEPA Regulations, 36 CFR 220.

Dated: November 24, 2008.

/s/ Reta J. Laford

Reta J. Laford

Deputy Forest Supervisor

Coronado National Forest

Draft Environmental Impact Statement for New Special-Use Permits for Recreation Residences on the Safford Ranger District

Coronado National Forest
Graham County, Arizona

Lead Agency: USDA Forest Service

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Abstract: The Coronado National Forest proposes to issue 88 new special-use permits for occupancy and use of recreation residences on the Safford Ranger District when they expire on December 31, 2008. There would be no change in the use of the residences upon issuance of a new permit. Each new permit term would extend 20 years, from January 1, 2009 through December 31, 2028. A draft environmental impact statement (DEIS) was prepared to evaluate the potential impacts of the proposed action (alternative 2) and three alternatives. Alternative 1 (no action) would allow the current permits to expire and, in accordance with Forest Service policy, 10-year permits would be issued for continued occupancy, after which permit holders would be required to remove residences and improvements. Alternative 3 would authorize the permits for 74 Turkey Flat recreation residences to be issued, and the 14 permits for residences within the Old Columbine tract would be allowed to expire. New permits would be issued to Old Columbine permit holders for a 10-year period, after which they would be required to remove improvements. Alternative 4 would authorize the permits for the Old Columbine residences to be issued, and the 74 permits for the Turkey Flat tract would be allowed to expire. New permits would be issued to Turkey Flat permit holders for a 10-year period, after which they would be required to remove improvements. Alternative 2 (proposed action) is the preferred alternative.

Mail Comments to: Andrea Wargo Campbell, Forest NEPA Coordinator
Coronado National Forest
300 West Congress Street
Tucson, AZ 85701

E-mail Comments to: comments-southwestern-coronado@fs.fed.us
[Subject: Safford Recreation Residence EIS]

Date Comments Must Be Received: The 45-day public comment period begins on the day after the Environmental Protection Agency publishes a Notice of Availability for the draft EIS in the Federal Register. Comments MUST be received before the close of business on the last day of the comment period.

Additional Information: The public is encouraged to provide the Forest Service with comments during the draft environmental impact statement comment period to enable the Forest Service to efficiently and effectively analyze issues and concerns, respond to them using the best available scientific information, and use new information, as appropriate, in preparation of the final environmental impact statement. The submittal of timely public comments helps to minimize undue delay in the decisionmaking process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewers' position and contentions [*Vermont Yankee Nuclear Power Corp*. v. *NRDC, 435 U.S. 519, 553* (1978)]. Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement [*City of Angoon* v. *Hodel* (9th Circuit, l986) and *Wisconsin Heritages, Inc*. v. *Harris*, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980)]. Comments on the draft environmental impact statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).

Summary

Special-use permits (SUPs) held by parties who own and seasonally occupy 88 recreation residences on two separate tracts on the Safford Ranger District, Coronado National Forest, Graham County, Arizona, are scheduled to expire on December 31, 2008. The Forest Service proposes to issue new permits to these parties for a term of 20 years. This action is consistent with Forest Service policy (Forest Service Manual 2721.23(e)) to "continue recreation residence use when it is consistent with the forest plan" and to work in partnership with holders of these permits to maximize public recreational benefits.

The residences are located on two tracts comprising 77 acres in the Pinaleño Mountains of the 1.8-million-acre Coronado National Forest. Fourteen residences are located on 25 acres at Old Columbine and 74 residences are located on 52 acres at Turkey Flat. The Pinaleño Mountains cover an area of 198,411 acres. Mt. Graham is the highest peak in the range.

The proposed action itself is administrative in nature, but the use of the residences has the potential to impact natural resources. Direct, indirect, and cumulative effects reported in this draft environmental impact statement (EIS) are those associated with the continued occupancy and use of the recreation residences over a future 20-year period. Three alternatives to the proposed action were evaluated: no action, issue new permits for Turkey Flat residences only, and issue new permits for Old Columbine residences only.

Each aspect of the proposed action was evaluated for consistency with the forestwide and management area specific goals, objectives, standards, and guidelines established in the "Coronado National Forest Land and Resource Management Plan" (1986, as amended). All aspects were found to be consistent with the forest plan, and no amendments to the plan will be necessary prior to new recreation residence SUPs being issued.

The impacts analyses reported in this EIS disclose that no action, the proposed action, and the two other action alternatives would have minimal or discountable direct, indirect, and cumulative impacts on air quality, soils, water and riparian resources, recreation, visual quality, wild and scenic rivers, socioeconomics, and fire management in the area of potential effect.

With regard to impacts to wildlife resources, the Forest Service conducted formal Section 7, Endangered Species Act (ESA), consultation with the U.S. Fish and Wildlife Service (FWS). On January 24, 2007, formal consultation was initiated by the Forest Service in a letter submitting a biological assessment and evaluation (BAE) of the proposed action.

The BAE reported that the proposed action "**may affect, but would not likely adversely affect**" the Mexican spotted owl (MSO) and the Apache trout. In this draft EIS, the same determination is reported for no action and the other action alternatives. The U.S. Fish and Wildlife Service concurred on all of these determinations in a letter dated August 18, 2008.

For the proposed action and alternatives, an ESA determination of "**no effect**" was made regarding potential impacts to designated critical habitat for the MSO.

With regard to the Mt. Graham red squirrel (MGRS), an ESA determination of "**may affect, likely to adversely affect**" was made for no action, the proposed action, and the alternative of issuing new permits for Old Columbine only. Although the residence tract at Old Columbine represents only 25 acres out of more than 27,000 acres of potential habitat available to the MGRS, the likelihood exists that two squirrel middens and perhaps their occupant(s) may be adversely affected by the proposed action.

Neither recreation residence tract is located within designated critical habitat for the MGRS.

In a biological opinion (BO) issued August 18, 2008 (see appendix C), the FWS concurs with the Forest Service's ESA determination regarding impacts to the MSO and Apache trout. The BO assigns "take" for two Mt. Graham red squirrels. According to the biological opinion, "…this level of take is not likely to result in jeopardy to the species."

The Forest Service considered the impacts to cultural (also known as heritage) resources, as required by the National Historic Preservation Act, Executive Orders 13007 and 13175, and other laws and direction. In March 2006, National Historic Preservation Act, Section 106, consultation about issuing the new recreation residence permits was initiated with the Arizona State Historic Preservation Officer (SHPO) and Native American tribes and nations having traditional ties to the Coronado National Forest.

The entire Pinaleño mountain range comprises the Western Apache traditional cultural property (TCP), *Dził Nchaa Si'an* [1] (Mt. Graham), which is eligible for listing on the National Register of Historic Places. In consultation with the SHPO, the Forest Service determined that about three-quarters of the residences at both Turkey Flat and Columbine have been modified extensively in the last 50 years; therefore, neither tract is eligible for listing on the National Register of Historic Places. While most of the 88 recreation residences are over 50 years old, only 21 of them retain their original characteristics.

Further, in consultation with the SHPO, the presence or absence of the recreation residences was determined to have no adverse effect on the qualities that make *Dził Nchaa Si'an* eligible for the National Register of Historic Places. For these reasons, it was determined that issuing new residence permits at Turkey Flat or Columbine would have **no adverse effect** on historic properties, per Code of Federal Regulations Title 36, Section 800.

From the Western Apache perspective, the Mt. Graham International Observatory and other developments within the *Dził Nchaa Si'an* TCP have damaged its spiritual and cultural integrity. The Western Apache believe that no action (i.e., not to issue new permits) would have the beneficial effect of returning additional land on the mountain to its natural state. Under the authority of the American Indian Religious Freedom Act, the Religious Freedom Restoration Act, and Executive Orders 13007 and 13175, the Forest Service consulted with the San Carlos Apache Tribe and the White Mountain Apache Tribe to identify ways to reduce the effects of the recreation residences on the Western Apache TCP. The resulting mitigation measures developed to minimize the ongoing effects of recreation residences on the traditional cultural, spiritual, and historical values of *Dził Nchaa Si'an* will be included as stipulations in each permit. These measures are defined in the chapter 2, "Mitigation" section of this EIS.

Table 1, shown here and in Chapter 2, summarizes the results of the impacts analysis reported in this EIS, by resource.

[1] Known to nonnatives as Mt. Graham and to the Apaches as *Dził Nchaa Si'an*, or big-seated mountain, the site is religiously significant as a source of divine power. Apaches have occupied the region for many centuries.

Table 1. Comparison of potential impacts of all alternatives evaluated in this environmental impact statement

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Wildlife Mexican spotted owl (MSO)	Old Columbine	Noise and human presence would sporadically disturb the owl during the removal of improvements. Thus, removal will not be allowed during MSO nesting season. As natural succession occurs, the loss of open areas on the tracts may result in a decrease in populations of small mammals, upon which the MSO preys. Eventual regrowth of trees (60 to 80 years afterward) may provide new habitat suitable for MSO nesting. Removal of residences would negate the need for future fire suppression, which, in turn, would encourage the return of the natural fire cycle. With this, less intense fires would be expected, and old growth nesting habitat conserved.	No change from existing conditions. Owls would continue to be disturbed occasionally by human presence and activity, but populations and habitat would not be significantly affected. Retention of the openings created by the residences would benefit populations of small mammals, upon which the MSO preys. A determination of "may affect, not likely to adversely affect" was made with regard to the potential impacts to the MSO at both tracts. There would be "no effect" on designated critical habitat.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wildlife Mt. Graham red squirrel (MGRS)	Old Columbine	Removal of an outhouse at Old Columbine could directly impact one midden and possibly result in MGRS death or injury. Thus, a	No change from existing conditions. Because of human presence at and near an	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
		determination that no action "may affect, is likely to adversely affect" the MGRS was made. Natural succession of trees on Old Columbine, but not Turkey Flat, may provide 25 acres of MGRS habitat over the long term. Increased tree density may reduce nutrients available for cone production. This, in turn, would negatively impact the squirrel's food supply. The removal of residences at either tract would the need for future fire suppression, which, in turn, would encourage the return of the natural fire cycle. With this, less intense fires would be expected, and MGRS habitat at Old Columbine would be conserved.	active midden, a determination of "may affect, likely to adversely affect" was made for Old Columbine. A biological opinion issued by the FWS on August 18, 2008, assigned a "take" of two squirrels and reported that this take would not result in jeopardy to the species. The tract is not within designated critical habitat for the MGRS.		
Wildlife Mt. Graham red squirrel (MGRS)	Turkey Flat	Removal of an outhouse at Old Columbine could directly impact one midden and possibly result in MGRS death or injury. Thus, a determination that no action "may affect, is likely to adversely affect" the MGRS	No change from existing conditions. A determination of "may affect, not likely to adversely affect" was made with regard to potential impacts at Turkey Flat.	Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
		was made. Natural succession of trees on Old Columbine, but not Turkey Flat, may provide 25 acres of MGRS habitat over the long term. Increased tree density may reduce nutrients available for cone production. This, in turn, would negatively impact the squirrel's food supply. The removal of residences at either tract would the need for future fire suppression, which, in turn, would encourage the return of the natural fire cycle. With this, less intense fires would be expected, and MGRS habitat at Old Columbine would be conserved.			
Wildlife Apache trout	Old Columbine	Removal of improvements would increase erosion and runoff from the tracts in the short term. Impacts to water quality in the subwatershed would be insignificant.	No change from existing conditions. A determination of "may affect, not likely to adversely affect" was made with regard to the	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
	Turkey Flat	This species does not occur at the Turkey Flat tract.	potential impacts to the Apache trout at Old Columbine.	Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wildlife Forest Service Sensitive Species	Old Columbine	No trend toward Federal listing or loss of viability of any of the Forest Service sensitive species that occur at or near each tract.	No change from existing conditions. No trend toward Federal listing or loss of viability of any of the Forest Service sensitive species found at or near both tracts.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wildlife Management Indicator Species	Old Columbine	No significant changes in forestwide populations and habitat of forest management indicator species.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Heritage Resources (Sites on or eligible for the National Register of Historic	Old Columbine	A determination of "no adverse effect" on historic properties was made, per 36 CFR 800.5 (b). Removal is the preferred alternative of the Western	Because residences were present prior to eligibility designation of the Traditional Cultural Property and their continued presence would not affect the qualities	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Places)	Turkey Flat	Apaches.	that make the mountain eligible for the National Register, a determination of "no adverse effect" on historic properties was made, per 36 CFR 800.5 (b).	Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Heritage Resources (*Dził Nchaa Si'an*, eligible Traditional Cultural Property)	Old Columbine	Removal would enhance the sacredness of the mountain by fostering restoration of the natural fire regime and wildlife habitat, reducing visual intrusions, and reducing human occupation and potential disrespectful behavior.	No change from existing conditions, for example, restoration of wildlife habitat and natural fire regime would be inhibited, visual and noise intrusions would continue.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Air Quality	Old Columbine	Short-term, sporadic, localized particulate matter (PM-10) emissions in fugitive dust from residence removal, burning debris, and vehicle traffic. Attainment of National Ambient Air Quality Standards would not be compromised.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Soils	Old Columbine	Minimal short-term increase in erosion after improvements are removed. Use of best management practices would minimize impacts to insignificant levels. Sites would eventually return to a more natural slope. No change in soil productivity.	No change from existing conditions. Natural soil bulk density and structure would remain slightly compacted and altered by foot and vehicle traffic within the 77 acres occupied by the tracts.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Water and Riparian Resources	Old Columbine	Potential for increased erosion on 77 acres in the short term. Effects of sediment runoff in the subwatersheds would be discountable given the small acreage of the tracts relative to the size of the watersheds. Use of best management practices to minimize erosion would result in insignificant stream turbidity levels. As the tracts are replenished with vegetation, hydrologic function would improve. The riparian channel of Ash Creek would eventually naturalize.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Recreation	Old Columbine	Use of the tracts for developed recreation would discontinue after 10 years. Tracts would become dispersed-use sites. Minimal increase in use of other recreation sites on the district. Recreation Opportunity Spectrum setting for Old Columbine would change from Rural to Roaded Natural.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Visual and Aesthetic Resources	Old Columbine	Short-term changes in visual quality during removal of improvements. Visual quality objective of Retention would not be affected.	No change from existing conditions	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wild and Scenic Rivers	Old Columbine	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.	No change from exisiting conditions.
	Turkey Flat				

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Social and Economic Resources	Old Columbine	Until improvements are removed after 10 years, the family culture and tradition of permit holders, the small positive effect on the economy of surrounding towns, and revenues to Forest Service and Graham County would continue. Removal of improvements would result in a cost to permit holders of about $3,000. No disproportionate impacts to low income and minority populations.	No change from existing conditions. No disproportionate impacts to low income and minority populations.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Fire Management	Old Columbine	After 10 years, Forest Service would realize cost savings because fuel thinning near structures and fire suppression would no longer be needed. As native vegetation repopulates the tracts, the fire cycle would gradually return to more natural fire-adapted conditions.	No change from existing conditions. Fire suppression and fuel thinning would continue to be necessary around tracts. Wildland fire use for resource enhancement would not be possible.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Cumulative Effects	Old Columbine	The removal of residences at both tracts would decrease the need for future fire suppression over 77 acres of the forest, which, in turn, would encourage the return of the natural fire cycle. Subsequent natural fires would be less intense, and wildlife habitat would be conserved, including MGRS habitat at Old Columbine. The mountain would be returned to a more natural condition, which would begin the reversal of numerous effects to the Western Apache TCP.	No change to existing cumulative effects in the area of effect of both tracts.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Acronyms and Symbols

ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AICA	Arizona-Idaho Conservation Act
AMR	Appropriate Management Response
amsl	Above Mean Sea Level
APE	Area of Potential Effect
BAE	Biological Assessment and Evaluation
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act
CE	Categorical Exclusion
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DBH	Diameter at Breast Height
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FMU	Fire Management Unit
FMZ	Fire Management Analysis Zone
FRCC	Fire Regime Condition Class
FS	Forest Service
FSH	Forest Service Handbook
FSM	Forest Service Manual
FSS	Forest Service Sensitive Species
FWS	Fish and Wildlife Service
GES	General Ecosystem Survey
GIS	Geographic Information System
LSC	Low Sun-Cold (climatic class)
MA	Management Area
MGIO	Mount Graham International Observatory
MGRS	Mount Graham Red Squirrel
MIS	Management Indicator Species
MSO	Mexican Spotted Owl
NAAQS	National Ambient Air Quality Standards
NEPA	National Environment Policy Act
NF	National Forest
NFMA	National Forest Management Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration

NOI	Notice of Intent
O&M	Operation and Maintenance
O_3	Ozone
ORVs	Outstandingly Remarkable Values
PAC	Protected Activity Center
Pb	Lead
PEM	Pinaleño Ecosystem Management
PERP	Pinaleño Ecosystem Restoration Project
PILT	Payments in Lieu of Taxes
PM	Particulate Matter
PNV	Present Net Value
ROD	Record of Decision
ROS	Recreational Opportunity Spectrum
RPA	Reasonable and Prudent Alternative
SHPO	State Historic Preservation Officer
SMS	Scenery Management System
SO_2	Sulfur Dioxide
SOPA	Schedule of Proposed Actions
SRSCS	Secure Rural Schools and Community Self-Determination Act
SUP	Special Use Permit
TCP	Traditional Cultural Property
TES	Threatened and Endangered Species
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
VQO	Visual Quality Objective
VRMS	Visual Resource Management System
WFSA	Wildland Fire Situation Analysis
WSR	Wild and Scenic River
WUI	Wildland-Urban Interface

Chapter 1. Introduction

Background

Individual recreation residences have existed on public lands administered by the Federal Government since passage of the Organic Administration Act of June 4, 1897[1]. The act provided for construction and occupancy of residences on National Forest System (NFS) lands and other public lands, contingent upon an agency's authorization of an annual permit. At the turn of the 20th century, however, most citizens were unwilling to make substantial investments in residences without the assurance that their permits would be issued annually without renegotiation or difficulty.

In 1915, the Term Permits Act[2] provided Federal agencies with the authority to provide up to 5 acres of Federal land for construction of summer homes and to grant multi-year occupancy permits. Permitted, privately owned residences were subsequently allowed to be inherited or the improvements sold. Shortly thereafter, during the 1920s, the Coronado National Forest (Coronado or forest) recreation residence program was established.

Both the Old Columbine and Turkey Flat recreation residence tracts on the Safford Ranger District, Graham County, Arizona, were established in the 1920s (Angle, 2006). However, residents of Pima, Thatcher, and Safford were known to have enjoyed "summering" on Mt. Graham in the late 1880s (Spoerl, 1988). Cabins were built at Old Columbine before the land became part of the Mt. Graham Forest Reserve in 1902 (King, 1915). Recreation residences at Columbine were built between 1923 and 1956, although most have been modified within the last 50 years. Bertell and Weech (2003:92) noted that Turkey Flat was first developed by William Deal and Joe Bassett, who built a log cabin there as part of a plan to grow potatoes. Most of the recreation residences at Turkey Flat were built after the Swift Trail (Highway 366) improved access to the area. Turkey Flat cabins were first constructed between 1929 and 1966, and like those at Columbine, most have been remodeled or expanded within the last 50 years.

USDA Forest Service direction for issuing new term special-use permits (SUPs) for recreation residences is governed by the Recreation Residence Policy established on June 2, 1994 (USDA-FS, 1994). A decision to issue new permits, following expiration of old ones, requires a determination of whether or not the future occupation and use of the residences is consistent with the current forest land and resource management plan (forest plan). Consistency is evaluated by considering the extent to which continued recreation residence use adheres to the standards and guidelines in the forest plan that apply to specific forest management areas. It is Forest Service policy (Forest Service Manual (FSM) 2721.23e (1)) that "when recreation residence use is consistent with the forest plan, it shall continue."

In addition to a consistency evaluation prior to new permits being issued, Forest Service Handbook (FSH) 2709.11, Chapter 41.23a (2), requires the forest to "initiate the analysis and action to issue a new permit 2 years prior to expiration of the current term permit." The handbook further states because "recreation residences have been in place for many years, and experience in administering this use has shown that continuing the use does not cause significant environmental impacts, issuance of a new permit can be made without further environmental documentation (FSH 2709.11, Chapter 41.23a (1))." However, "if the use has not been analyzed sufficiently as part of an EA or EIS completed within 5 years of permit expiration, complete the appropriate environmental analysis and documentation (FSH 2709.11, Chapter 41.23a (1)(b))."

[1] Ch. 2, 30 Stat. 11, as amended; 16 U.S.C. 473–475, 477–482, 551
[2] 16 U.S.C. 497, as amended; signed on March 4, 1915

The action of issuing new recreation residence permits when changes are simply administrative in nature is one that may, at present, be categorically excluded from further National Environmental Policy Act (NEPA) analysis in an environmental assessment (EA) or environmental impact statement (EIS) (see 36 CFR 220.6 (e) (15)). Use of the categorical exclusion (CE) is contingent upon there being no extraordinary circumstances that may adversely affect specific resources listed in 36 CFR 220.6 (b), including species protected under the authority of the Endangered Species Act (ESA) and heritage resources protected under the National Historic Preservation Act (NHPA).

Despite the fact that the recreation residences have been present for nearly 80 years, there has been a history of controversy regarding special uses on Mt. Graham for several recent decades, based on population and habitat issues associated with the endangered Mt. Graham red squirrel; heritage issues with Mt. Graham being considered eligible as a TCP for the Western Apache; and fire management. Thus, the Forest Service determined that the use of a CE would not be acceptable as NEPA compliance for this proposed action, and that preparation of an environmental impact statement (EIS) was necessary.

Purpose of and Need for Action

Special-use permits for 88 recreation residences on the Safford Ranger District on the Coronado NF are scheduled to expire on December 31, 2008. The purpose of the proposed action is to issue new SUPs to those parties holding permits that expire on December 31, 2008. Action is needed by the forest to comply with the Forest Service policy of continuing recreation residence use when it is consistent with the forest plan and to continue to work in partnership with permit holders to maximize public recreational benefits (FSM 2347.1 (USDA-FS, 2006b) and USDA-FS, 1986, pp. 9, 41 and 59).

Proposed Action

The Forest Service proposes to issue SUPs for 88 Safford Ranger District recreation residences upon their expiration on December 31, 2008. Each newly issued SUP term would extend 20 years, from January 1, 2009, through December 31, 2028. Current permit holders would be required to abide by all terms and conditions expressed in their respective SUPs and an annual operation and maintenance (O&M) plan that is conveyed with each SUP. Prior to a new SUP being issued, each recreation residence will be inspected by the Forest Service to confirm that occupancy is in compliance with the terms and conditions of the expiring permit (FSH 2709.11, 41.23a (3) (USDA-FS, 2005)). An example of an annual O&M plan is provided in appendix A.

The Old Columbine tract has 14 recreation residences on 25 acres in protracted Section 29, unsurveyed Township 8 South, Range 24 East. The Turkey Flat tract has 74 residence lots on 52 acres in protracted Sections 19 and 20, unsurveyed Township 9 South, Range 25 East. General locations of the Coronado NF and the tracts are shown in figures 1 and 2.

The layout of residences on the tracts is shown in chapter 3, figures 7 and 8. The Coronado NF encompasses 1,780,000 acres, mostly in southeastern Arizona, and includes areas of the Peloncillo Mountains of southwestern New Mexico. Elevations on the Coronado NF range from 3000 to 10,720 feet above mean sea level (amsl) across 12 widely scattered mountain ranges or “sky islands” that rise dramatically from the desert floor. The Pinaleño Mountains, which comprise 198,411 acres of the Safford Ranger District, are one of the most extensive mountain

ranges on the Coronado NF. Mt. Graham in the Pinaleños, at an elevation of 10,720 feet, is the highest peak in southern Arizona.

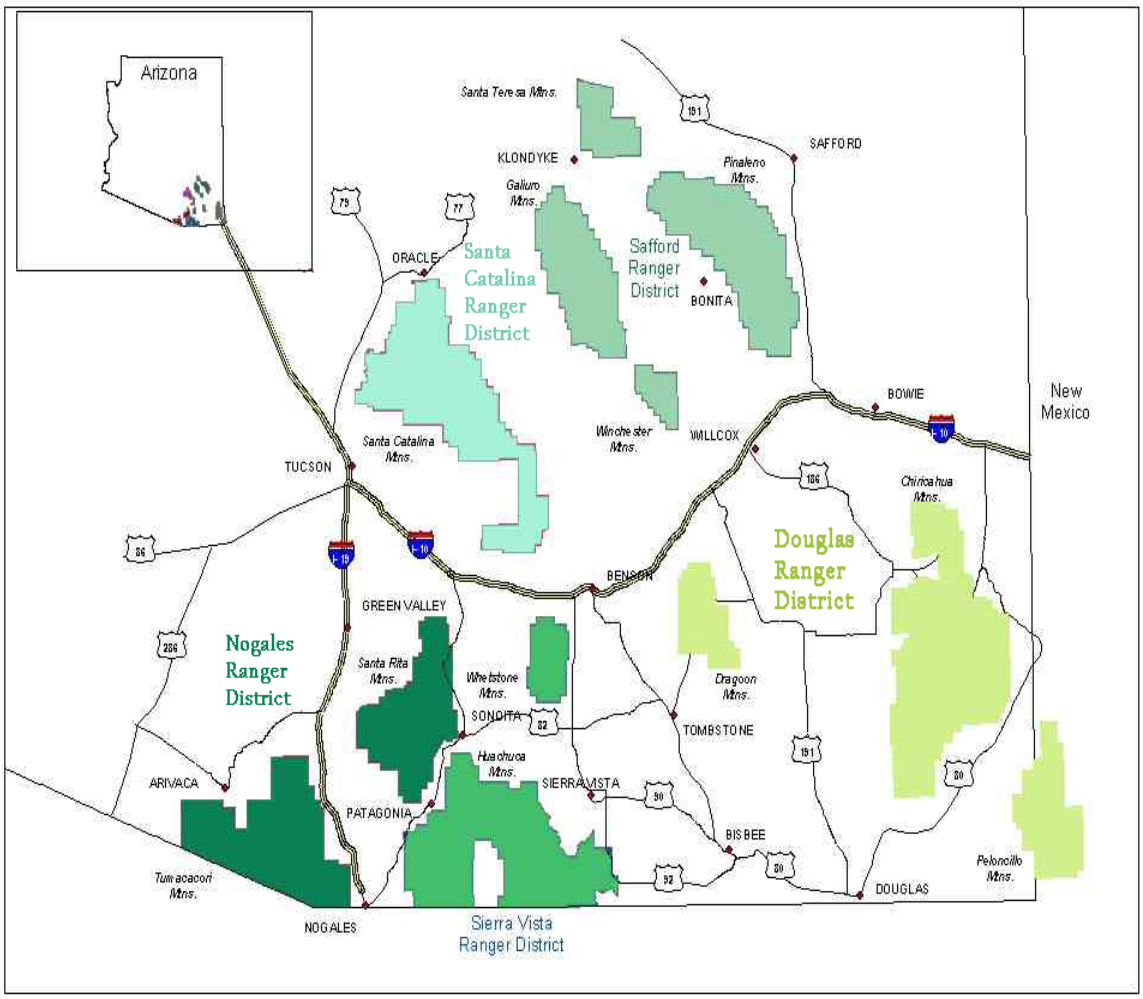

Figure 1. Location of the Coronado National Forest in southeastern Arizona

Forest Plan Direction

Direction for allocation and management of land for specific uses and activities on the Coronado NF, including the recreation residence program, is provided in the current forest plan (USDA-FS 1986, as amended). Forestwide standards and guidelines are augmented by standards and guidelines for individual management areas (MAs) (USDA-FS, 1986, pp. 25-46). The Safford recreation residences are located in MAs 3A and 3B; applicable standards and guidelines, both forestwide and MA specific, are referenced in chapter 3 with each resource impact analysis.

MAs 3A and 3B comprise approximately 4,165 acres and include lands suitable for and capable of supporting recreational development. Management of these areas focuses on providing a variety of developed recreation opportunities while at the same time mitigating impacts to the unique physical, biological, and cultural resources of each area.

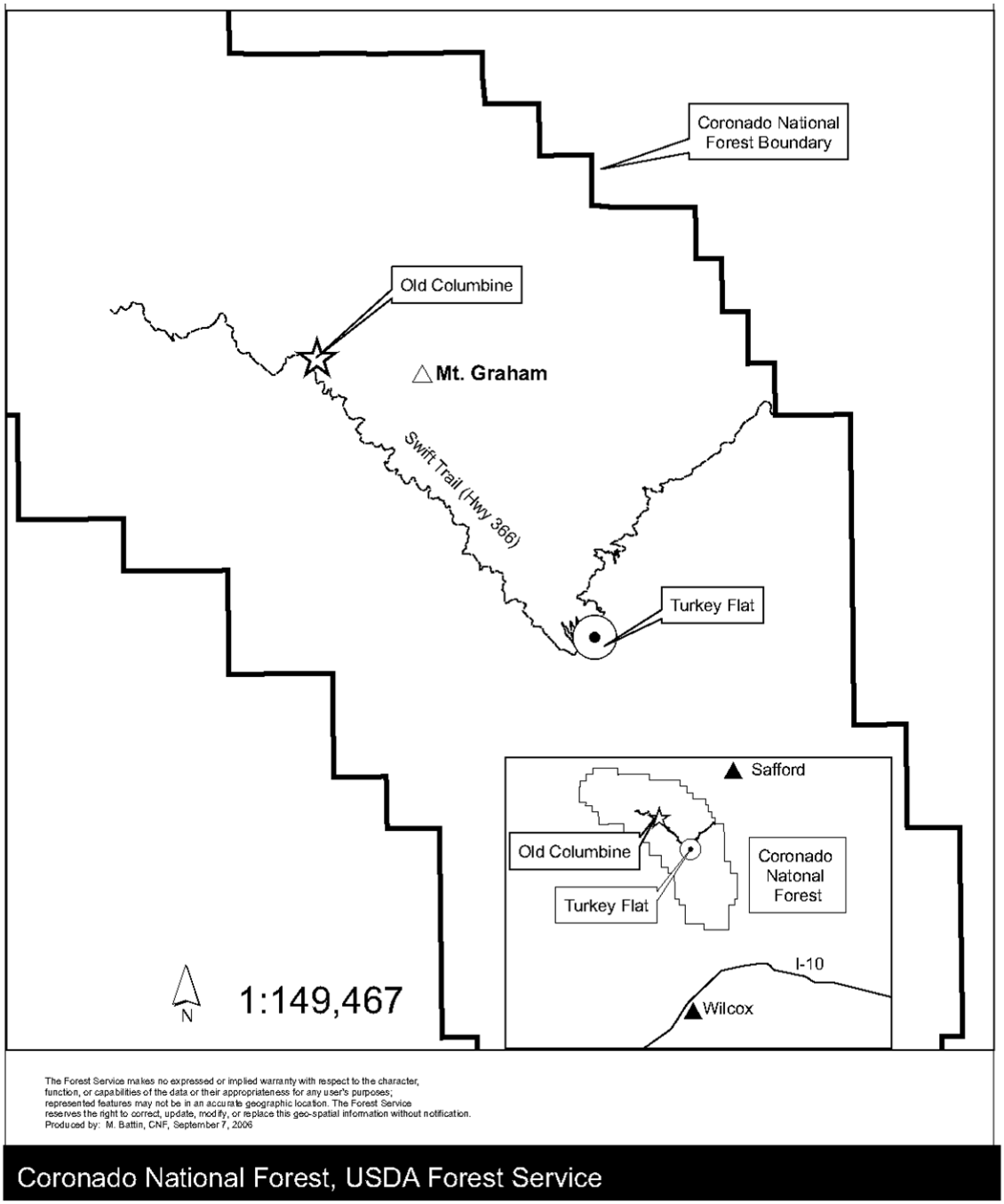

Figure 2. General location of Safford Ranger District recreation residence tracts

Forest plan standards and guidelines for the Old Columbine and Turkey Flat tracts include the following statements (USDA-FS, 1986, p. 59):

- "Recreation residences, with the exception of those on tenure in the Santa Catalina Mountains and Madera Canyon, will be maintained unless and until a determination has been made that the site involved is needed for a higher priority public purpose."

- "Prior to the termination, non-renewal or modification of the special-use permits for the Arizona Bible School Organization Camp and the Columbine Summer Home Tract located in the Pinaleño Mountains, the effect of these special use authorizations on the Mt. Graham red squirrel and other threatened or endangered species will be determined."

The proposed action was evaluated with regard to forestwide and MA specific goals, objectives, standards, and guidelines established in the forest plan and found to be consistent with them. Thus, no amendments will be necessary prior to new recreation residence SUPs being issued.

Decision Framework

The Coronado National Forest supervisor is the responsible official who will decide whether or not to issue new SUPs for recreation residences at Old Columbine and Turkey Flat. As required by CEQ regulations at Section 1505.2, the forest supervisor will document the following information in a record of decision (ROD):

1. The decision (alternative selected) and the rationale that supports it;
2. Consistency of the selected alternative with the governing forest plan;
3. Alternatives considered and evaluated in the EIS;
4. Public involvement in the NEPA review;
5. The specific location of the alternative selected;
6. Mitigation and monitoring factored into the decision and rationale;
7. The environmentally preferred alternative;
8. Findings required by other laws;
9. Administrative review and appeal opportunities; and
10. A date upon which the proposed action may be implemented.

Public Involvement

Notice of the Proposed Action

The proposed action was first announced to the public in July 2005, with its listing in a schedule of proposed actions (SOPA) on the Coronado NF Web site[3]. Since that time, the project has been listed on each quarterly update of the SOPA.

The scope of this NEPA review is based, in part, on input that was provided during two scoping meetings and written and oral responses to a scoping notice sent to Coronado NF stakeholders and interested parties, Native American tribes and nations, and publication of a notice of intent (NOI) in the Federal Register on March 9, 2006.

The NOI provided the public with information on the two public meetings held to provide the public with information about the project and to assist the Agency in scoping the NEPA analysis. The publication of the NOI initiated the opportunity for public comment on the proposal through April 8, 2006, although comments were accepted well beyond that date.

[3] www.fs.fed.us/r3/coronado

A scoping notice was mailed to 154 stakeholders, including the general public, agencies, government officials, and various organizations, also on March 9, 2006. The scoping notice requested public comments on the proposed action through April 8, 2006, and announced the same two public meetings (project record, item 10).

On March 24, 2006, a government-to-government scoping letter was sent to 31 tribal leaders and individuals among 12 Indian Nations with historic ties to southeast Arizona. Comments were requested of Indian Nations by April 28, 2006.

Two public open house meetings were held during the scoping period: one in Tucson, Arizona, on March 27, 2006, which had 27 attendees (project record, item 66) and the other in Safford, Arizona, on March 28, 2006, which had 48 attendees (project record, item 70).

Comments Received from the Public

Public comments received during the scoping period were reviewed by a Forest Service interdisciplinary team of resource specialists (see chapter 4), catalogued by resource and/or issue, and designated as relevant or beyond the scope of this environmental review[4] (project record, item 184). Then, each specialist developed an approach to analyze potential impacts related to specific issues.

Ninety-eight parties offered scoping comments in various formats (electronic mail, U.S. mail, telephone, person-to-person) during the scoping period. Ninety-three comment letters expressed advocacy for the proposed actions, and two letters included requests to be placed on the mailing list for this NEPA review.

One comment letter expressed concern for potential adverse impacts to the Mt. Graham red squirrel, citing several factors of concern (project record, item 164), which were considered and addressed in this EIS by the district wildlife biologist.

Only one comment letter was received from among the Native American tribes and nations who were contacted (project record, item 74). Former tribal chairman of the White Mountain Apache Tribe, Dallas Massey, Sr., commented that the continued existence of the recreation residences in itself was an adverse effect on the *Dził Nchaa Si'an* TCP (Massey, 2006). These concerns were considered and addressed in this draft EIS by the forest archeologist, in consultation with the State Historic Preservation Officer (SHPO).

The remaining comment letter expressed opposition to the Forest Service recreation residence program, in general, and recommended that all permits for recreation residences be discontinued nationwide. This comment was considered to be outside the scope of the review and was not addressed in the impacts analysis in chapter 3.

Future Public Review Opportunities

In accordance with FSH 1909.15, Chapters 23.2 and 23.3, the public will be offered a 45-day period to review this draft EIS. A notice of availability (NOA) of the DEIS for public review will be published in the Federal Register, and copies of the DEIS will be distributed to those parties

[4] Those that (1) expressed concern about an issue that had already been decided by law, regulation, forest plan, or another higher-level decision; (2) were unrelated to the decision to be made; (3) were conjectural and not supported by scientific or factual evidence; (4) expressed an opinion of advocacy or opposition; or (5) were so general that a meaningful issue could not be discerned.

who offered comments during the scoping period. Public comments will be evaluated and considered during the subsequent preparation of a final EIS. The EIS will contain a summary of comments submitted on the DEIS and their disposition.

No sooner than 90 days after publication of the NOA, the responsible official will issue a final EIS and a record of decision (ROD), both of which will be noticed in the Federal Register. Persons who offer oral or written comments on the DEIS or who otherwise express an interest in the project during the DEIS comment period will be mailed the ROD and will be eligible to appeal a subsequent decision on its implementation following publication of the record of decision (36 CFR 215.13).

Issues Identified During Scoping

Potential Effects on the Mt. Graham Red Squirrel

Background

The Mt. Graham red squirrel (MGRS) is one of 25 subspecies of red squirrels in North America. Its habitat is conifer forest, especially old growth spruce-fir, Douglas-fir, and mixed conifers, and its only remaining population is found in the upper elevations of the Pinaleño Mountains. The MGRS was thought to have become extinct during the 1950s, but a small population of squirrels was "rediscovered" in the 1970s.

The species was added to the Federal endangered species list in 1987 by the U.S. Fish and Wildlife Service (FWS), after the estimated population in 1986 was observed to be less than 400. Past logging in the area reduced available MGRS habitat, and it has declined more recently because of drought, insect infestation, and catastrophic fire. Recreational use of the area is limited, and occupancy of the recreation residences is not known to have contributed to the population decline.

The recreation residences at Old Columbine are located within MGRS habitat. They were in place and used for about 30 years before the red squirrel was reported to be extinct. From the perspective of some individuals, their continued presence inhibits the restoration of approximately 25 acres of the forest to historic conditions, although this acreage is a very small percent of estimated suitable MGRS habitat on Mt. Graham (between 17,000 and 27,000 acres).

Human presence at the recreation residences and, in general, all recreation sites on Mt. Graham, increases the probability that individual squirrels may be accidentally injured or killed. In addition, squirrels are at risk from the effects of catastrophic wildland fire, which continues to occur on the mountain because fire suppression in MGRS habitat at Old Columbine and other manmade facilities (the wildland-urban interface or WUI), has and will continue to be an impediment to the return of a frequent, low-intensity, natural fire cycle to the ecosystem.

To address concerns about potential impacts to the MGRS at the Old Columbine tract, an alternative to issue new permits at Turkey Flat only is evaluated in this EIS.

Requirements of the Arizona-Idaho Conservation Act Regarding Mt. Graham International Observatory

About 2 decades ago, a special-use permit was issued to the University of Arizona by the Coronado NF to authorize construction and operation of telescopes and associated facilities on

Mt. Graham (Mt. Graham International Observatory or MGIO). The realization of this project was also the subject of great concern regarding potential adverse impacts on the MGRS.

A draft EIS analyzing the effects of the proposed telescope construction was released for public comment in October 1986 (USDA-FS, 1986b). In 1987, a biological assessment and evaluation (BAE) of the potential effects of the university's preferred alternative on the endangered MGRS was completed by the Coronado NF and submitted to the FWS, as required by the consultation requirements in Section 7 of the Endangered Species Act (ESA). While formal consultation was underway, however, the university modified its preferred alternative, which necessitated the preparation of a second BAE and reinitiation of formal consultation with the FWS.

In July 1988, the FWS issued a biological opinion (BO) on the potential effects of the modified preferred alternative, concluding that the MGRS is "extremely vulnerable to extinction" and that construction of the telescopes was likely to jeopardize its continued existence (USDI-FWS, 1988). As part of the BO, the FWS proposed three "reasonable and prudent alternatives" (RPAs) to the proposed action that would allow the project to proceed while providing a degree of protection to the red squirrel. RPA 3 recommended that new SUPs for the Old Columbine recreation residences not be issued upon their expiration.

Controversy was generated by the BO, and Congress intervened by passing the Arizona-Idaho Conservation Act of 1988 (AICA), which, among other things, altered the requirements of the RPAs. The primary change was effected by Section 602 (a) of the AICA, which mandated that, subject to the terms and conditions of RPA 3 of the BO, the requirements of Section 7 of the ESA were to be deemed satisfied with regard to the issuance of an SUP for the first three telescopes, necessary support facilities, and an access road to the site.

In addition, AICA Section 605(a) altered features of RPA 3 that addressed whether or not new SUPs would be issued upon expiration of permits for the Old Columbine tract area and Arizona Bible Camp. While the 1988 BO RPA 3 recommended that SUPs not be issued upon expiration, AICA stated that the permits "shall continue subject to the terms and conditions of the authorizations, for the duration of the term specified in each authorization. Prior to the termination, non-renewal or modification of those special use authorizations, a biological study to determine the effects of such special uses authorizations upon the Mt. Graham red squirrel and other threatened and endangered species would be conducted. The biological study would include public involvement and consultation with the U.S. Fish and Wildlife Service."

Research and field studies on the red squirrel have been ongoing since passage of the AICA. In 2007, the Safford Ranger District biologist prepared a BAE of potential impacts to the MGRS, on which conclusions reported in this EIS are based (see chapter 3). The BAE was submitted to the FWS on January 24, 2007, as formal ESA Section 7 consultation. A BO was issued by the FWS on August 18, 2008 (see appendix C). It assigns "take" for two Mt. Graham red squirrels. According to the BO, "…this level of take is not likely to result in jeopardy to the species."

Potential Effects on the Western Apache Traditional Cultural Property, *Dził Nchaa Si'an*

The recreation residences are located on Mt. Graham, which is known to Western Apaches as *Dził Nchaa Si'an* (big-seated mountain). The mountain is a place of longstanding and ongoing historical, cultural, religious and spiritual importance to the Western Apache. *Dził Nchaa Si'an* is associated with Western Apache oral history and tradition and plays a vital role in Western Apache lifeways and continued tribal well-being. *Dził Nchaa Si'an* is home to mountain spirits, a

source of natural resources and traditional medicine for ceremonial uses, a place of prayer, and a source of power to Western Apache people. The area within the Forest Service boundary has been determined eligible for listing on the National Register of Historic Places as a TCP, but the sacred character of the range is even more extensive, encompassing all landforms, minerals, plants, and waters associated with or flowing from *Dził Nchaa Si'an*.

The Forest Service has a trust responsibility toward American Indian tribes and is mandated by legislation and executive orders to consider the effects of projects on historic properties, to ensure American Indian access to sacred sites, and to protect the physical integrity of such sites wherever possible. During the scoping of this draft EIS, the chairman of the White Mountain Apache Tribe commented that the ongoing presence of the residences continues the damage and desecration to the Western Apache sacred mountain. Individuals, families, and guests are often not aware of the mountain's role in Western Apache history and culture, and any effects that the residences have on the natural wildlife, soils, vegetation, and streams are considered by the Western Apache as detrimental to the sacred site. Further, the residences have an effect on land and fire management, in that Forest Service fire responses have been premised on the protection of private property rather than on the restoration of ecosystem functions or the protection and expansion of endangered species habitat.

Document Structure

This EIS discloses the direct, indirect, and cumulative environmental impacts that would result from implementation of the proposed action and alternatives. It was prepared in accordance with the procedural and content requirements established in the CEQ Regulations Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508) and in NEPA guidelines contained in FSH 1909.15, Chapter 20 (see http://www.fs.fed.us/emc/nepa/index.htm). The document is organized as follows:

Chapter 1. Introduction: The chapter includes information on the background of the proposed action, the purpose of and need for action, and the Agency's proposal for satisfying that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2. Alternatives, Including the Proposed Action: This chapter provides a more detailed description of the Agency's proposed action, as well as alternatives that also would satisfy the purpose of and need for action. The alternatives were developed, in part, based on issues raised by the public and other agencies. Mitigation and monitoring is discussed in this chapter, and the environmental consequences of implementing each alternative are compared in a summary table.

Chapter 3. Affected Environment and Environmental Consequences: This chapter describes baseline conditions of the affected environment and the potential effects of implementing the proposed action and alternatives. This analysis is organized by resource area. This chapter reports impacts that cannot be avoided or mitigated to acceptable levels. This chapter reports those commitments of resources that may not be renewed in the short term or that are lost in the long term.

Chapter 4. Consultation and Coordination: This chapter provides a list of preparers and identifies agencies, stakeholders, and others consulted during the EIS analysis.

Chapter 5. Literature Cited: This section lists references and other citations in the EIS.

Appendix: The appendix provides supplemental information to the analysis presented in the EIS.

Chapter 2. Alternatives, Including the Proposed Action

Alternatives Considered in Detail

This chapter describes the proposed action and alternatives and provides a comparison of the environmental impacts of the alternatives in a summary table. In addition to a no action alternative, the Forest Service considered three action alternatives that would satisfy the purpose and need. These include: (1) the proposed action (to issue all permits for 88 recreation residences); (2) alternative 3 (to issue new permits for Turkey Flat residences only); and (3) alternative 4 (to issue new permits for Old Columbine only).

Alternative 1: No Action

No action is included as an alternative to the proposed action, in accordance with the requirements of CEQ regulations (40 CFR Part 1502.14(d)). It provides a baseline against which the impacts of the proposed action may be compared.

With no action, SUPs for both recreation residence tracts will expire on December 31, 2008. New 20-year term permits would not be issued. In accordance with FSM 2721.23(e)(2)(b), permit holders would be allowed 10 years of continued occupancy after notification that the permits will not be renewed. It is assumed that all recreation residence holders will use all 10 years for continued occupancy.

According to the terms and conditions of the 10-year permit, holders will have a reasonable timeframe after expiration to remove their structures and/or improvements and restore the site to natural conditions. Before removal of any structure or improvement, site-specific NEPA analysis would be completed. The process of removal may take up to 5 years. All structures and improvements are expected to be gone within 15 years after the decision not to issue new permits.

In general, improvements at the tracts include small residences, decks, patios, outbuildings, permanent grills, and other stationary improvements; pumps; overhead wiring; propane gas tanks; water tanks; and concrete foundations. Upon expiration of the 10-year term, permit holders would be required, among other things, to secure their wells with welded-on steel caps, pump and fill septic tanks and vault toilets with dirt, and fill pit toilets with dirt. Pipelines, underground wiring, sewage distribution boxes, and drain fields would be allowed to remain. Each site and associated use area would be contoured to the original landscape and planted with a native seed mix.

Roads into the Old Columbine and Turkey Flat tracts would be gated to prevent motorized access. Vegetation would be allowed to grow on the roadbeds. At present, no specific use for the decommissioned tracts is proposed. However, the area would continue to be open to visitors for dispersed recreational use.

Alternative 2: Proposed Action

The proposed action is to issue SUPs for 88 recreation residences on the Safford Ranger District upon their expiration on December 31, 2008. The new SUP term would be 20 years. Permit holders would be required to abide by all terms and conditions expressed in their respective SUPs and in accordance with an annual operation and maintenance (O&M) plan that is conveyed with each SUP. Prior to a new SUP being issued, each recreation residence would be inspected by the Forest Service to confirm that the permit holder is in compliance with the terms and conditions of the current permit (FSH 2709.11, Ch. 41.23a (3)).

Alternative 3: Issue Turkey Flat Permits Only

Implementation of alternative 3 would authorize new SUPs for 74 recreation residences at the Turkey Flat tract upon their expiration on December 31, 2008. Each new SUP term would extend 20 years, from January 1, 2009, through December 31, 2028. Permit holders would be required to abide by all terms and conditions expressed in their respective SUPs and in accordance with the annual O&M plan that is conveyed with the new SUP. Prior to new SUPs being issued, each recreation residence would be inspected by the Forest Service to confirm that the permit holder is in compliance with the terms and conditions of the current permit (FSH 2709.11, 41.23a (3)).

With this alternative, the permits for 14 recreation residences within the Old Columbine tract would expire on December 31, 2008, but new permits would not be issued. Instead, Old Columbine permit holders would be issued an SUP that authorizes 10 years of occupancy, after which all improvements would be removed from the forest at the expense of the permit holders (FSM 2721.23a (10)). Removal activities at Old Columbine would be the same as those described for alternative 1 (no action).

Alternative 4: Issue Old Columbine Permits Only

Implementation of alternative 4 would authorize new SUPs for 14 recreation residences at the Old Columbine tract upon their expiration on December 31, 2008. Each new SUP term would extend 20 years, from January 1, 2009, through December 31, 2028. Permit holders would be required to abide by all terms and conditions expressed in their respective SUPs and in accordance with an annual O&M plan conveyed with the new SUP. Prior to new permits being issued, each recreation residence would be inspected by special uses program staff to confirm that the permit holder is in compliance with the terms and conditions of the current permit (FSH 2709.11, 41.23a (3)).

With this alternative, the permits for 74 recreation residences within the Turkey Flat tract would expire on December 31, 2008, but new permits would not be issued. Instead, Turkey Flat permit holders would be issued an SUP that authorizes 10 years of occupancy, after which all improvements would be removed from the forest at the expense of the permit holders (FSM 2721.23a (10)). Removal activities at Turkey Flat would be the same as those described for alternative 1 (no action).

Alternatives Considered and Dismissed

Federal agencies are required by CEQ regulations to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). The following alternatives were considered but dismissed from detailed consideration in this EIS.

In-Lieu Lots for Permit Holders

A forest may consider offering in-lieu lots, if available, to permit holders who have received notice that either their recreation residence permit is being revoked for specific and compelling reasons in the public interest or that a new permit will not be issued following expiration of their permit because their lot is needed for an alternative public use (FSH 2709.11, 41.23d).

There are no suitable in-lieu lots for recreation residences available on the district. Therefore, this is not a reasonably foreseeable alternative to the proposed action and was not considered further in this EIS.

New Recreation Residence Tract

The alternative of creating a new tract at a different location on the Safford Ranger District is also not reasonably foreseeable. Creation of a new tract would be contrary to Forest Service policy at FSM 2347.1 (6), which states, "Do not establish new recreation residence tracts for in-lieu lot purposes."

No New Permits and Immediate Removal of Residences

The forest evaluated the feasibility of proposing an alternative wherein new SUPs would not be issued and immediate removal of residences would be required. Such an alternative would support the Western Apache preference that the TCP be restored to its natural state as quickly as possible. However, this alternative conflicts with Agency policy, which requires that at least 10 years of continued occupancy be authorized after leaseholder notification that the residence is to be removed (FSM 2721.23(e)). Therefore, it was dismissed from further consideration in this EIS.

Mitigation - Proposed Action

The entire Pinaleño mountain range is within the Western Apache TCP and sacred site, which has been determined as eligible for listing on the National Register of Historic Places. From the perspective of the Apache, the presence and occupation of the residences affects *Dził Nchaa Si'an*. First, the presence of the residences has altered and continues to alter the mountain's natural fire-adapted ecosystem, because the Forest Service's response to wildland fire is suppression, which is necessary for the protection of private property. Second, certain recreational activities of residents do not reflect the degree of respect that is warranted by a sacred site. In Apache cosmology, disrespectful actions not only distract from the Apaches' experiences on the mountain, they can also bring harm to the world. If a decision is made to implement either the proposed action, alternative 3, or alternative 4, the continued existence of the recreation residences would be authorized by new permits, and these effects would continue.

The Forest Service has a trust responsibility toward American Indian tribes and is mandated by legislation and executive orders to consider the effects of projects on historic properties, to ensure American Indian access to sacred sites, and to protect the physical integrity of such sites wherever possible. Under the authority of the American Indian Religious Freedom Act, the Religious Freedom Restoration Act, and Executive Orders 13007 and 13175, the Forest Service consulted with the San Carlos Apache Tribe and White Mountain Apache Tribe to identify mitigation that would minimize the effects of the recreation residences on the Western Apache TCP. To this end, the Forest Service and the tribes developed the following stipulations that will be added to each recreation residence operating plan. If any of the action alternatives is selected, the operating plan that is issued with a new SUP will include the following items. These stipulations are consistent with other laws, regulations, and Forest Service goals of restoring the mountain's ecosystem:

1. Information about the importance of Mt. Graham (*Dził Nchaa Si'an*) in Apache history and culture.
2. An explanation of the Forest Service's trust responsibility to the Apache.

3. Requirements regarding:
    - Color standards for all cabins, trim, roofs, and other structures to be approved by the Forest Service and designed to help the buildings blend in with the landscape;
    - Allowing public access to the sites;
    - Fire prevention measures;
    - Keeping domestic animals inside or on leashes not to exceed 6 feet in length; and
    - Minimizing conflicts with wildlife.
4. Prohibitions against:
    - Expansion of structures or room additions;
    - Planting of nonnative vegetation;
    - Diverting or holding natural water runoff;
    - Ground disturbance without case-by-case district ranger approval;
    - Attaching swings, yard lights, signs, wires, or other materials to trees;
    - Outdoor firepits and sports courts;
    - Outdoor storage of building materials, recreation vehicles, television antennas, sports equipment, picnic tables, lawn chairs, etc.;
    - Driving off road, or parking outside designated parking areas;
    - Construction of gates, fences, or walls;
    - Onsite trash burning or burial; and
    - Creating unreasonable or excessive noise. The Code of Federal Regulations (36 CFR 261.10i, 261.10j) sets noise guidelines for recreation sites, and national forests generally establish quiet hours at developed sites from 10:00 p.m. to 6:00 a.m.
5. A notice that in the event of a wildland fire, the Forest Service is not responsible for protecting cabins from fire. Forest Service firefighters will limit their activities to the protection of human life and control or maintenance of the fire in the immediate area.

Comparison of Alternatives

Based on the impact analyses reported in chapter 3, table 1 provides a tabular comparison of the potential impacts of each alternative to each resource area.

Table 1. Comparison of potential impacts of all alternatives evaluated in this environmental impact statement

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Wildlife Mexican spotted owl (MSO)	Old Columbine	Noise and human presence would sporadically disturb the owl during the removal of improvements. Thus, removal will not be allowed during MSO nesting season. As natural succession occurs, the loss of open areas on the tracts may result in a decrease in populations of small mammals, upon which the MSO preys. Eventual regrowth of trees (60 to 80 years afterward) may provide new habitat suitable for MSO nesting. Removal of residences would negate the need for future fire suppression, which, in turn, would encourage the return of the natural fire cycle. With this, less intense fires would be expected, and old growth nesting habitat conserved.	No change from existing conditions. Owls would continue to be disturbed occasionally by human presence and activity, but populations and habitat would not be significantly affected. Retention of the openings created by the residences would benefit populations of small mammals, upon which the MSO preys. A determination of "may affect, not likely to adversely affect" was made with regard to the potential impacts to the MSO at both tracts. There would be "no effect" on designated critical habitat.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wildlife Mt. Graham red squirrel (MGRS)	Old Columbine	Removal of an outhouse at Old Columbine could directly impact one midden and possibly result in MGRS death or injury. Thus, a	No change from existing conditions. Because of human presence at and near an	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
		determination that no action "may affect, is likely to adversely affect" the MGRS was made. Natural succession of trees on Old Columbine, but not Turkey Flat, may provide 25 acres of MGRS habitat over the long term. Increased tree density may reduce nutrients available for cone production. This, in turn, would negatively impact the squirrel's food supply. The removal of residences at either tract would the need for future fire suppression, which, in turn, would encourage the return of the natural fire cycle. With this, less intense fires would be expected, and MGRS habitat at Old Columbine would be conserved.	active midden, a determination of "may affect, likely to adversely affect" was made for Old Columbine. A biological opinion issued by the FWS on August 18, 2008, assigned a "take" of two squirrels and reported that this take would not result in jeopardy to the species. The tract is not within designated critical habitat for the MGRS.		
Wildlife Mt. Graham red squirrel (MGRS)	Turkey Flat	Removal of an outhouse at Old Columbine could directly impact one midden and possibly result in MGRS death or injury. Thus, a determination that no action "may affect, is likely to adversely affect" the MGRS	No change from existing conditions. A determination of "may affect, not likely to adversely affect" was made with regard to potential impacts at Turkey Flat.	Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
		was made. Natural succession of trees on Old Columbine, but not Turkey Flat, may provide 25 acres of MGRS habitat over the long term. Increased tree density may reduce nutrients available for cone production. This, in turn, would negatively impact the squirrel's food supply. The removal of residences at either tract would the need for future fire suppression, which, in turn, would encourage the return of the natural fire cycle. With this, less intense fires would be expected, and MGRS habitat at Old Columbine would be conserved.			
Wildlife Apache trout	Old Columbine	Removal of improvements would increase erosion and runoff from the tracts in the short term. Impacts to water quality in the subwatershed would be insignificant.	No change from existing conditions. A determination of "may affect, not likely to adversely affect" was made with regard to the	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
	Turkey Flat	This species does not occur at the Turkey Flat tract.	potential impacts to the Apache trout at Old Columbine.	Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wildlife Forest Service Sensitive Species	Old Columbine	No trend toward Federal listing or loss of viability of any of the Forest Service sensitive species that occur at or near each tract.	No change from existing conditions. No trend toward Federal listing or loss of viability of any of the Forest Service sensitive species found at or near both tracts.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wildlife Management Indicator Species	Old Columbine	No significant changes in forestwide populations and habitat of forest management indicator species.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Heritage Resources (Sites on or eligible for the National Register of Historic	Old Columbine	A determination of "no adverse effect" on historic properties was made, per 36 CFR 800.5 (b). Removal is the preferred alternative of the Western	Because residences were present prior to eligibility designation of the Traditional Cultural Property and their continued presence would not affect the qualities	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Places)	Turkey Flat	Apaches.	that make the mountain eligible for the National Register, a determination of "no adverse effect" on historic properties was made, per 36 CFR 800.5 (b).	Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Heritage Resources (*Dził Nchaa Si'an*, eligible Traditional Cultural Property)	Old Columbine	Removal would enhance the sacredness of the mountain by fostering restoration of the natural fire regime and wildlife habitat, reducing visual intrusions, and reducing human occupation and potential disrespectful behavior.	No change from existing conditions, for example, restoration of wildlife habitat and natural fire regime would be inhibited, visual and noise intrusions would continue.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Air Quality	Old Columbine	Short-term, sporadic, localized particulate matter (PM-10) emissions in fugitive dust from residence removal, burning debris, and vehicle traffic. Attainment of National Ambient Air Quality Standards would not be compromised.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Soils	Old Columbine	Minimal short-term increase in erosion after improvements are removed. Use of best management practices would minimize impacts to insignificant levels. Sites would eventually return to a more natural slope. No change in soil productivity.	No change from existing conditions. Natural soil bulk density and structure would remain slightly compacted and altered by foot and vehicle traffic within the 77 acres occupied by the tracts.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Water and Riparian Resources	Old Columbine	Potential for increased erosion on 77 acres in the short term. Effects of sediment runoff in the subwatersheds would be discountable given the small acreage of the tracts relative to the size of the watersheds. Use of best management practices to minimize erosion would result in insignificant stream turbidity levels. As the tracts are replenished with vegetation, hydrologic function would improve. The riparian channel of Ash Creek would eventually naturalize.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Recreation	Old Columbine	Use of the tracts for developed recreation would discontinue after 10 years. Tracts would become dispersed-use sites. Minimal increase in use of other recreation sites on the district. Recreation Opportunity Spectrum setting for Old Columbine would change from Rural to Roaded Natural.	No change from existing conditions.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Visual and Aesthetic Resources	Old Columbine	Short-term changes in visual quality during removal of improvements. Visual quality objective of Retention would not be affected.	No change from existing conditions	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Wild and Scenic Rivers	Old Columbine	No change from existing conditions.	No change from existing conditions.	No change from existing conditions.	No change from exisiting conditions.
	Turkey Flat				

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Social and Economic Resources	Old Columbine	Until improvements are removed after 10 years, the family culture and tradition of permit holders, the small positive effect on the economy of surrounding towns, and revenues to Forest Service and Graham County would continue. Removal of improvements would result in a cost to permit holders of about $3,000. No disproportionate impacts to low income and minority populations.	No change from existing conditions. No disproportionate impacts to low income and minority populations.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.
Fire Management	Old Columbine	After 10 years, Forest Service would realize cost savings because fuel thinning near structures and fire suppression would no longer be needed. As native vegetation repopulates the tracts, the fire cycle would gradually return to more natural fire-adapted conditions.	No change from existing conditions. Fire suppression and fuel thinning would continue to be necessary around tracts. Wildland fire use for resource enhancement would not be possible.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Resource	Recreation Residence Tract	Alternative 1 – No Action	Alternative 2 – Proposed Action, Issue Permits for Both Tracts	Alternative 3 – Issue Turkey Flat Only	Alternative 4 – Issue Old Columbine Only
Cumulative Effects	Old Columbine	The removal of residences at both tracts would decrease the need for future fire suppression over 77 acres of the forest, which, in turn, would encourage the return of the natural fire cycle. Subsequent natural fires would be less intense, and wildlife habitat would be conserved, including MGRS habitat at Old Columbine. The mountain would be returned to a more natural condition, which would begin the reversal of numerous effects to the Western Apache TCP.	No change to existing cumulative effects in the area of effect of both tracts.	Effects would be the same as those identified for alternative 1.	Effects would be the same as those identified for alternative 2.
	Turkey Flat			Effects would be the same as those identified for alternative 2.	Effects would be the same as those identified for alternative 1.

Chapter 3. Affected Environment and Environmental Consequences

In this chapter, the physical, biological, social, and economic characteristics of the environment at and near the Old Columbine and Turkey Flat recreation residence tracts are described in as much detail as possible to define the baseline condition of the area of potential effect (APE). Areas of potential effect may vary by resource. The legal coordinates of the tracts were given in chapter 1, and the layout of residences is shown in figures 7 and 8.

The baseline description of the environment is followed by an evaluation of the potential for each alternative to impact specific resources. Sources of potential impacts are identified, followed by an assessment of direct, indirect, and cumulative effects.

Each impacts assessment includes a description of the approach used to evaluate proposed activities; references scientific or other sources of data and information; discusses credible opposing views, if any; and discloses incomplete or unavailable information, scientific uncertainty, and risk (40 CFR, 1502.9 (b), 1502.22, 1502.24). Further, the analysis of impacts to each resource is based on current, best available scientific and commercial information to ensure the scientific integrity of the discussions (36 CFR 219.36 (a)).

Not all resource impacts are measurable or quantifiable. Where this is the case, a qualitative judgment is made regarding the degree of effect on the resource. Guidelines related to significance generally fit into two main categories:

- Emissions based, comprising standards for air and water quality, noise, etc., and
- Environmental quality based, comprising significance criteria for valued ecosystem components or similar attributes, such as biodiversity.

A determination that an impact is significant is based upon an actions effect on thresholds established for each resource. That is, for each resource, there is a threshold above which a potential impact is considered significant. For example, an impact to air quality may be considered significant if it increases the ambient concentration of a specific chemical element or compound above the concentration established by a resource management agency, such as the U.S. Environmental Protection Agency (EPA), for the protection of human health and safety. Thresholds also provide a tool to predict whether it is likely that the impacts identified as potentially significant can be avoided, reduced, or mitigated to a less than significant level.

The CEQ regulations for implementing NEPA define a cumulative impact as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7).” The combined, incremental effects of human activity, referred to as cumulative effects, may pose a serious threat to the environment. Although an impact may be insignificant by itself, it may contribute to cumulative effects that accumulate over time, from one or more sources, and result in the degradation of important resources.

Because the spatial (geographic) and temporal (time) characteristics of an APE differ for each resource, each cumulative effects analysis that follows includes a definition of the APE. The Pinaleño Mountains, in general, are the broad area of consideration for the cumulative effects analysis reported in this EIS. Past, present and reasonably foreseeable future activities within this area are listed in table 2, with corresponding locations shown on figure 3.

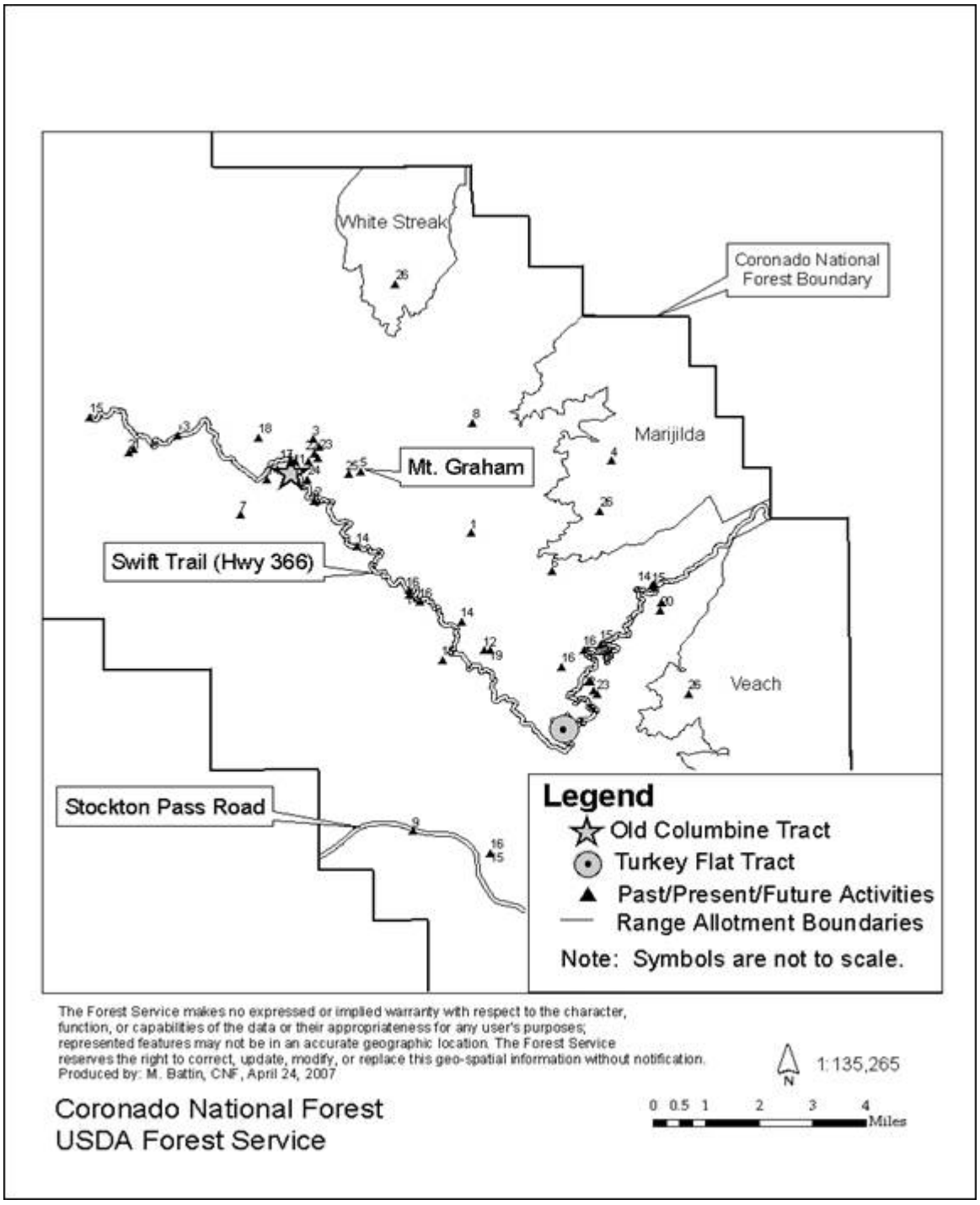

Figure 3. Relative locations of reasonably foreseeable actions near the Safford recreation residence tracts (Note: Numbers in figure 3 correspond to those activities listed in table 2)

Table 2. Past, present, and reasonably foreseeable actions considered in the cumulative effects analysis reported in this EIS

Number on Map (Figure 3)	Activity	Approximate Date	Area Affected
1 (not shown)	Introduction of Abert's squirrel (*Sciurus aberti*)	1940s	all
2	Timber sales[1]	1943 to 1973	7,924 acres
3	Arizona Bible Camp (special-use permit)	1966 to present	20 acres
4	Marijilda Fire	1989	363 acres
5	Mt. Graham International Observatory (MGIO) (special-use permit)	1988	24 acres
6	Graham Complex Fire	1993	544 acres
7	Clark Peak Fire	1996	4,948 acres
8	Nuttall Complex Fire	2004	29,698 acres
9	Paved roads: Swift Trail (Hwy. 366) and Stockton Pass Highway	1960 to 1980s	37 miles
10	Pinaleño Ecosystem Management (PEM) project (fuel reduction: mechanical)	2001 to present	1,100 acres
11	Pinaleño Ecosystem Restoration project (PERP) (fuel reduction, habitat improvement)	2008 to 2018	5,800 acres
12	Reconstruction of Heliograph Lookout	2006 to 2007	< 1 acres
13	Trails (41)	Ongoing	155 miles
14	Developed campgrounds (Noon Creek, Shannon, Hospital Flat, Cunningham, Columbine Corrals, Soldier Creek and Riggs)	Ongoing	25.5 acres
15	Picnic sites and trailheads (Stockton Pass, Old Noon Creek, Round-the-Mountain, Wet Canyon, Clark Peak)	Ongoing	3.5 acres
16	Group use areas (Stockton Pass, Upper Arcadia, Upper Hospital Flat, Snow Flat, Treasure Park, and Twilight)	Ongoing	26.75 acres
17	Columbine Visitor Information Station	Ongoing	1 acre
18	Administrative facilities (Noon Creek, Heliograph, Webb Peak, West Peak, and Columbine)	Ongoing	7 acres

Number on Map (Figure 3)	Activity	Approximate Date	Area Affected
19	Electronic sites (Heliograph and Ladybug) (special-use permits)	Ongoing	7 acres
20	Angle Orchard (special-use permit)	Ongoing	2 acres
21	Dam/reservoir (special-use permit)	Ongoing	13 acres
22	Water systems associated with Old Columbine and Turkey Flat recreation residence tracts	Ongoing	2.1 miles
23	Waterlines (six special-use permits)	Ongoing	Unknown[2]
24	Fuel Reduction at five special-use sites	2007	250 acres
25	Microwave dish installation	2007	On MGIO site
26	Grazing allotments (active) in Ash Creek and Jacobson Canyon subwatersheds • White Streak • Veach • Marijilda	Ongoing	1,668 acres 487 acres 1,046 acres

[1] Logging was carried out in the mixed conifer and spruce-fir stands from 1946 to 1973.

[2] Forest Watershed and Program Manager Bob Lefevre reports that this information is unavailable (4/24/08).

Air Quality

The forest plan establishes the following standard and guideline for air resources; it is applicable to all areas of the Coronado NF.

> "All management practices would be planned so that air quality would meet local, State, and Federal standards (USDA-FS, 1986, p. 45-1)."

Affected Environment

To conserve and protect the ambient air quality of the United States, provisions of the Clean Air Act (CAA) directed the EPA to establish National Ambient Air Quality Standards (NAAQS) for air pollutants that affect human health and welfare. The CAA also directed EPA to establish criteria to protect and maintain clean air in natural areas, such as designated wilderness areas, national parks and national forests.

Subsequently, EPA established NAAQS for primary air pollutants that are known to adversely affect human health; these are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), and particulate matter (PM). Threshold concentrations of these pollutants were established and continue to be updated. Networks of ambient air pollutant monitoring stations record data on air quality across the U.S., and enforcement actions are taken by EPA and states to remediate violations of NAAQS.

Further, the CAA established air quality standards for various classes of airshed: Class I airsheds are the most restrictive and generally include national parks and wilderness areas; Class II generally comprises rural areas.

The air quality analysis reported in this DEIS is focused on impacts to the Upper Gila River airshed, designated as Class II (see figure 4). Atmospheric pollutants in this airshed typically result from wildland fires, prescribed fires, and dust from traffic and other activities on unpaved roads. Gasoline engine exhaust emissions and propane combustion are additional sources of pollutants in the airshed.

Ambient air quality in the airshed and at the recreation residence tracts is very good because of its relative isolation from urban centers, major highways, limited access, extensive vegetation ground cover, and the large scale of the analysis area. As of December 5, 2006, the area was in attainment of NAAQS (US-EPA, 2006).

Environmental Consequences

Direct and Indirect Effects

Direct impacts to air quality are those that result from emissions of pollutants from various sources to the atmosphere. Point sources of pollutant emissions include chimneys, smokestacks, and other structures that provide a discrete release point. Nonpoint sources result from soil-disturbing activities, such as vehicle travel on a dirt road or ground disturbance by a bulldozer, and smoke from a fire that indiscriminately releases pollutants over a broad area rather than a single release point.

The measure of significance of atmospheric releases is based on a comparison of the predicted concentration of each pollutant at or beyond a site boundary or within the boundary on public roads, to an established standard, such as a NAAQS, and consideration of the potential for the expected concentration to adversely affect a sensitive receptor, human and otherwise.

Many of the Safford recreation residences have wood-burning fireplaces or stoves, propane stoves and heaters, gasoline generators, and unpaved driveways and access roads. The quantity of pollutant emissions from these sources is extremely minimal and intermittent, related to the season of use of the recreation residences, which is approximately May 1 to mid-October, and the duration of occupancy. Occupancy is most often on a few weekends per season and an occasional stay of a week or more.

If no action is taken (alternative 1), emissions from recreation residences would cease after the 10-year closeout permit expires. However, during removal of the residences, local ambient air quality may be temporarily affected by smoke from localized burning of combustible materials and by dust from increased vehicle travel to and from the tracts. If this occurs, local concentrations of particulate matter (PM-10) may increase sporadically for up to a week, depending on the quantity and type of material burned and the duration of burning. Changes in ambient PM-10 concentrations would be discountable. These emissions would in no way adversely affect the attainment of NAAQS in the airshed.

Implementation of alternative 2 (proposed action) would not change the ambient air quality at the recreation residence tracts or the quality of the airshed. Attainment of NAAQS would not be affected.

The effects of implementing alternative 3 would be the same as either alternative 1 or alternative 2, depending on which residences are removed or retained.

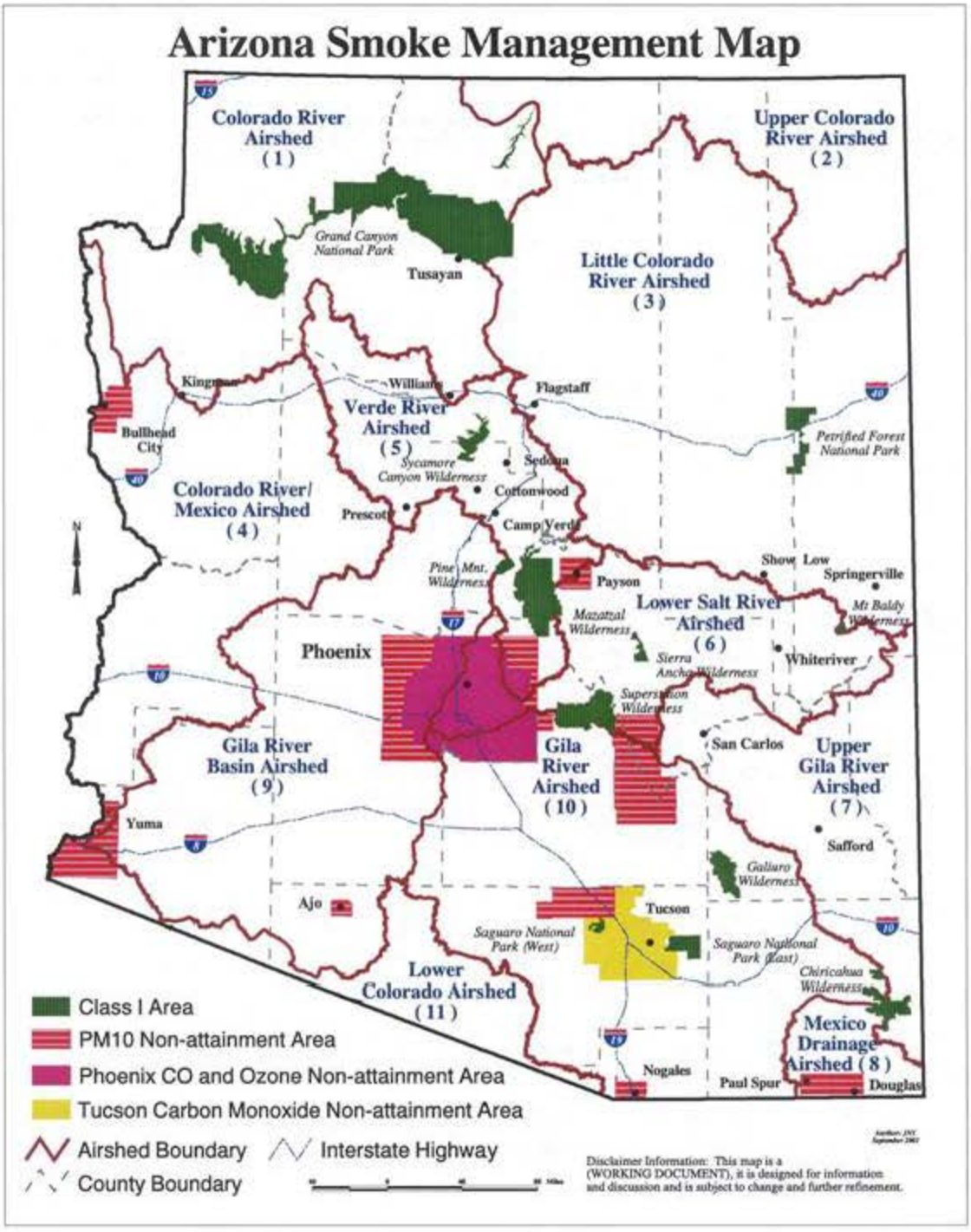

Figure 4. Location of the Class II Upper Gila River airshed (7) in Arizona

Cumulative Effects: Air Quality

The Upper Gila River airshed (see figure 4) was the focus of this cumulative effects analysis.

Future prescribed fires and wildland fires would be the primary source of air pollutants to be considered incrementally in a cumulative effects analysis, on or off the Coronado NF. Prescribed fires would affect ambient air quality to various degrees during the time of burning, depending on the duration of the burn. To minimize potential adverse impacts on ambient air quality, the Forest Service plans and implements prescribed fires in accordance with the Arizona Department of Environmental Quality (ADEQ) State Implementation Plan, which establishes parameters for minimizing smoke emissions and dispersal, such as limitations on burning based on air temperature, humidity, wind speed, etc. (ADEQ, 2002, 2006).

Exhaust emissions and dust generated by vehicle travel to and from administrative and special-use facilities in the APE have a negligible impact on ambient air quality in the airshed. Past logging operations and past, present, and future grazing generate negligible emissions of atmospheric pollutants, including those areas that have been historically overgrazed or logged, where wind erosion of soils may occasionally temporarily increase ambient PM emissions.

If no action is taken and improvements are removed, short-term increases of dust and smoke from localized burning on the tracts could minimally increase ambient PM concentrations. Planning of prescribed fires would ensure that these activities would not be undertaken at the same time.

Cumulative effects of implementing alternatives 2, 3, and 4 would also be negligible because of the short season of use for the residences at both tracts and the planning of prescribed fires so that they do not overlap with removal activities. Significant cumulative effects would not be expected.

Soils

The forestwide standard and guideline applicable to the tracts is as follows:

> "Through management services, provide information to minimize disturbance and improve already disturbed areas. Best Management Practices (BMP) would be used to minimize the time of recovery to a satisfactory erosion level, minimize soil productivity loss, improve water quality, and minimize channel damage (USDA-FS, 1986, p. 38)."

Affected Environment

For this analysis, potential impacts to soils in two subwatersheds were evaluated (see figure 5: Ash Creek and Jacobson Canyon subwatersheds). The Old Columbine tract is in the Ash Creek subwatershed, which is about 5,094 acres in size, and the Turkey Flat tract is within the Jacobson Canyon subwatershed, which covers about 8,920 acres. The residence tracts are a very small percentage of the total watershed sizes (25 and 52 acres respectively); therefore, the potential for soils impacts is very low.

A general ecosystem survey (GES) completed for the entire Safford Ranger District (USDA-FS, 1991) reports that soils at both tracts are within the Low Sun Cold (LSC) climatic class. In this area, most annual precipitation occurs between September 30 and April 1. The average annual precipitation in the project area is between 30 and 36 inches (Western Regional Climate Center, 2006). Table 3 provides descriptive information for each GES unit in the tracts.

The Old Columbine tract is located on gneiss. Soils are deep, very cobbly to extremely cobbly, sandy loams with numerous rock outcrops. The elevation of this tract is 9,400 feet above mean

sea level (amsl). Turkey Flat is located on intrusive granitic rock. Soils are shallow to deep, very cobbly to extremely cobbly, sandy loams. The elevation of this tract is 7,200 feet amsl.

Table 3. Descriptive information about general ecosystem survey units in the Old Columbine and Turkey Flat recreation residence tracts

Recreation Residence Tract	GES Unit	Average Gradient Percent	Surface Texture/ Modifier	Soil Depth	Parent Material	Climate Class (see text for description)	Erosion Hazard
Old Columbine	466	0 to 15	Cobbly / Sandy Loam	Deep	Gneiss	LSC	Slight
Turkey Flat	476	40 to 80	Extremely Cobbly / Sandy Loam	Deep	Granite	LSC	Moderate

To determine the existing condition of surface soils, pits were excavated on the recreation residence tracts[5], using the Forest Service Southwestern Region protocol prescribed in FSH 2509.18. Determinations were made in areas adjacent to recreation residences, in the common areas between the residences, in parking areas, in informal paths, and in general forest areas outside the tracts.

The surveys indicated that soil texture and depth have not been modified at any of the areas examined. However, natural soil bulk density[1] was compacted, and soil structure[2] was altered (crushed). This damage was found in the areas adjacent to recreation residences, parking areas, and informal paths, primarily as a result of foot and vehicle traffic. The other areas—common areas and general forest areas—did not show damage to soil bulk density or structure.

Changes in soil density and structure likely resulted from the excavation of foundations and footings and from pedestrian and vehicle traffic from residence to residence and to nearby forest areas and landscaping. At residences located on a slope, erosion is presently mitigated by landscape vegetation, rock and concrete barriers, terraces, and logs or boards. Maintenance of access roads and driveways also minimizes erosion on the tracts.

Soil productivity (the capacity of a soil, in its normal environment, to support plant growth) in the tracts is typical for the class of soils present. There is no prime or unique farmland present on either tract.

[5] June 14, 2006; Bob Lefevre, forester/watershed and forestry program manager, Coronado NF

[1] Soil bulk density is defined as the ratio of the mass of dry solids to the bulk volume of the soil occupied by those dry solids. It varies with structural condition of the soil, particularly that related to packing.

[2] The arrangement of soil particles into larger particles or clumps. This arrangement modifies the bulk density and porosity of the soil.

Environmental Consequences

Direct and Indirect Effects

In general, impacts to soils are the result of ground-disturbing activities that alter their physical, biological, and chemical properties. Activities conducted by recreation residence permit holders for the next 20 years of occupancy would continue to affect erosion patterns and potential, which, in turn, may locally affect the condition of the subwatersheds in which the tracts are located.

The threshold of significance for impacts of soils is related to the degree of changes in soil density and structure as well as the degree of erosion and runoff that may occur as a result of the proposed action. A quantitative measure for these properties was not defined. In lieu of this, the significance of impacts is correlated with the potential for a high degree of runoff that will result in such degradation of the watershed as to impact the water quality of streams and their use.

Old Columbine Tract

If no action is taken, the natural slope of the area would gradually return after structures are removed. Grasses and shrubs would likely reappear on the tract within the first 5 years. Based on post-removal observations at other locations on the Coronado NF (Madera Canyon on the Nogales Ranger District and Upper Sabino Canyon on the Santa Catalina Ranger District[3]), compaction and altered soil structure (crushed) would likely persist at least 20 years.

Until vegetation is established sufficiently to stabilize disturbed soils, best management practices (BMPs) would be applied by the forest (FSH 2509.22) to minimize resource damage (USDA-FS, 1990). Overall, the additional increment of erosion in the short term following residence removal would not affect long-term soil productivity.

If new permits are issued, no short-term changes in soils would occur. Over the next 20 years, natural soil bulk density and structure would continue to be compacted and altered by foot and vehicle traffic. Landscaping and the use of BMPs would continue to minimize soil erosion. No change in long-term soil productivity would be expected.

Issuing new permits for Turkey Flat only would have the same effects as those reported for no action. Issuing new permits for Old Columbine only would have the same effects as reported for the proposed action.

Turkey Flat Tract

The direct and indirect effects of no action and proposed action at Turkey Flat would be the same as those described for Old Columbine. Issuing new permits for Turkey Flat only would result in the same effects as the proposed action. Issuing new permits for Old Columbine only would have the same effects as no action.

Cumulative Effects: Soils

Cumulative effects on soils were evaluated based on their interrelationship with the condition of the two subwatersheds in which they are located. Watershed condition is established by examination of physical and biological characteristics and processes affecting hydrologic and soil functions. In 2000, the condition of each subwatershed was determined by evaluating data and

[3] Observations by Bob Lefevre, Coronado National Forest, watershed and forestry program manager, June 2006.

information about soil condition, riparian area condition, and water quality (FSM 2521.05 (USDA-FS, 2004)). Using direction in FSM 2521.1, both subwatersheds were determined to be in Class I Condition, or "satisfactory."[4]

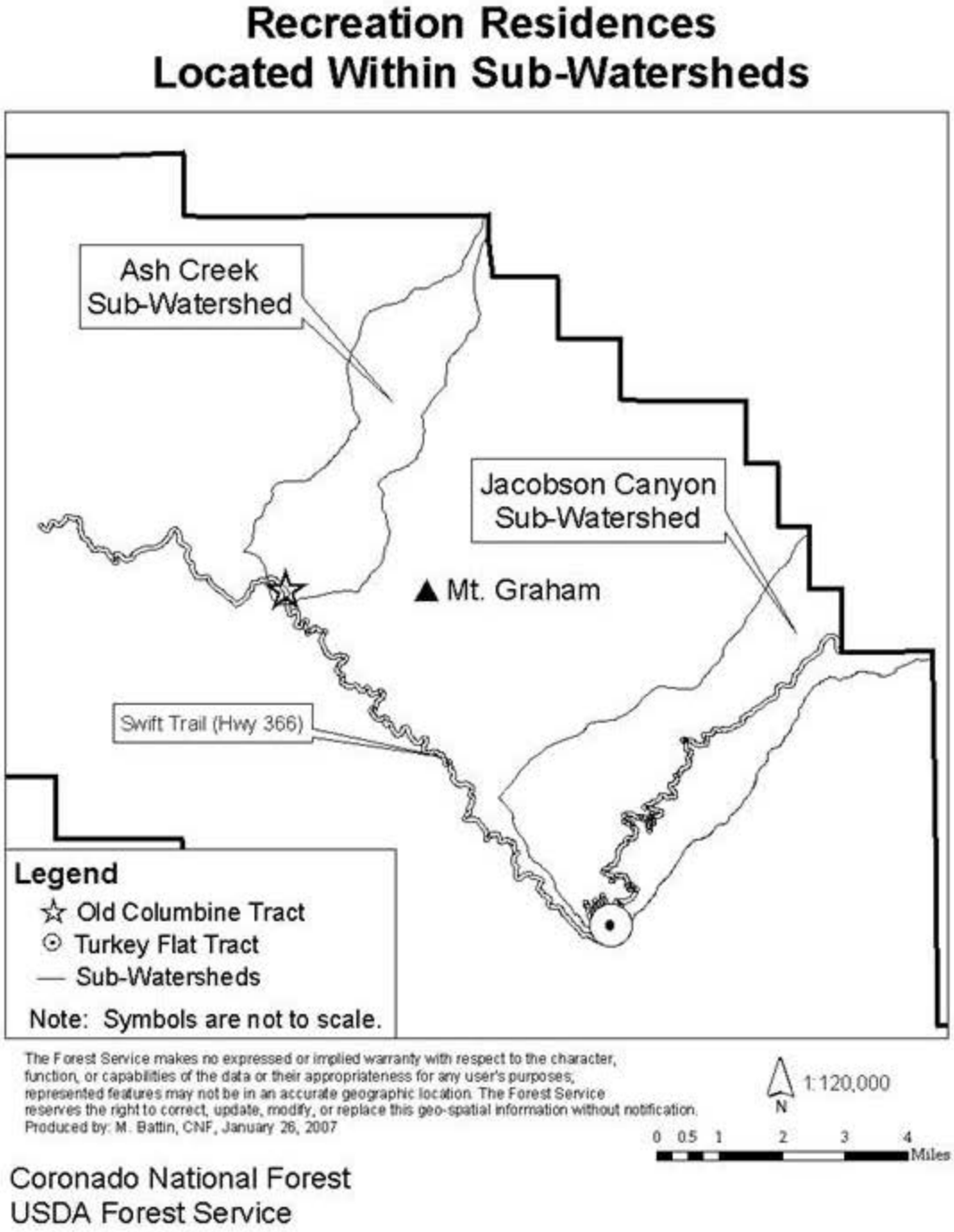

Figure 5. Relative location of Ash Creek and Jacobson Canyon subwatersheds and the Old Columbine and Turkey Flat recreation residence tracts.

[4] Observations by Bob Lefevre, Coronado National Forest, watershed and forestry program manager, June 2006.

Past, present and foreseeable future projects or actions that have affected or may, in the future, affect the soils and other resources in Ash Creek and Jacobson Canyon subwatersheds are listed in table 2. A detailed characterization of how these projects have impacted soils in the subwatersheds is on file in the soils specialist report in the EIS project record (item 190). A brief summary of the nature and effects of past projects follows.

Logging

From 1880 until 1973, logging was an important activity in the subwatersheds. Logging in the mixed conifer and spruce-fir stands, including clearcuts and selection cuts, began in 1946; from 1973 until 1986, it continued on a limited basis. Approximately 800 acres were logged in Ash Creek subwatershed and 300 acres in Jacobson Canyon subwatershed. On June 14, 2006, test pits were excavated in selected areas that had been logged to determine soil conditions. Compaction and soil structure alteration were detected in historic skid roads. Based on visual observations and soil testing, an estimated 30 percent of the logged area has evidence of compaction and altered soil structure (see table 4).

Table 4. Effects of historic logging in the subwatersheds of Old Columbine and Turkey Flat recreation residence tracts

Recreation Residence Tract	Analysis Area (Subwatershed)	Percent of Sub-watershed Occupied by Recreation Residence Tract	Acres Logged	Acres with Soil Compaction and Altered Soil Structure	Percent of Sub-watershed with Cumulative Effects from Historic Logging
Old Columbine (25 acres)	Ash Creek (5,094 acres)	less than 0.01	800	240	5
Turkey Flat (52 acres)	Jacobson Canyon (8,920 acres)	0.01	300	100	1

Grazing

Past heavy livestock grazing in these two subwatersheds has decreased the abundance of native grasses, increased shrubs in the uplands, and altered soil structure and bulk density. Further, nonnative plant species, predominantly Lehmann lovegrass (*Eragrostis lehmanniana*), that were introduced in the lower elevation uplands 50 to 60 years ago, displaced native grasses in most areas already disturbed by grazing. In some areas, removal of vegetation by grazing resulted in soil loss, which was followed by the invasion of exotic grasses. Table 5 reports the impacts in the subwatersheds to date from grazing.

Livestock grazing in the highest elevations of the subwatersheds was discontinued in the 1950s, and BMPs (FSH 2509.22) were implemented on the Coronado NF to mitigate grazing effects. A general improvement in soil conditions has been observed.

Table 5. Historic impacts of grazing on soils in the Ash Creek and Jacobson sub-watersheds.

Recreation Residence Tract	Analysis Area (Sub-watershed)	Subwatershed Occupied by Recreation Residence Tracts	Portion of Grazing Allotment within Sub-watershed	Percent of Analysis Area with Grazing Impacts
Old Columbine (25 acres)	Ash Creek (5,094 acres)	less than 0.01	1,842 acres	36
Turkey Flat (52 acres)	Jacobson Canyon (8,920 acres)	0.01	1,534 acres	17

Fire, Fuel Treatments, and Other Uses

Past prescribed and natural fires as well as wildland fire suppression have changed the vegetation composition of the subwatersheds, which, in turn, has increased erosion. About 50 percent of the area (4,705 acres) affected by the 2004 Nuttall Complex Fire is still experiencing accelerated erosion.

Mechanical fuel reduction and forest restoration projects can have both negative and positive effects on soils. Unmitigated ground disturbance by vehicles and heavy equipment increases erosion, while the creation of sustainable native plant communities promotes natural soil formation and erosion rates.

The Pinaleño Ecosystem Management (PEM) project (item 10) is underway on 110 acres within the subwatersheds. To date, no measurable effects on soils have been observed based on field observations[5]. Other proposed projects (items 11 and 24) would treat approximately 848 acres within the subwatersheds using both prescribed fire and mechanical treatment. Best management practices will be required during both projects to minimize adverse effects.

The use of recreational sites, administrative facilities that include crew quarters, communication equipment, privately owned communications facilities, organizational camps, astrophysical sites, and the roads and trails that access them, affect soils on approximately 40 acres in the subwatersheds. Foot and vehicle traffic cause soil compaction and alter soil structure in these use areas, and erosion is increased in disturbed areas.

Cumulative Effects: Soils

If no action is taken, both short-term (0 to 5 years) and long-term (30 or more years) impacts to soils would continue on about 10,154 acres (see table 6) where past activities have increased erosion, decreased soil bulk density, and altered soil structure. Over time, soil conditions would be expected to gradually improve in areas where ground disturbance has discontinued and vegetation is growing.

[5] As reported by Bob Lefevre, forester; watershed and forestry program manager, Coronado National Forest; April 10, 2006; June 21, 2006; October 2, 3, 4 ,5, and 6, 2006; and November 30, 2006.

Most past, present, and reasonably foreseeable projects would continue to affect 72 percent (10,154 acres) of the two subwatersheds over time, ranging from about 20 years of continuing effects because of wildland fires, to an indeterminate period of time because of continued grazing at lower elevations. The soils resource should benefit across the entire analysis area over time because of the continued use of BMPs and natural soil formation processes. Watershed condition would continue to remain as is (satisfactory), despite the continued impacts from past activities.

If the proposed action is implemented, effects would be the same as reported for no action, plus the additional minimal effects of continued occupancy of the 77 acres of residence tracts (0.01 percent of the two subwatersheds) (see chapter 3, "Soils, Affected Environment" section). Watershed conditions would not be expected to change significantly.

Table 6. Acreage of soils impacted by past, present, and future activities in the Ash Creek and Jacobson Canyon subwatersheds

Project or Action	Impacted Acres of Soils Within Subwatersheds
Graham Complex Fire	250
Clark Peak Fire	484
Nuttall Complex Fire	4,705
PEM Project	110
PERP	848
Heliograph Lookout Repair	1
Historic Logging	340
Grazing	3,376
Administrative Facilities	15
Recreation Facilities	25
Total	**10,154 acres**

The cumulative effects of issuing new permits to Turkey Flat only would be the same as those described for no action, except that human activities on 52 acres that comprise the Turkey Flat tract would continue to contribute effects on the soil resource within 0.01 percent of the Jacobson Canyon subwatershed. The condition of both subwatersheds would continue to remain satisfactory.

The cumulative effects of issuing new permits for Old Columbine only would be the same as those described for no action, except that human activities on 25 acres that comprise the Old Columbine tract would continue to contribute effects on the soil resource within the Ash Creek

subwatershed (less than 0.01 percent). The condition of both subwatersheds would continue to remain satisfactory.

Water Resources and Riparian Areas

Forest plan standards and guidelines applicable to water resource management, including riparian areas, are as follows:

- "Through management services, provide information to minimize disturbance and improve already disturbed areas. Best management practices would be used to minimize the time of recovery to a satisfactory erosion level, minimize soil productivity loss, improve water quality and minimize channel damage (p. 38-5);"
- "Monitor designated projects according to an approved water quality monitoring plan (p. 39-6);"
- "Manage all programs to eliminate or minimize onsite and downstream water pollution (p. 73-2);"
- "Manage riparian areas in accordance with legal requirements regarding floodplains, wetlands, wild and scenic rivers, and cultural and other resources. Recognize the importance and distinct values of riparian areas in forest plans (p. 39-8);" and
- "Manage riparian areas to protect the productivity and diversity of riparian-dependent resources by requiring actions within or affecting riparian areas to protect and, where applicable, improve dependent resources (FSM 2526). Emphasize protection of soil, water, vegetation, and wildlife and fish resources prior to implementing projects (FSM 2526) (p. 39-9)."

Affected Environment

Water resources that may be affected by activities in the recreation residence tracts are located within the Ash Creek (Old Columbine) and Jacobson Canyon (Turkey Flat) subwatersheds (see figure 5). Potentially affected elements of water resources include water quantity, water quality, and riparian resources.

Water Quantity

Water quantity is measured in terms of the peak flow of surface waters and the total annual water yield per area. The peak flow of surface waters depends on hydrologic function, which is the ability of soil to capture, hold, and release water. There is one surface waterflow gauging station in the vicinity of the project area, at Frye Creek near Thatcher, Arizona (USGS 09460150). Frye Creek watershed is similar to Ash Creek in many ways, and is used here as a surrogate to describe the flow characteristics and water yield of the Ash Creek subwatershed. Data from this gauge indicate that snowmelt runoff comprises most of Frye Creek's flow, because the highest monthly mean flows are recorded in April and May. Average water yield is 0.51 acre-feet per acre annually (USDI-GS, 2007).

Total surface water yield is controlled by annual precipitation in areas receiving less than 20 inches of precipitation per year, and by vegetation type and density in areas where there is more than 20 inches of precipitation per year. The average annual precipitation for the Ash Creek and

Jacobson Canyon subwatersheds is less than 20 inches. The average annual precipitation in the two tracts is between 30 and 36 inches (NOAA, 2007).

The Jacobson Canyon watershed differs from Ash Creek because it has more woodland and grassland vegetation. There are no representative gauging stations in the vicinity. Using a water balance model developed for woodland watersheds (Ffolliott, 2000), it is conservatively estimated that the Jacobson Canyon watershed yields 0.10 acre-feet per acre annually.

The Old Columbine tract is located in the Ash Creek subwatershed. Using the Frye Creek average of 0.51 acre-feet per acre water production as a surrogate, Ash Creek is capable of producing about 2,624 acre-feet of water annually on the Coronado NF.

The Turkey Flat recreation residences are located in the Jacobson Canyon subwatershed. Using the calculated yield of 0.1 acre-feet per acre water production as a guide, Jacobson Canyon is capable of producing about 890 acre-feet annually.

Total water consumption in the subwatersheds is 2,061 acre-feet per year or about 59 percent of the water produced, based on known water rights applications and existing water rights. Fish habitat in Ash Creek and the Arizona Game and Fish Department (AGFD) facility at Cluff Ranch use 97 percent of this water yield (i.e., 2,000 acre-feet[6]). The 88 recreation residences use 22.15 acre-feet per year or 0.06 percent. Old Columbine recreation residences use about 2.85 acre-feet (0.11 percent of the available water) per year in their water system (Arizona Department of Water Resources (ADWR, 1985)). Turkey Flat recreation residences use 19.296 acre-feet (2.16 percent of available water) per year in their water system (ADWR, 1931 and 1938). Table 7 summarizes water yield by subwatershed and use by recreation residences within the subwatersheds.

Table 7. Annual water yield and use in the subwatersheds of the Safford Ranger District recreation residence tracts

Recreation Residences	Sub-watershed	Sub-Watershed Size (acres)	Estimated Annual Surface Water Yield (acre-feet)	Water Used (acre-feet per year)	Percent of Available Water Used from Sub-watershed
Old Columbine	Ash Creek	5,094	2,624	2.85	0.11
Turkey Flat	Jacobson Canyon	8,920	890	19.30	2.16

Source: ADWR, 1985

Water Quality

The quality of a water resource is based on its chemical, physical and biological characteristics relative to the desired conditions for its use. These characteristics, in turn, are affected by conditions and activities within the watershed, which may include point and nonpoint sources[7].

[6] An acre-foot is equivalent to 1 foot of water covering an area of 1 acre.

[7] A point source is any discernible confined and discrete conveyance including, but not limited to, a pipe, ditch, channel, or conduit from which pollutants are or may be discharged (http://www.fedcenter.gov/resources/facilitytour/wastewater/pointsource).

Water quality is often affected by erosion of pollutants from the soil surface. Erosion also increases sediment deposited in surface waters. Turbidity resulting from increased suspended sediments is a common degradation of surface water quality. In Ash Creek and Jacobson Canyon subwatersheds, pollutant sources include, but are not limited to, grazing, recreation, roads, septic systems, atmospheric deposition, and point source discharges.

The quality of a surface water resource is determined by how well it meets pollutant standards established under the authority of the Clean Water Act (33 U.S.C 1251) relative to its desired or designated use (e.g., body contact, fish habitat). Based on monitoring of specific pollutants, the Arizona Department of Environmental Quality (ADEQ) assigns water quality status as one of the following "attaining all uses, attaining some uses, inconclusive, not attaining, or impaired."

There are no perennial streams within either of the tracts or surrounding area that are identified on the "State of Arizona December 2004 303 (d) List and Other Impaired Waters (ADEQ, 2004)." The status reports for Ash Creek downstream from the residence tracts and for nearby Grant Creek and Frye Creek are provided in table 8 (ADEQ, 2004). Figure 6 (water quality assessment) illustrates the location of these streams relative to the recreation residences. No link has been established between the presence and occupancy of the recreation residences as the source of any pollutants to any of these waters.

Table 8. Surface water quality status in three streams in the vicinity of the Safford Ranger District recreation residence tracts

Surface Water	2004 Assessment Status	Standards Exceeded
Ash Creek	Category 2 – Attaining Some Uses	None; results of the analysis of cadmium, copper, and zinc were missing.
Frye Creek	Category 2 – Attaining Some Uses	None; results of analysis of mercury, arsenic, chromium, lead, cadmium, copper, and zinc were missing. All parameters sampled are attaining all uses.
Grant Creek	Category 3 – Inconclusive	None exceeded; only two samples were analyzed.

Source: ADEQ, 2004

Riparian Resources

Data and information that define riparian vegetation[8] and stream channels in the vicinity of the recreation residence tracts (see table 9) were derived from on-the-ground observations[9], Coronado NF Geographic Information System (GIS) database layers, and the forest plan.

Potential direct and indirect effects on riparian resources were evaluated for a specific area around the recreation residence tracts (see figures 7 and 8: riparian resources, Old Columbine and Turkey Flat tracts). The area for which cumulative effects were assessed includes the two subwatersheds: Ash Creek and Jacobson Canyon.

[8] The kinds and amounts of vegetation in the riparian areas are different than terrestrial vegetation. These differences reflect the influence of free or unbound water from the adjacent watercourse or water body.

[9] Observations made by Bob Lefevre, Coronado NF forester/watershed and forestry program manager, June 14, 2006.

Table 9. Characteristics of riparian resources at or near Safford Ranger District recreation residence tracts

Recreation Residences	Named Drainage	General Direction of Flow	Proximity of Recreation Residence Tract to Channel
Old Columbine	Ash Creek	Northeast	Within the tract
Turkey Flat	Twilight Creek	Northeast	More than 500 feet away from the tract

Ash Creek has year-round surface waterflow (perennial) and is located within the Old Columbine tract. All other surface water channels in the subwatershed are either outside the APE or have intermittent or ephemeral flows (see figure 9, stream channels). The recreation residence tracts do not include any mapped wetlands or flood plains (National Wetlands Inventory, 1977).

Old Columbine Tract

Vegetation in the Old Columbine tract includes Engelmann spruce (*Picea engelmanni*), corkbark fir (*Abies lasiocarpa* var. *arizonica*), Douglas-fir (*Pseudotstuga menziesii*), aspen (*Populus tremuloides*) and alder (*Alnus* spp.). Several wetland species of shrubs and forbs are found along the creek banks. This area is not mapped as a true riparian type, but the alder, sedges (*Carex* spp.) and hemlock-parsley (*Conioselinum* spp.) are generally considered as obligate (i.e., almost exclusively) riparian plants in this area. Although bare ground is common because of human disturbance (foot and vehicle traffic), the channel banks themselves are heavily vegetated. Only at road crossings are the banks lacking vegetation. There are a number of log grade control structures in the area and one 4.5-foot-high earthen and rock dam with an overflow pipe in it. These structures appear to have no effect on the riparian nature of the area, other than storing a small amount of water onsite. No fish have been observed during several field visits to the riparian area on the Old Columbine tract[10].

Turkey Flat Tract

There are no true riparian species in the Turkey Flat tract.

Vegetation in the Turkey Flat tract includes white fir (*Abies concolor*), Gambel oak (*Quercus gambelii*), Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), southwestern white pine (*Pinus strobiformis*), and New Mexico locust (*Robina neomexicana*).

[10] Reported by Bob Lefevre over a period of several years through 2006.

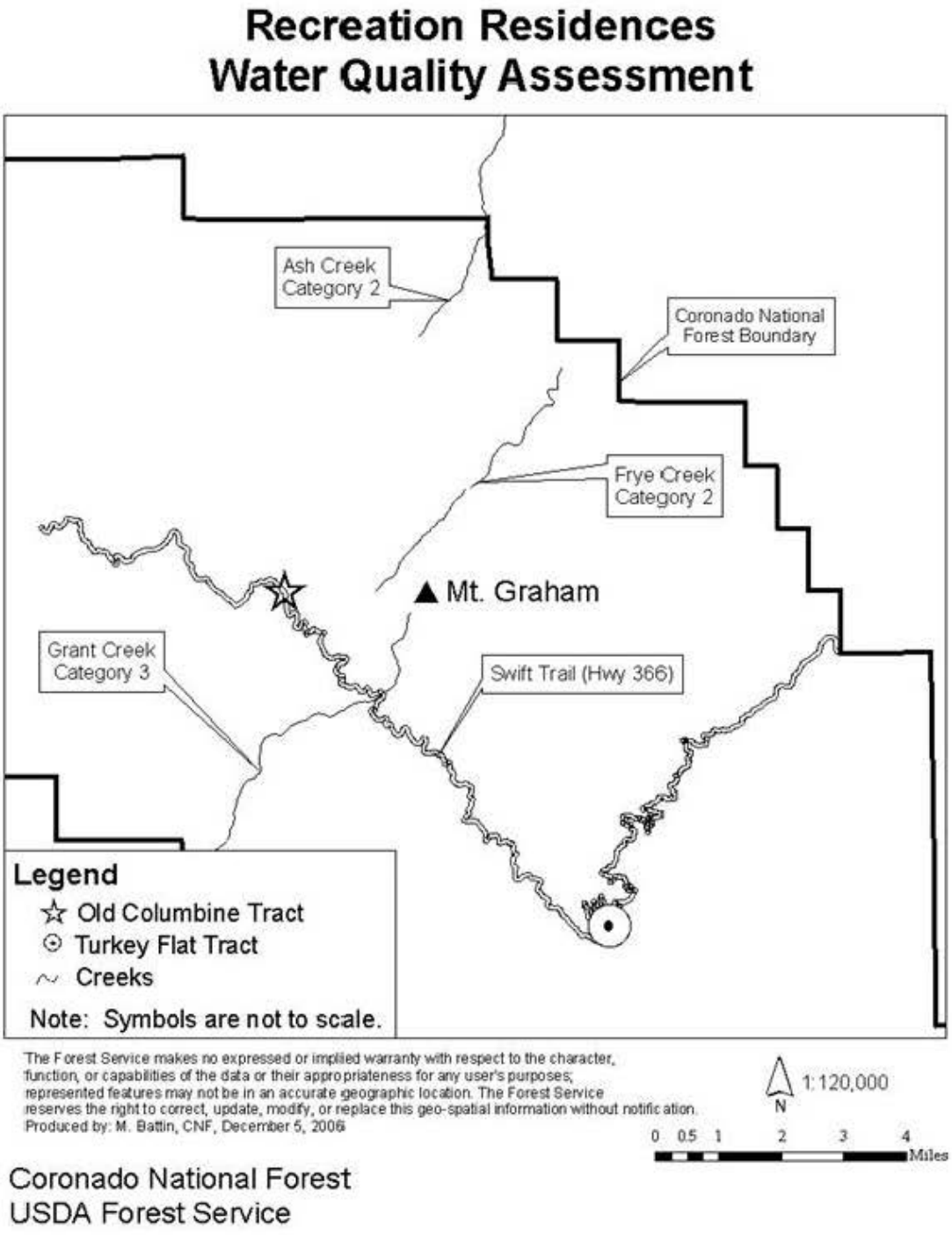

Figure 6. Location and water quality category of three streams in the vicinity of the Safford Ranger District recreation residence tracts

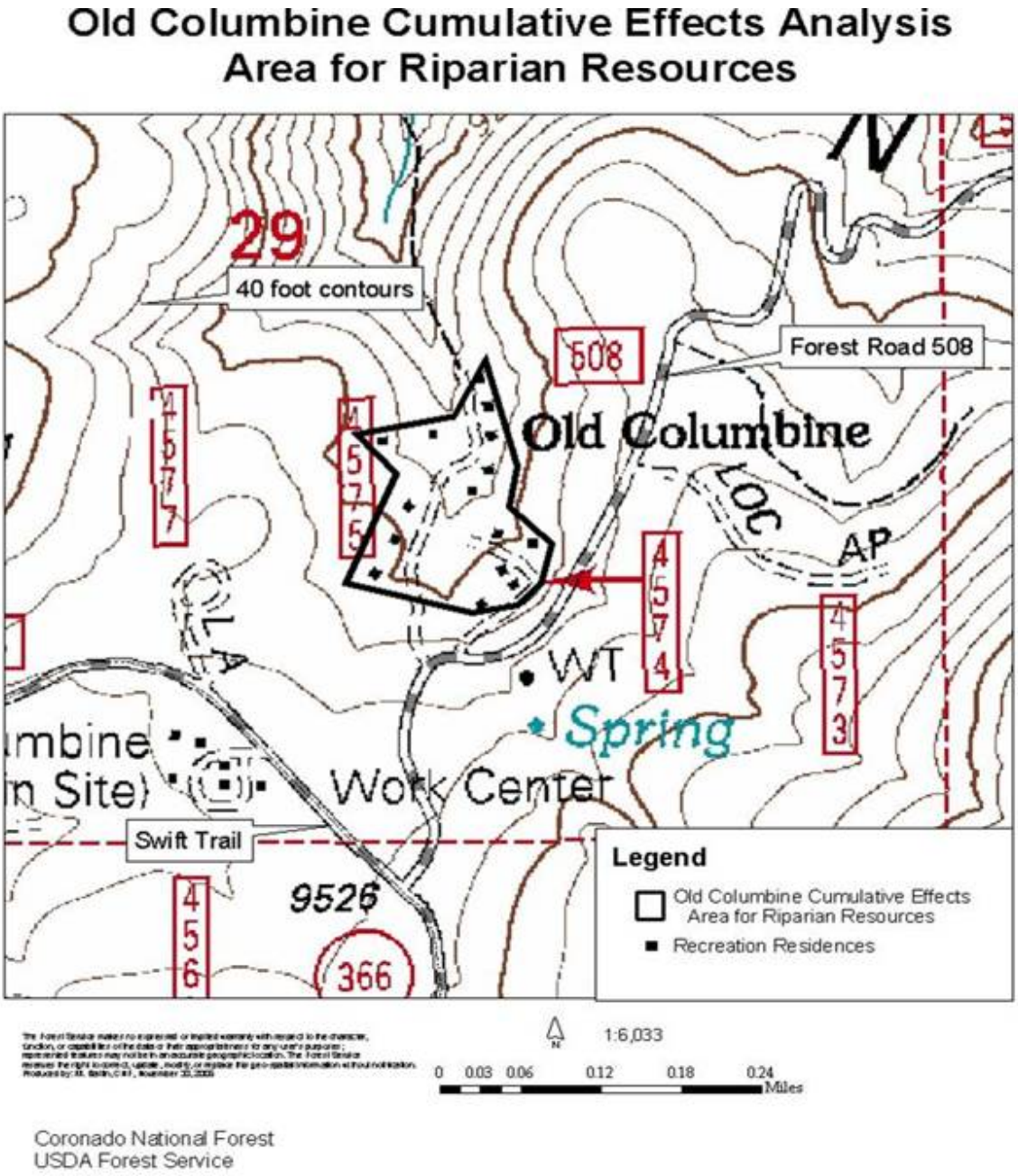

Figure 7. Area of analysis: riparian resources on the Old Columbine recreation residence tract on the Safford Ranger District

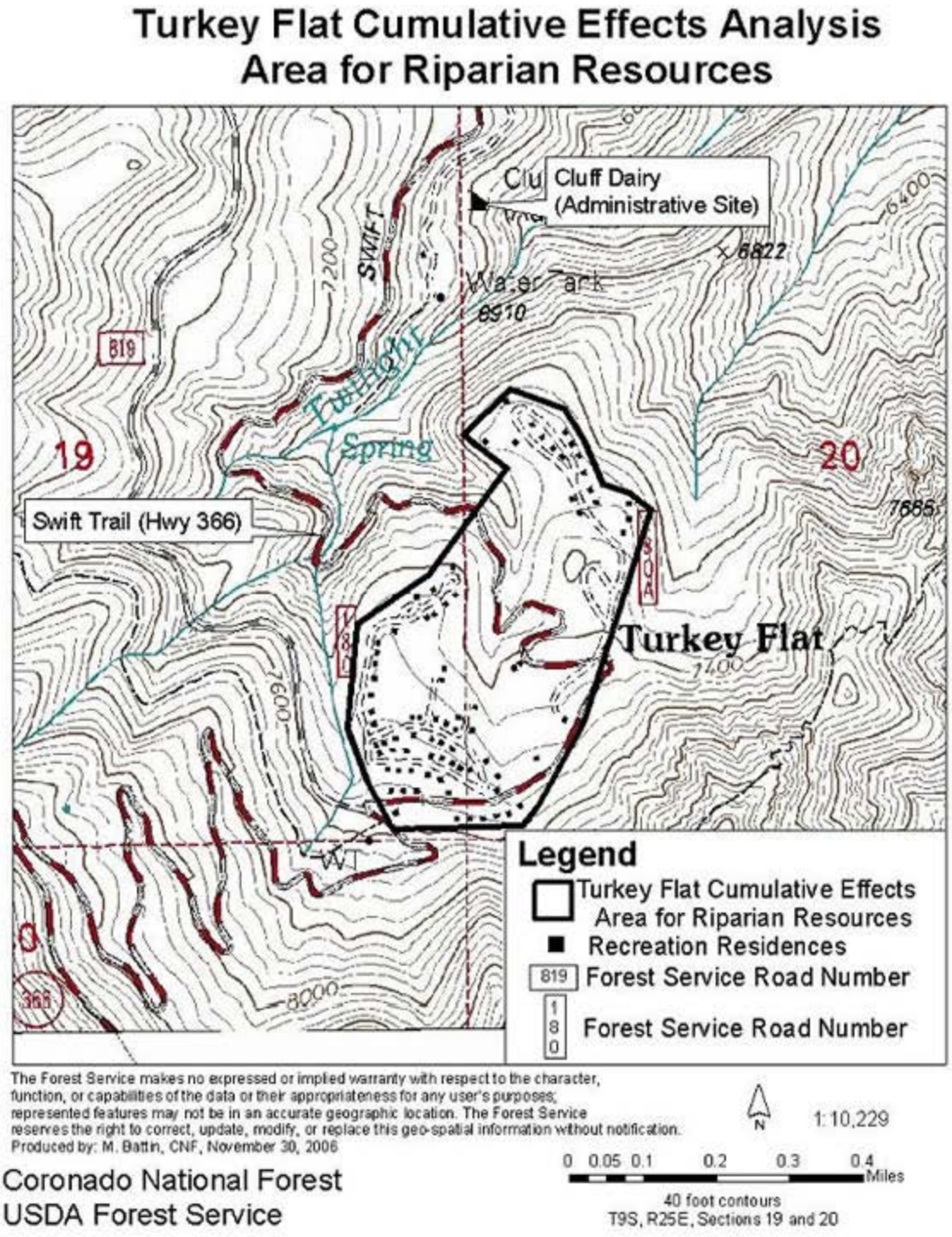

Figure 8. Area of analysis: riparian resources on the Turkey Flat recreation residence tract on the Safford Ranger District

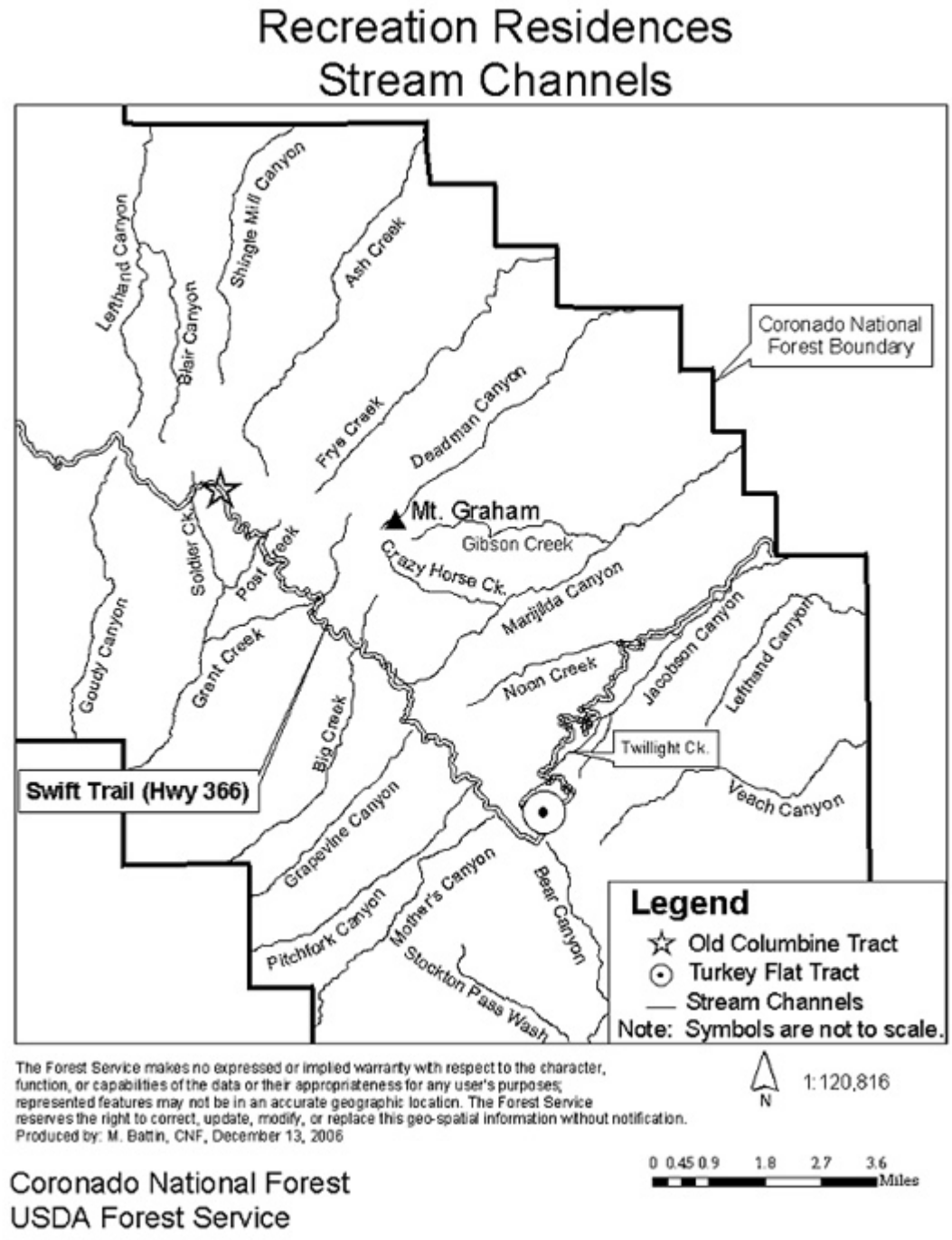

Figure 9. Stream channels within the Ash Creek and Jacobson subwatersheds on the Safford Ranger District

Environmental Consequences

Direct and Indirect Effects

Direct effects to water resources may result from consumptive use of a source of supply as well as by introduction of pollutants and subsequent degradation of water quality. Contamination of water resources can occur by direct discharge of pollutants as point source effluents or by more diffuse (nonpoint) sources, such as erosion and runoff. Impacts are measured by the extent to which a water resource is affected relative to its use, including potable and recreational uses or riparian and aquatic habitat. Depletion of a source of supply or alteration of water quality may adversely impact habitat and populations of both terrestrial and aquatic biota.

Where applicable, the significance of impacts on recreational use and habitat may be determined by the degree to which changes in water quality will affect the status of use designated by, or exceed standards established by, a regulatory agency, or the potential for changes in populations of special status species (i.e., threatened and endangered) or their habitat.

Water Resources, Old Columbine and Turkey Flat

No Action. Removal of the residences would return the tracts to natural slopes, and grasses and forbs would be expected to return within 5 years. Until vegetation is established sufficiently to stabilize disturbed soils, best management practices (BMPs; FSH 2509.22) would be applied by the forest to minimize resource damage (USDA-FS, 1990). The return of vegetation ground cover would gradually improve hydrologic function in the area, resulting in less peak runoff. Water would no longer be consumed by occupants on the tracts, resulting in a very minimal increase in downstream yield.

Runoff is unlikely to introduce sufficient quantities of contaminants to the watershed because there are relatively few sources of such in the residence tracts. Increased vegetation ground cover and decreased foot and vehicle traffic would decrease soil compaction, and correspondingly result in improved infiltration of precipitation and improved, though not measurable, water quality in the Ash Creek subwatershed.

Proposed Action. If the proposed action is implemented, water yield and consumption would remain the same (see table 7). There would be no change in peak flow or total annual water yield.

Issue Turkey Flat Only. If this alternative is implemented, the effects on water resources at Old Columbine would be the same as those described for no action. The effects at Turkey Flat would be the same as those described for the proposed action.

Issue Old Columbine Only. If this alternative is implemented, the effects on water resources at Old Columbine would be the same as those described for the proposed action. The effects at Turkey Flat would be the same as those described for the no action.

Riparian Resources, Old Columbine and Turkey Flat

No action would allow the natural channel of Ash Creek to return on the Old Columbine tract, including the terraces associated with it. Roads, trails and other disturbed areas would be populated with native grasses and forbs.

The proposed action would have no effect on existing riparian resources at Old Columbine. If only Turkey Flat permits are issued, the effects of no action would result at Old Columbine. If only Old Columbine permits are issued, there would be no change in existing riparian resources.

Because there are no riparian resources on the Turkey Flat tract, there would be no impacts from any of the alternatives.

Past, Present, and Foreseeable Actions in the Watershed

Past, present, and foreseeable future projects or actions that have affected or, in the future, may affect the Ash Creek or Jacobson Canyon subwatersheds and the recreation residence tracts include the following activities (see table 2): historic timber and other forest product harvests; historic heavy grazing; prescribed and naturally occurring fires, including Pinaleño Ecosystem Management project pile burning; wildland fire suppression including the Clark Peak Fire and the Nuttall Complex Fire; forest restoration including the Pinaleño Ecosystem Restoration project (PERP), fuel reduction treatments, including the Pinaleño Ecosystem Management project and fuel reduction at special-use permit sites; activities at administrative facilities, including the reconstruction of Heliograph Lookout; recreation; Cluff Ranch (Arizona Game and Fish Department); and livestock and irrigation uses.

Logging

Historic harvesting of timber and other forest products in the subwatersheds were conducted prior to the development and application of today's BMPs (FSH 2509.22). Without mitigation, they contributed to the growth of dense tree stands within and near the recreation residence tracts by inadvertently preparing seedbeds and allowing light to reach the forest floor. This, in turn, has probably decreased the overall water yield from the watersheds (Ffolliott and Thorud, 1975), and increased soil loss from erosion and sediment delivery to surface waters.

The effects of past logging on water quality are no longer present or have been masked by other forest activities. On both the Turkey Flat and Old Columbine tracts, there is no documentation of logging effects on water and riparian resources. Water and riparian resource effects from future forest product harvests during or following fuel reduction treatments, wildlife habitat projects, and forest restoration projects would be minimized by BMPs.

Grazing

Historic heavy livestock grazing throughout the watersheds around the turn of the 19th century and through most of the 20th century decreased vegetation cover in the subwatersheds and altered water yield quantity and timing. This resulted in increased soil erosion and sediment delivery to surface water. In addition, heavy concentrations of livestock in the area contributed to high concentrations of nitrogen and bacteria (*E. coli*) in surface waters.

Best management practices to mitigate grazing effects have since been implemented on Federal lands, with a general improvement in subwatershed conditions. Livestock grazing is documented as currently affecting water quantity only in direct consumption, and continued use of BMPs in grazing would maintain those conditions. In addition, livestock grazing in the vicinity of the recreation residence tracts was eliminated in the 1950s.

Fire and Fuel Treatments

Prescribed and natural fires and wildland fire suppression have affected water and riparian resources in the APE since establishment of the Coronado NF around 1902. Fires have resulted in periodic, short-term effects on water quantity and quality. Studies indicate that the effects of fires

on water resources' quantity and quality decline dramatically after 10 years (Debano et al., 1998). The Graham Complex Fire (1989) no longer affects water quantity or water quality. Effects on water quantity from the Clark Peak (1996) and Nuttall Complex Fires (2004) may continue to the present time, however, no documentation of this has been undertaken. The Clark Peak wildland fire occurred over 10 years ago and its effects on water quality are not considered in this analysis.

Prescribed burning and low-intensity natural fires help restore natural vegetation communities in the subwatersheds, which, in turn, help maintain healthy water quantity and quality conditions. Unfortunately, wildland fire suppression has resulted in increased growth of shrubs and shade-tolerant tree species and decreased grasses in the lower elevations and shade-intolerant tree species at higher elevations of the forest. This, in turn, has increased the frequency and consequences of large, severe fires. There are no reports on the effect of fire on riparian resources at Old Columbine.

Fuel treatments and forest restoration have temporarily affected water and riparian resources by disturbing the surface, altering timing of flows and allowing for accelerated erosion. The long-term positive effect they have had is the establishment of sustainable plant communities that improve natural processes, including natural water yield, water quality, and riparian development. Ongoing fuel treatment and forest restoration projects would be accomplished using BMPs, thereby minimizing negative effects and promoting positive effects on water quantity, water quality, and riparian resources.

Recreation and Special Uses

Forest Service administrative facilities in the subwatersheds include lookout towers, crew quarters, communications equipment and facilities, and the roads or trails to access them. Non-Forest Service administrative facilities include privately owned communications facilities, organization camps, astrophysical observatories, and the roads and trails that access them, all of which exist and operate under SUPs. The effects of these facilities on water consumption are limited to minor alterations in flow timing and water consumption by facility users. Water rights are held by permitted users for 25.452 acre-feet per year (ADWR Water Rights Database).

The Heliograph Lookout project replaced a burned facility; it will not contribute to cumulative effects. The proposed facility at Columbine Work Center would be located outside the cumulative affects area if it is placed at the existing Columbine Work Center. Regardless, the use of BMPs in construction and maintenance of such facilities would minimize adverse effects on water and riparian resources. Administrative facilities have no effect on the riparian resources within the Old Columbine tract.

Recreation facilities in the subwatershed, in addition to the recreation residence tracts, comprise developed areas, such as campgrounds; undeveloped (dispersed) camping areas; and off-road vehicle use. The most common effects of recreation on water quantity are minor alterations of flow timing and consumption by visitors (estimated 0.64 acre-feet per year). In addition, off-road vehicle use has resulted in the creations of surface channels, which change runoff patterns and timing, and causes accelerated erosion on increasingly larger areas. As this activity increases, effects on surface water flows and water quality may be seen.

The most common effects of recreation that affect water quality are increased soil erosion and inappropriate disposal of wastes. There is no documentation of either causing significant adverse impacts to water quality in the cumulative effects area. Effects on riparian areas may include the

displacement or removal of riparian vegetation and channel alteration. Riparian resources in the area have evolved despite the presence of these recreation activities.

Farming does not occur in the upper portion of the subwatersheds. However, Angle Orchard in the Jacobson Canyon subwatershed uses water for irrigation. There are no other farming projects known to be proposed in the subwatersheds.

Cumulative Effects: Water and Riparian Resources

No action would return the tracts to more natural conditions; therefore, there would be no incremental contribution to adverse cumulative effects on water or riparian resources in the subwatersheds.

With the proposed action, existing water and riparian resource conditions would remain the same. Therefore, no cumulative effects with other activities would result.

If permits are issued at Turkey Flat only, water and riparian resources at Old Columbine would improve, therefore, there would no cumulative impacts. Existing resource conditions at Turkey Flat would remain the same.

If permits are issued at Old Columbine only, impacts at Turkey Flat would improve; therefore, there would no cumulative impacts. Existing resource conditions at Old Columbine would remain the same.

Recreation

Affected Environment

The Pinaleño Mountains, especially Mt. Graham, provide a wide variety of year-round recreation opportunities in ecosystems that range from desert grasslands to spruce forests. Historic records of the use of Mt. Graham and the Pinaleño Mountains indicate that they served as a summer retreat for Mormon pioneers and other settlers of the communities near the mountain, such as Safford. Many of the existing trails and roads were constructed by these pioneers and, during the Great Depression, by the U.S. Civilian Conservation Corps.

Arizona Route 366 (Swift Trail), the main road into the mountains, provides access to both the Old Columbine and Turkey Flat tracts. Along this 36-mile road, there are 9 developed campgrounds with a total of 127 campsites, 2 developed picnic areas, numerous hiking trails and trailheads, a lake, a visitor center, and multiple dispersed recreation sites, some of which are popular group use areas (including Treasure Park, Upper Arcadia, Twilight, Snow Flat, and Upper Hospital Flat).

The Mt. Graham area is considered a destination recreation area. Outdoor recreation activities include hiking, camping, experiencing solitude, climbing, scenic driving, hunting, fishing, horseback riding, wildlife viewing, visiting high mountain cienegas, and playing in winter snows. There is also one organizational camp for children (Arizona Bible Camp) near the Old Columbine area. Most recreation areas and the higher elevation trails and dispersed sites are used mainly from May through September. Use is typically much higher on weekends and holidays than during the week.

Riggs Flat Campground is full almost every weekend and holiday between Memorial Day and the end of September (Culbert, 2006). Most of the other high elevation developed campgrounds

receive heavy use (i.e., are over half full) on weekends during this season. The exceptions are Clark Peak corrals (a 3-unit campground with horse corrals beyond the end of Swift Trail, which is rarely at capacity) and Round-the-Mountain Campground (a low elevation campground, which is about half full on weekends and holidays year-round). Most developed sites are lightly used on weekdays.

Like most developed sites in the Pinaleños, dispersed sites are primarily used only during the summer season (Memorial Day through September) and are lightly used on weekdays. Dispersed group sites are typically full five to seven weekends per year, and smaller dispersed sites are always full during the three summer holiday weekends. Occasionally there are no dispersed sites of any type available on weekends.

Field personnel estimate that 65 to 75 percent of visitors stay one or more nights in the mountains (Culbert, 2006). Most stay for the weekend, but many stay up to 2 weeks. Riggs Lake gets a moderate amount of day use (picnicking and fishing). Winter use in the Pinaleños is relatively light, but there is picnicking at the lower elevation sites and snow play in a few areas at higher elevations, especially on weekends.

In 2005, the Coronado NF collected a total of $31,700 at seven developed campgrounds and five group use sites in the Pinaleños (Warren, 2006). Assuming an average of 3.5 people per campsite and 50 people per group site, the estimated number of visitors at these sites during 2005 was approximately 13,650 people, mostly from May through September.

Recreation Opportunity Spectrum Settings

The Recreation Opportunity Spectrum (ROS) system (USDA-FS, 1986a) is a framework that the Forest Service uses to describe recreation settings which range in character from easy access—highly developed to remote and natural. The majority of the Swift Trail corridor is mapped as Roaded Natural, with nodes of Urban (Heliograph Electronic Site and Mt. Graham Astrophysical Complex) and Rural (campgrounds) and areas of Semiprimitive Nonmotorized and Primitive along the edges (a wilderness study area). Definitions of the different settings can be found in the ROS Book (USDA-FS, 1986a) and the Recreation Opportunity Spectrum on the Coronado National Forest (USDA-FS, 2000).

The Old Columbine and Turkey Flat tracts are designated as Rural recreational settings.

Recreational Use Trends

Recreational use is steadily increasing in the Pinaleño Mountains. Field personnel report increased use each year, and camping fees collected by the Forest Service reflect this trend. In fiscal year (FY) 1993, $17,295 was collected for this area of the Coronado NF. In FY 2003 (10 years later) collected fees increased to $26,906. And, in 2005 (just 2 years later), $31,700 was collected (Hennings, 2006).

Trail use continues to be relatively light, but field personnel report that 5 years ago, trailheads typically had one car parked at them on most weekends; more recently, there are three to four cars parked at each.

The Swift Trail is maintained by the Arizona Department of Transportation (ADOT). ADOT records vehicle travel at specific points along the 27.4-mile route between the State prison located at the base of the mountain and the Columbine area at a higher elevation. Average daily traffic counts from years 2003, 2004, and 2005 show 60, 90, and 100 vehicles per day respectively,

indicating a steady increase in traffic. A high proportion of these vehicles are assumed to be transporting recreational visitors.

The Pinaleño Mountains have traditionally provided recreation opportunities for local area residents. However, the number of visitors from the metropolitan areas of Tucson (130 miles) and Phoenix (245 miles) has increased with the growth of these areas, and increases in visitors from Albuquerque have been noted. As these urban areas continue to grow, more visitors to the Pinaleños are expected.

The population of Safford has been stable, however, upon the recent opening of a new, large copper mine in the area, about 700 new jobs were created. A minimal influx of new residents was expected. These new residents are potential recreational users of the Pinaleños.

Recreation Residence Tracts

The history of the Old Columbine tract is not well documented, but Forest Service files indicate that permits for the current buildings were first issued between 1923 and 1955; most of the structures were modified during the last half of the 20th century. There are currently 14 recreation residences located in the Columbine tract that are occupied under the terms and conditions of SUPs. Along with the residences, the permits allow for storage sheds, outdoor toilets, and miscellaneous other minor structures. The residence tract sits on 25 acres of NFS land, and all lots in the tract are currently in use.

The first recreation residences at the Turkey Flat tract were permitted in 1929. The Turkey Flat tract has 74 permitted recreation residences, and their permits allow for storage sheds, outdoor toilets, and miscellaneous other minor structures. This tract sits on 52 acres of NFS land.

Occupancy of the residences varies widely, with some families occupying the residences most of the summer and occasional weekends at other times of the year. Many residences are visited only on key weekends during the year. Forest Service special uses managers estimate recreation residences in the Old Columbine tract are used 50 to 60 days per year, and recreation residences in the Turkey Flat tract are used about 30 to 40 days per year.

Environmental Consequences

Direct and Indirect Effects

No Action

If no action is taken, upon the expiration of a 10-year closeout permit, all recreation residences at Turkey Flat and Old Columbine would be subject to removal at the expense of the permit holders. With the removal of improvements, the category of recreation would change from developed recreation to dispersed recreation.

As dispersed recreation sites, these areas would be available to visitors who prefer a non-developed experience or who cannot access developed sites because of overcrowding, which occurs on several weekends each summer. Access to the tracts would change from motorized to nonmotorized because the access roads to the tracts would be gated after residences are removed. From the perspective of the Western Apache, dispersed, nonmotorized recreation is preferred to maintain and preserve the Western Apache TCP.

Those who formerly held SUPs for the residences would be expected to continue to visit the area for recreation. Their presence may slightly increase visitor use at developed and dispersed sites, if they do not return to either of these tracts to picnic or camp.

During the period when facilities are being removed, there would be increased noise and general disturbance caused by removal of structural improvements and heavy hauling. This would temporarily detract from the quality of the nearby recreation experience for visitors for approximately 1 to 3 months. There would be no long-term effects on recreation caused by the activities of facility removal.

The ROS setting for both tracts would change from Rural to Roaded Natural.

Proposed Action

There would be no effects on recreational use of either tract if the proposed action is implemented.

Issue Turkey Flat Only

If this alternative is implemented, new SUPs for recreation residences in Turkey Flat would be issued, and their occupancy and use would be allowed to continue. There would be no effects on recreational use of this tract.

Impacts at Old Columbine would be the same as those reported in chapter 3, “Recreation, Environmental Consequences” section, for no action. Upon removal of the residences, the ROS setting for Old Columbine would change from Rural to Roaded Natural.

Issue Old Columbine Only

If this alternative is implemented, new SUPs for recreation residences in Old Columbine would be issued, and their occupancy and use would be allowed to continue. There would be no effects on recreational use of this tract.

Impacts at Turkey Flat would be the same as those reported in chapter 3, “Recreation, Environmental Consequences” section, for no action. Upon removal of the residences, the ROS setting for Turkey Flat would change from Rural to Roaded Natural.

Cumulative Effects: Recreation

Past, present, and reasonably foreseeable future actions that affect recreational use and ROS settings in the Pinaleño Mountains include construction of roads, trails, developed recreation sites, and administrative sites; wildland fires; fuel treatment projects, including the current PEM and upcoming PERP; special-use permitted activities, including recreation residences and the Arizona Bible Camp, as well as operation of the Mt. Graham astrophysical complex.

Many of these actions have a positive effect on recreation by providing desirable access routes and recreational facilities. Wildland fire and fuels treatments often change the recreation setting, but they generally improve forest health and benefit recreational use in the long term. The Mt. Graham astrophysical complex has had an indirect negative effect on recreational use of the area, because approval of its special-use permit was contingent upon the establishment of the Mt. Graham Red Squirrel Refugium, an area where recreation use is severely restricted.

Removal of the recreation residences would change the nature of use from developed to dispersed recreation. When added to the effects of past, present, and foreseeable future actions, the loss of two developed recreation tracts would have a very minimal impact on the overall recreation program in the Pinaleño Mountains. Both developed and dispersed recreation opportunities would be available at other developed campgrounds, day use areas, multiple dispersed sites, and the organization camp; however, occasionally overcrowding may be experienced.

Because the proposed action would not change the status quo of the recreational use of the area, no cumulative effects would result.

Visual and Aesthetic Resources

Direction on how to analyze the potential impacts of a proposed action on the visual resources of a national forest is given in its forest plan and other Forest Service policy. The forest plan standard for visual resource management is based on visual quality objective (VQO) maps created under the 1974 Visual Resource Management System (VRMS). Since the mid-1990s, national forests have been directed to use the Scenery Management System (SMS) (Memoranda from Forest Service Washington Office, Code 2380: Reynolds, August 22, 1994; McDougle, March 10, 1997; and Furnish, June 11, 2001). SMS mapping of scenic classes, which show the relative importance of scenic resources on the Coronado NF, was completed in 2001.

Although on-the-ground maps for the two systems are quite different, the components of both systems are similar, and analysis (affected environment, environmental consequences, and cumulative effects) for the proposed project yields largely the same results. To be consistent with the forest plan, the analysis that follows evaluates impacts using VQOs.

Current direction in the forest plan for visual resource management (USDA-FS, 1986, p. 28) includes:

- "Maintain and protect the visual integrity of the landscape," and
- "Rehabilitate or enhance the existing visual quality in the process of accomplishing other resource management practices."

Both recreation residence tracts lie in MAs 3A and 3B, for which the forest plan guidelines direct that visual quality objectives will be met (USDA-FS, 1986, p. 59). Both recreation residence tracts are in areas with the VQO of Retention[11].

Visual quality objectives are based on two components:

- **Variety Class**: A measure of the visual variety or diversity of landscape character. The three variety classes are A (distinctive), B (common), and C (minimal).
- **Sensitivity Levels and Distance Zones**: Sensitivity levels are a measure of the viewer interest in scenic qualities of a landscape. The three levels are 1 (highest), 2 (average), and 3 (lowest). Distance zones include foreground (up to 1/2 mile), middle ground (1/2 mile to 5 miles), and background (over 5 miles).

There are no maps of sensitivity levels for the Coronado NF. However, a review of the VQO maps indicates that the Swift Trail and the Bible Camp Road (FR 508) were identified as

[11] Retention: A VQO which requires that human activities are not evident to the casual forest visitor.

Sensitivity Level 1 areas. A project level review of sensitivity levels confirms that these designations are appropriate.

Affected Environment

Visual resources are the natural and human-created features that give a particular landscape its character and aesthetic quality. Landscape character is determined by the visual elements of form, line, color, and texture. All four elements are present in every landscape; however, they exert varying degrees of influence. The region of influence for visual resources includes the geographic area from which the recreation residences may be seen.

Area of Potential Effect

Although the project areas are quite well defined, the boundaries for visual resources are often difficult to draw. As people travel through a landscape, they experience a sequence of viewsheds. To capture the potential impacts to visual quality of the broader area surrounding the tracts, the following analysis considers elements of visual quality in the landscapes beyond each of the recreation residence tracts, including the Swift Trail Highway (AZ 366) corridor and the high elevation conifer forests of the Pinaleño Mountains, where most public use occurs and scenery is highly valued.

Within the Pinaleño Mountains are a number of developed recreation sites, including public campgrounds and picnic areas, an organization camp, trailheads and trails, and the Columbine Administrative Area (which includes a visitor center). Additionally, there are many dispersed recreation areas with no facilities other than roads, small dirt parking areas, and stone fire rings. At present, the greatest detractions to visual quality are the Heliograph electronic site and structures that comprise the Mt. Graham astrophysical complex, one of which is a 167-foot tall boxy white structure that is highly visible from some areas.

Old Columbine Tract

The landscape character in the Old Columbine area is that of a mixed-conifer forest with pockets of rocky mountainside topography, grassy meadows, and occasional stands of aspen trees. The area is accessed by the Swift Trail (AZ 366), which has been designated a scenic byway by the State of Arizona because of its outstanding scenery.

Visual quality in the Old Columbine area is generally good, despite the presence of many dead and diseased trees from insect infestation, several thickets of dense vegetation, and some nearby burned areas. Most of the recreation residences in the Old Columbine area are generally well screened from roads and scenic viewpoints, and other structures (public recreation areas, Columbine, etc.) are in character with the setting.

The Old Columbine area is designated as variety class A, distinctive, based on the distinctive conifer forest and landform of the areas. The existing VQO for this area is retention.

Turkey Flat Tract

The landscape character in the Turkey Flat area is that of a ponderosa pine forest with pockets of rocky mountainside topography and occasional stands of aspen trees. The area is also accessed by the Swift Trail Highway (AZ 366).

Visual quality in the Turkey Flat area is generally good, despite the presence of many dead and diseased trees from insect infestation, several thickets of dense vegetation, and nearby burned areas. About 20 recreation residences in the Turkey Flat area can be seen from the Swift Trail; the others are well screened from roads and scenic viewpoints, and other developments (public recreation areas, Columbine, etc.) are in character with the setting.

The Turkey Flat area is variety class A, distinctive, because of the distinctive conifer forests and landform of the area. The existing visual quality objective for the Turkey Flat area is retention.

Environmental Consequences

Direct and Indirect Effects

No Action

During the 10 years of continued use until removal, there would be no new direct or indirect impacts from the recreation residences.

Temporary impacts on visual quality would result from removal of structural improvements, including disturbance of soils, piling of debris, and operation of heavy equipment, which has the potential to damage vegetation. Visual quality impacts from removal of structural improvements would be observable for at least a few months, and effects following removal of improvements would likely be evident for 1 to 2 years. Eventually, the landscape would return to a natural forest (with the exception of roads and dispersed recreational use), and the tract would continue to meet the VQO of retention.

All Action Alternatives

Visitors come to the Coronado NF for its natural appearing landscapes. To protect visual quality, it is important that, whenever possible, human-made structures on the Coronado NF (including recreation residences) harmonize with the line, form, colors, and textures of the surrounding landscape.

The following excerpt reflects guidance for management of the recreation residence tracts during the early 1980s, when VQOs for the Coronado were mapped (USDA-FS, 2006):

> "On the Coronado National Forest, as with all other national forests in the region, the visual inventory and objective setting came after the summer home residences had been in place for many years. Since the summer homes are a recognized part of the Forest Service recreation program, it was assumed they would be there for some time.
>
> In the summer home tracts, it was assumed that each owner would first meet the requirements of their permit (no additions to the buildings, no accessory buildings, no trash in the immediate area, etc.). It was also assumed that it would be the responsibility of each district ranger to manage the area with the Visual Quality Objective (VQO) in mind. This means using the principles of the VRMS to mitigate visual impacts of any non-conforming structures, seeking to meet the VQO over time (usually retention or partial retention). The VQO of retention means that the structure cannot be visually evident. It must borrow from the forest visual elements that surround it – in its form, line, color, and texture. In general, this means that in forested areas the roof and exterior wall materials

> must be natural appearing and painted in dark muted forest colors with no shiny materials or highly reflective surfaces, and the area around the home is the natural forest. Many existing homes at the time could meet this objective. The idea was to have the summer homes that did not conform to the objective and were visually evident to reduce their impact over time. This means that when doing routine maintenance such as painting and roofing, owners would choose muted forest colors and dull textures, therefore becoming less evident."[12]

Because the proposed action would simply be a continuation of an existing use, no new direct or indirect impacts would result from its implementation. Likewise, if permits are issued for one tract and not the other (alternatives 3 and 4), impacts would be negligible, while the impacts of removal at either tract would be the same as those identified for the no action alternative.

If the proposed action is implemented, some recreation residences and associated structures may need changes over time to make them better blend with the surrounding landscape, and in some locations, there are areas with bare ground from vehicle and pedestrian use that needs to be corrected. These maintenance items would be addressed by the Coronado NF in individual SUP operation and maintenance plans.

Cumulative Effects: Visual and Aesthetic Resources

Cumulative effects are considered for the entire Pinaleño Ecosystem Management Area, since the entire mountain range is visible from many locations.

Past, present, and reasonably foreseeable future actions considered in the analysis of cumulative effects on visual quality include the following (see table 2): road maintenance; historic timber sales and livestock grazing; presence and operation of the Mt. Graham astrophysical complex and Heliograph electronic site; developed recreation site use; administrative site use (Columbine, Heliograph lookout, etc.), dispersed recreation use; fuel reduction treatments around special-use permitted facilities; PEM (a forest thinning and fuel reduction project); new permit for the Arizona Bible Camp; microwave tower installation at the Mt. Graham International Observatory; and PERP (a project that includes tree removal and prescribed burning to reduce fire hazards).

No Action

The effects of many of the projects identified as contributing to cumulative visual quality on the Coronado NF would continue through the 10-year closeout period applicable to the recreation residence tracts. Some of these projects have negatively impacted visual quality for many years, most notably, the astrophysical complex telescopes that contrast sharply with the landscape. Others (such as PEM and PERP) will provide long-term benefits to visual quality by reducing the risk of catastrophic wildland fire.

The Arizona Bible Camp is not visible from public viewing locations, and like the recreation residences, existed prior to establishment of VQOs. No new impacts are expected from a new permit being issued to the camp. Visual impacts from developed recreation and administrative sites, dispersed uses, past timber cutting and livestock grazing, fuel treatments around special-use permitted facilities, and from the microwave dish, are and would continue to be, minimal. Roads serve as viewing platforms and provide public access into the forest and are generally considered visually neutral elements.

[12] Source: Memorandum to File, Sarah Davis, forest landscape architect, Coronado National Forest, May 2006.

The visual quality impacts of no action reported in chapter 3, "Visual and Aesthetic, Environmental Consequences" section, would be negligible. Therefore, when considered incrementally with the effects of past, present, and future actions in the area, cumulative effects would be discountable in the short term, and positive in the long term, as the site restores to natural forest conditions. The VQO of retention would not change.

All Action Alternatives

Because there would be no new direct or indirect effects from continuation of existing recreation residence permits, there would be no cumulative effects on the visual resources.

Wild and Scenic Rivers

The eligibility of a river for the National Wild and Scenic Rivers System (National System) is determined by applying the criteria in sections 1(b) and 2(b) of the Wild and Scenic Rivers Act of October 2, 1968 (P.L. 90-542, as amended (95-625 1978); 16 U.S.C. 1271-1287, et seq.). Eligibility is further described in the United States Department of Agriculture and United States Department of the Interior Guidelines for Eligibility, Classification and Management of River Areas, dated September 7, 1982 (USDA-USDI Guidelines), and found in FSH 1909.12, chapter 90. To be eligible for inclusion, a river must be free flowing and, with its adjacent land area, possess one or more "outstandingly remarkable" values. The determination of eligibility is an assessment that does not require a decision or approval document, although the results of this inventory need to be documented as a part of the plan document or plan set of documents.

To the extent the Forest Service is authorized by statute, a responsible official may authorize site-specific projects and activities on NFS lands within river corridors eligible or suitable for National Wild and Scenic River designation only where the project and activities are consistent with all of the following (FSH 1909.12 Ch 80; Section 82.5):

- The free-flowing character of the identified river is not modified by the construction or development of stream impoundments, diversions, or other water resources projects.
- Outstandingly remarkable values (ORVs) of the identified river area are protected.
- For all legislatively mandated study rivers, management and development of the identified river and its corridor is not modified to the degree that eligibility would be compromised or the classification changed to a less restrictive class (such as from wild to scenic or scenic to recreational).
- For all Forest Service identified study rivers, however, they may be managed at the recommended rather than inventoried classification when the suitability study and recommendation is completed.

Affected Environment

Old Columbine Tract

A 6.2-mile segment of Ash Creek from its headwaters to the diversion for Cluff Ranch was determined to be eligible for the National Wild and Scenic Rivers (WSR) System (USDA-FS, 1993). Ash Creek has historically been a perennial creek with intermittent reaches. The Ash Creek drainage has a diversity of vegetation, dropping in elevation from the spruce-fir type to desert scrub. The creek descends through small meadows, Engelmann spruce and Douglas-fir,

alder, oak, sycamore, box-elder, and Arizona walnut. Steep slopes, deep canyons, and waterfalls provide outstanding scenic qualities. Expansive views of the Gila Valley may be seen from the middle to upper elevations of the creek. Historic features such as remnants of an old sawmill and flume operation from the early 1900s are evidence of early Anglo-American occupancy of the mountain. This segment of Ash Creek has a potential classification as recreational (FSH 1909.12, Chap. 80, Sec. 82.3) and reflects outstandingly remarkable values (ORVs) of scenic, historic, and ecological (FSH 1909.12, Chap. 80, Section 82.14).

Several of the recreation residences in the Old Columbine tract are within 1/4 mile of the headwaters of Ash Creek. However, all residences in Old Columbine were built at their present sites several decades prior to the 1993 determination of eligibility.

Turkey Flat Tract

The Turkey Flat recreation residences are miles away from any of the potential streams and rivers on the Coronado NF eligible for National Wild and Scenic River designation. Therefore, Turkey Flat will not be discussed further with regard to potential impacts on wild and scenic rivers.

Environmental Consequences

Direct and Indirect Effects

None of the alternatives would affect the eligibility of Ash Creek for inclusion into the National Wild and Scenic Rivers System because its free-flowing condition, ORVs, and classification would not be adversely impacted. The discussion below explains the reasons for this determination.

Free-Flowing Condition

With implementation of alternative 1, the removal of recreation residences would not involve impoundment, diversion, straightening, rip-rapping, or other modification of the waterway within the eligible portion of the river and, thus, would have no effect on the free-flowing condition of Ash Creek.

For alternative 2, the recreation residences would remain in place; therefore, there would be no effect on the free-flowing condition of Ash Creek.

Removal of the recreation residences at Old Columbine in alternative 3 would have the same effect as alternative 1.

Under alternative 4, the recreation residences at Old Columbine would remain in place; therefore, this alternative would not affect the free-flowing condition of Ash Creek.

Outstandingly Remarkable Values (Scenic, Historic, and Ecological)

With implementation of alternative 1, at the end of a 10-year closeout permit period, removal of the Old Columbine recreation residences would have a minor and temporary effect on the scenic ORV at the upper end of the 6.2-mile segment during the period when structures are being dismantled and scrap materials are staged onsite.

The historic ORV for Ash Creek was assigned because of the presence of the Mt. Graham sawmill and an associated flume for transporting logging products to the Gila Valley─vestiges of

early 1900s Anglo-American use of the mountain. Removal of the Old Columbine recreation residences would have no effect on the Mt. Graham sawmill and flume. Recreation residences were not mentioned in the 1993 eligibility determination as contributing to the historic ORV, even though some of them were built as early as the 1920s. Likewise, the Western Apache *Dził Nchaa Si'an* TCP was not identified as contributing to the historic ORV, even though it encompasses the entire watershed within the forest boundary. The TCP was determined to be eligible for the National Register of Historic Places in 2001 (Spoerl 2001) and could be identified as contributing to the historic ORV of Ash Creek in a future revision of the forest plan. Recreation residences were not mentioned in the 1993 eligibility determination as contributing to the historic ORV, even though some of them were built as early as the 1920s. Removal of the Old Columbine recreation residences would have no effect on these historic resources.

If heavy equipment were used in the removal of the recreation residences, there would be soil disturbance and the potential for short-term increased soil erosion and sedimentation of Ash Creek. However, most of the erosion would be minimized by the requirement that BMPs be implemented during removal (FSH 2509.22). There would be no changes in long-term productivity or irreversible or irretrievable commitments of resources. While there are no water quality criteria prescribed by the National Wild and Scenic Rivers Act, there could be a temporary, minor, indirect effect on aquatic species in Ash Creek (ecological ORV) because of slightly increased turbidity levels.

Implementing alternative 2 would not affect the ORVs of Ash Creek because the Old Columbine recreation residences were in place at the time of the 1993 determination of eligibility and because this alternative does not change anything on the ground.

Alternative 3, removal of the Old Columbine recreation residences, would have the same effects as alternative 1. If alternative 4 is implemented, the recreation residences at Old Columbine would remain in place; therefore, the effects would be the same as alternative 2.

Stream Classification

With implementation of alternative 1, removal of the recreation residences would have no adverse effect on classification (recreational) of the 6.2-mile segment of Ash Creek eligible for National Wild and Scenic River designation. If the residences and roads were removed and the area returned to a natural appearance, the future classification of this segment may qualify as either scenic or wild.

With alternative 2, there would be no on-the-ground changes; therefore, the recreational classification would not be affected.

Alternative 3 would have the same effects as alternative 1.

Alternative 4 would have the same effects as alternative 2.

Cumulative Effects: Wild and Scenic Rivers

There would be no cumulative effects on the section of Ash Creek eligible for National Wild and Scenic River designation because there are no direct or indirect effects from any of the alternatives.

Heritage Resources

Regulatory Framework

Historic properties are those that are eligible for or already listed on the National Register of Historic Places. Section 106 of National Historic Preservation Act (NHPA) outlines the process that Federal agencies follow to assess potential effects on historic properties when an undertaking is proposed. The process is codified in 36 CFR Section 800. Specific direction applicable to Forest Service, Southwestern Region, compliance with 36 CFR 800 is contained in the "First Amended Programmatic Agreement Regarding Historic Property Protection and Responsibilities Among New Mexico Historic Preservation Officer and Arizona State Historic Preservation Officer and Texas State Historic Preservation Officer and Oklahoma State Historic Preservation Officer and the Advisory Council On Historic Preservation and United States Department Of Agriculture Forest Service, Southwestern Region" (USDA-FS, 2003).

Other laws, regulations, and Forest Service policies also apply to the inventory, protection, restoration, and interpretation of heritage resources. These include the National Environmental Policy Act, National Forest Management Act, and the Archeological Resources Protection Act. Native Indian Nations' concerns are considered in this section, because the protection of American Indian historic properties is linked to the preservation of their heritage. The Federal Government's responsibilities to consult on a government-to-government basis with American Indian tribes and nations is established in the U.S. Constitution, and further mandates clarifying the Forest Service responsibilities are contained in the Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, the Religious Freedom Restoration Act, and Executive Orders 13007 and 13175.

Affected Environment

The history of human occupation of the Pinaleño Mountains began long before European entry into the region. Settlements at the base of the mountains and shrines on the peaks date back at least a thousand years, and the mountains are important in the history and traditions of the Four Southern Tribes (Tohono O'odham Nation, Ak-Chin Indian Community, Gila River Indian Community, and Salt River Pima Maricopa Indian Community), the Hopi Tribe, and the Pueblo of Zuni.

The Pinaleño Mountains are also the ancestral and contemporary homeland of the Western Apache, who refer to Mt. Graham as *Dził Nchaa Si'an.* The Apaches resisted Euro-American encroachment, subjugation and colonization efforts until the second half of the 19th century. The Treaty of Guadalupe-Hidalgo was signed in 1848, ending the U.S. war with Mexico and bringing California, New Mexico and Arizona north of the Gila River under U.S. control. In the succeeding decades, the Western Apache were forced from their homelands because of Federal Indian policy and governmental actions. However, Apache people still claim powerful ties to the Pinaleño Mountain range and surrounding areas, and *Dził Nchaa Si'an* has outstanding significance in Western Apache spiritual beliefs and practices (Laluk 2008). The mountain is associated with Western Apache oral history and plays a role in stories, songs and myths that reflect ties to it, both in historic and contemporary traditional cultural activities (Spoerl 2001, 2002a, 2002b).

In 2002, in consultation with the Western Apache tribes, the Arizona State Historic Preservation Officer, and the Keeper of the National Register, the Forest Service determined that the entire area of the Pinaleño Mountains (Mt. Graham/*Dził Nchaa Si'an*) within Forest Service boundaries

(over 198,000 acres) is eligible for listing on the National Register of Historic Places as a Western Apache Traditional Cultural Propery (TCP) (Spoerl 2002a, 2002b). *Dził Nchaa Si'an* was determined to have sufficient integrity to be eligible for listing despite the existence of the recreation residences and other developments on the mountain. However, to the Western Apache, modern developments, especially the Mount Graham International Observatory, have had severe detrimental effects to their religion and culture.

The name "Mt. Graham" was first applied to the Pinaleños in 1846 when the Army of the West under General Stephen Watts Kearny followed the Gila Valley on its way west to California. The first documented Euro-American visit to the top of the Pinaleños occurred in 1871, when a survey party under George M. Wheeler left a stone monument on the summit (Gillespie 2000). Commercial logging of the range began in the last quarter of the 19th century, with the establishment of settlements in the Gila Valley. Sawmills were constructed in accessible canyons on the north side of the range, and the Army cut timber in the Fort Grant vicinity following its establishment in 1873. A military hospital was built at Hospital Flat and used during the summer months. In 1889 through 1890, the Army established a heliograph signaling station on Heliograph Peak. However, military use of the range was in decline after 1880, and ceased when Fort Grant was abandoned in 1895 (Spoerl 2001).

Residents of Pima, Thatcher, and Safford have spent summers on Mt. Graham since the late 1880s (Spoerl 1988). Riggs Flat became the headquarters for summer cattle grazing in the early 1900s, while Chesley Flat was used for growing potatoes. In 1902, the increasing use of the mountains was regulated through establishment of the Mt. Graham Forest Reserve, with the objective of protecting the water supply and timber reserves. By that time, cabins were already present at Old Columbine (King 1915). The land became part of the Crook National Forest in 1908, and in 1953, it was transferred to the Coronado National Forest (Spoerl 2001).

Both the Old Columbine and Turkey Flat tracts were established in the 1920s, upon the Forest Service's receipt of applications for summer residences (Angle 2006). The current recreation residences at Columbine were built between 1923 and 1956, although most have been modified within the last 50 years. Weech et al. (2003:92) note that Turkey Flat was first developed by William Deal and Joe Bassett, who built a log cabin there as part of a plan to grow potatoes. Most of the recreation residences at Turkey Flat were built after the Swift Trail (Highway 366) improved access to the area. Turkey Flat cabins were first constructed between 1929 and 1966, but as at Columbine, most of them have been remodeled or expanded within the last 50 years.

In 2006, in consultation with the Arizona State Historic Preservation Officer (SHPO), the Forest Service evaluated the recreation residences for eligibility for listing on the National Register of Historic Places (Farrell 2006, 2006a; Farrell et al., 2006). Twenty-one of the residences (5 of the 14 residences at Old Columbine and 16 of the 74 residences at Turkey Flat) are over 50 years old and have been only minimally modified since their original construction. However, none of the 88 recreation residences was determined to meet National Register criteria as an individual property. In addition, because most of the residences on each tract lack sufficient age and integrity to form a National Register "historic district," none of the cabins was determined to be eligible as a contributing element of such a district. Therefore, none of the residences on either tract is considered a historic property that would require additional consideration under the provisions of the National Historic Preservation Act (Farrell 2006a). The Arizona State Historic Preservation Officer concurred with this determination on September 21, 2006 (see appendix B).

In March 2006, the forest supervisor wrote to 12 tribes having traditional ties to the land now administered by the Coronado National Forest (project record, item 74) to advise them of the

proposed residence permitting action and invite comments on the scope of this EIS analysis. One reply was received; it was from the White Mountain Apache Tribe. The tribal chairman at that point in time, Dallas Massey, Sr., stated that the continued existence of the recreation residences in itself was an adverse effect on the *Dził Nchaa Si'an* TCP (Massey 2006). This effect is discussed below.

Environmental Consequences

Direct and Indirect Effects

No Action

No action would have "No Adverse Effect" on historic properties, per 36 CFR 800.5(b). The continued existence of the recreation residences for a 10-year closeout period, after which the structures would be removed, would not alter the characteristics that make the mountain eligible for the National Register of Historic Places as a TCP for the Western Apache. According to former Chairman Massey (2006), the Western Apache would prefer that the residences be removed from *Dził Nchaa Si'an*, because modern developments such as these impinge upon the spiritual values of the TCP.

The negative effects of the residences expressed by former Chairman Massey (see chapter 3, "Heritage Resources, Regulatory Framework" section) do not change the qualities of the mountain that make *Dził Nchaa Si'an* eligible for listing on the National Register of Historic Places. Nevertheless, the Forest Service recognizes the Western Apache concerns and acknowledges them throughout this DEIS.

Action Alternatives

All three of the action alternatives would allow the forest to issue SUPs for some or all of the recreation residences, so that they could remain for at least 20 years. No expansion in the recreation residences, nor any changes in recreation residence use, is proposed.

Massey (2006) expressed the perspective of the White Mountain Apache Tribe that the continued existence of the recreation residences contributes to two effects on *Dził Nchaa Si'an*. First, residential use by individuals, families, and guests, who may not understand or respect the mountains as sacred sites and historic properties, fosters and facilitates unwarranted damage and desecration to the sacred mountain. Second, the residences are likely to continue to have undue and inappropriate effects on land and fire management, because of the Forest Service's historic responses to fires (suppression) are based on the protection of private property rather than on the restoration of ecosystem function or the protection and expansion of endangered species habitat.

The negative effects cited by Massey regarding the continued presence of the residences do not change the qualities of the mountain that make *Dził Nchaa Si'an* eligible for listing on the National Register of Historic Places. The residences were present before the TCP was determined eligible for the National Register in 2002. Consultation with the Arizona State Historic Preservation Officer confirmed that each of the action alternatives (alternatives 2, 3 and 4) would have "No Adverse Effect" per 36 CFR 800.5(b) on the *Dził Nchaa Si'an* TCP (Farrell 2006, 2006b).

In addition, other laws and executive orders require the Forest Service to consider the effect of the proposed project on the TCP, *Dził Nchaa Si'an.* The American Indian Religious Freedom Act (Public Law 95-341) recognizes that the religious practices of American Indians are an integral

part of their cultures, tradition and heritage, such practices forming the basis of Indian identity and value systems. The Religious Freedom Restoration Act prohibits the government from imposing a "substantial burden" on the free exercise of religion. Recent court decisions (see footnote for citations[13]) suggest that to constitute a "substantial burden," a government action must coerce someone to act contrary to their religious beliefs under the threat of sanctions, or condition a governmental benefit upon conduct that would violate their religious beliefs. Under this definition, the existence of the recreation residences would not meet the criteria for substantial burden.

The most relevant direction is Executive Order 13007, Indian Sacred Sites, which directs Federal land management agencies, to the extent permitted by law and not clearly inconsistent with essential agency functions, to accommodate access to and use of Indian sacred sites, and to avoid affecting the physical integrity of such sites wherever possible (FSM 1563.01e5). Sections 3 and 4 of this Executive Order appear to limit its applicability and authority:

> Section 3. Nothing in this order shall be construed to require a taking of vested property interests. Nor shall this order be construed to impair enforceable rights to use of Federal lands that have been granted to third parties through final agency action. For purposes of this order, "agency action" has the same meaning as in the Administrative Procedures Act (5 U.S.C. 551[13]).
>
> Section 4. This order is intended only to improve the internal management of the executive branch and is not intended to, nor does it, create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by any party.

Nevertheless, there are ways in which the Forest Service can reduce the effects of the recreation residences on the Western Apache TCP, within existing law and not inconsistent with essential agency functions. To this end, the Forest Service consulted with the San Carlos Apache Tribe and White Mountain Apache Tribe to develop mitigation measures to minimize the ongoing effects of recreation residences on the traditional cultural, spiritual, and historical values of *Dził Nchaa Si'an* will be included as stipulations in the operating plan that governs each SUP. These measures are identified in chapter 2, "Mitigation" section.

Cumulative Effects: Heritage Resources

In addition to the recreation residences and other special-use sites (e.g., Heliograph, Ladybug) on Mt. Graham, the Western Apache strongly oppose the existence of the Mt. Graham International Observatory because of its effects on their TCP. In his letter of April 28, 2006, Chairman Massey wrote that recreation and institutional permits on sacred mountains cause desecration and damage to the Apache culture. To the Western Apache, recreation residences must be considered part of the cumulative impacts to Native American cultural and ecological integrity of sacred sites, which has most recently been exacerbated by projects such as the Mt. Graham International Observatory on the Coronado National Forest, expansion of the ski area on the Coconino National Forest, and copper mining on the Tonto National Forest.

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[13] *Navajo Nation* v. *U.S. Forest Service*, 408 F. Supp. 2d 866, 883-84 (D. Ariz. 2006); *Navajo Nation* v. *U.S. Forest Service*, D.C. No. CV-05-01824-PGR, August 8, 2008, U.S. Court of Appeals for the Ninth Circuit, en banc appeal decision.

Social and Economic Resources

The forest plan, page 9, provides the following mission statement for management of the Coronado NF:

- "Manage the resources of the Coronado National Forest under multiple use and sustained yield principles to provide for balanced contributions to the national welfare and **to the economic and social needs of the people of southeast Arizona and southwest New Mexico. Management programs are to be oriented to maintain cultural values and a viable rural economy** [emphasis added]."

Additionally, the forest plan provided the following standard/guideline:

- "Consider all resource values and social needs in doing land adjustment planning (USDA-FS, 1986, p. 40)."

Affected Environment

The Old Columbine and Turkey Flat recreation residence tracts are located within Graham County, Arizona. Most current permit holders list a permanent residence address within Graham County (USDA-FS, 2006). As discussed in chapter 3, "Heritage Resources" section, the entire mountain range has great social and cultural importance for the Western Apaches, who live mainly in Gila, Navajo, and Apache Counties, as well as Graham County. The economic and social activities resulting from use of these recreation residences are generally concentrated within the county. For this reason, the analysis area for direct, indirect, and cumulative effects of this project on the social and economic environment focuses on Graham County, Arizona. The period of analysis for cumulative effects is 20 years, based on the term of a newly issued recreation residence SUP.

The Graham County Comprehensive Plan emphasizes the importance of protecting both the natural resources and scenic beauty that are "essential to the economic stability and unique character and lifestyles" of the area (University of Arizona, 2006). Graham County is rich in natural resources and has a rural culture and economy supported by copper mining, cotton farming, and cattle ranching. The Gila River is a vital source of water for approximately 52,000 acres of arable land in the county, much of which is dedicated to the production of cotton, a primary component of the county's agricultural economy. Mining also plays a major role in the economy of Graham County. There are a number of small mines in the area, and the Phelps-Dodge Corporation manages a large open pit mine north of Safford. The Mt. Graham International Observatory, located within Graham County on the Coronado NF, is the home of the Large Binocular Telescope, the world's most powerful optical telescope.

The permit holders are represented by two recreation residence owner associations. The Columbine Recreation Residence Owners Association represents those in the Old Columbine tract and the Mt. Graham Recreation Residence Association represents those in the Turkey Flat tract. Spring-fed water system permits have been granted to each of the two associations (Angle, 2006c). The associations manage the water systems using volunteers from within their membership, represent recreation residence owners in dealings with the Forest Service, disseminate information, and encourage appropriate area maintenance and resident behavior (Bennett, 2006c).

The primary season of use for the permitted recreation residences is May 1 through October 31. Because of weather conditions, the road to the Old Columbine tract is gated from about

November 15 to April 15 each year. Snow conditions sometimes prevent opening of the gate in the spring until the road can be plowed, generally by Memorial Day. The Turkey Flat tract is accessible year round (Angle, 2006a; Bennett, 2006d).

Permits allow recreation residence owners to reside in the recreation residences up to 180 days per year. Actual use at each recreation residence is generally much less, limited to a few weekends and an occasional stay of a week or more. Very little use has been noted during the winter months. Permits do not allow owners to rent their recreation residences to third parties. All recreation residences are permitted to individuals, generally in middle income ranges. However, a growing number of permit holders are professionals in higher income brackets (Bennett, 2006c). Sixty percent of recreation residence owners reside within Graham County. All but two owners reside within Arizona (USDA-FS, 2006).

As mentioned above, all recreation residences are served by water systems permitted to and administered by owner associations. However, in dry years, the springs have run dry, requiring permit holders to haul in water (Bennett, 2006d). Approximately 70 percent of recreation residences have septic systems, and the remaining 30 percent use pit toilets. Neither tract has telephone or electric service; although some recreation residence owners have generators to provide electricity (Bennett, 2006b). Cell phone coverage is poor. Heat is provided through the use of propane or wood stoves. When in residence, permit holders generally obtain supplies and services in Safford, Arizona (Bennett, 2006d).

Most recreation residences are relatively small, and have an average of two bedrooms, kitchen, family room, and a bathroom or pit toilet. Some recreation residences have a loft, and most have a deck. Most recreation residences are well maintained. Permits require that owners maintain the structural integrity and protective coatings of recreation residences and maintain their lots to remove debris, including branches, needles, etc. Wood piles must be kept a safe distance from structures. Permit holders are required to remove any hazard tree, on or off the lot, which may pose a danger to the house or to residents (Bennett, 2006e).

The permit authorizing the occupancy of the residences specifies that a determination may be made at the end of each 20-year term not to extend the permit, and that if it is not issued, the permit holder must remove all improvements. This is a risk assumed by the initial permit holder in signing the permit and constructing a recreation residence on public lands and is assumed by all succeeding owners. An option available to permit holders to mitigate this loss is to move their recreation residence to a location off the Coronado NF rather than remove it.

Other permitted or Forest Service owned facilities also present in the area include a church camp (Arizona Bible Camp) and numerous developed recreation sites, and the area is also used for dispersed recreation and permitted grazing.

Social Environment

Both the Old Columbine and Turkey Flat tracts were established in the 1920s, when applications for permits were first submitted (Angle, 2006). Many of the recreation residences have been passed down through generations within the same family. Other recreation residences tend to be more frequently bought and sold, in some cases as often as every 2 to 3 years (Bennett, 2006a; Angle, 2006b). For many of the individuals who hold permits, these recreation residences are a well-established element of their lifestyle and standard of living, providing a mountain “getaway” to be enjoyed each summer. For some families, ownership and use of these recreation residences have become a part of family culture and tradition.

For some permittees, the cabins are physical reminders of the past and powerful ties to family, community, and cultural history. For these persons, preservation of these sites is important in order to safeguard the history they represent and maintain a sense of connection to the past that can be communicated and passed on to future generations. Emotional and psychological attachments to these sites can be an important contribution to an individual's or community's sense of place. In a similar but reverse manner, for some Western Apaches the cabins are physical reminders of the economic, social, and spiritual losses their own culture has experienced in the past 120 or so years. For them, human-made developments are intrusions that disrupt the sacred and traditional environment of the mountain.

The White Mountain Apache Tribe and some members of the public have expressed concern that NFS land and fire management decisions are unduly influenced by the permitted recreation residences and that the protection and enhancement of habitat for the endangered Mt. Graham red squirrel is compromised in order to accommodate the needs of permit holders. Additionally, concern was expressed that decisions to suppress wildland fire are too heavily influenced by the need to protect recreation residence tract improvements rather than realize ecosystem benefits. For this reason, it is believed by tribal members and some of the general public that the needs of a few citizens are compromising the greater public benefit. By the same token, permit holders have a capital investment in their improvements as well as sentimental attachments resulting in a strong desire to see that investment protected.

Population

In 2000, the population of Graham County was 33,489, which equates to approximately 7.2 persons per square mile as compared to 45.2 persons per square mile across the State of Arizona as a whole (U.S. Census Bureau, 2000a). The population of the county is expected to grow by approximately 35 percent by the year 2030. This rate of growth is much lower than the population growth projected for the State, which is expected to double over the same time period (Arizona Department of Economic Security, 2006). Table 10 displays the racial and ethnic breakdown of the Graham County population, including poverty rates by race or ethnicity.

In 2000, the total number of housing units in Graham County was 11,430, of which 2.5 percent were identified as seasonal homes. Overall, the number of total housing units grew by 25.4 percent since the 1990 census, compared with a growth rate of nearly 32 percent statewide. The highest rate of growth within the county occurred in the number of seasonal homes, which increased by 35 percent in the same 10-year period. The county rate of growth in the number of seasonal homes still falls short of the State average of 46.8 percent. Housing density remains rather sparse, with only 2.47 houses per square mile (University of Arizona, 2006).

Economy

The most dominant categories of employment in Graham County are displayed in table 11. The relative breakdown is reflective of the State as a whole, but with a somewhat greater proportion of jobs in service occupations and the construction, extraction, and maintenance occupations (University of Arizona, 2006).

The major employers within Graham County (University of Arizona, 2006) include the following: Arizona State Prison, Safford; Bonita Nurseries, Bonita; City of Safford, Safford; Eastern Arizona College, Thatcher; Federal Prison, Safford; Impressive Labels, Safford; Mt. Graham Hospital, Safford; Safford United School District, Safford; and Wal-Mart, Thatcher.

Annual fees charged by the Forest Service for a recreation residence is 5 percent of the bare land appraisal. Lots are appraised every 20 years. Annually, the 5 percent fee is adjusted for inflation. The total 2006 annual use fees paid to the Treasury by recreation residence owners at Old Columbine totaled $8,232, and owners at Turkey Flat paid $45,064 for a total of $53,296.

Table 10. Graham County, Arizona, population by race and ethnicity

Race/Ethnicity	Population	Percentage of Population	Number Below Poverty Level	Percentage of Total Below Poverty Level
White	22,473	67.1	3,202	16
Black or African American	625	1.0	173	54
American Indian and Alaska Native	5,005	14.9	2,276	49
Asian	188	0.6	16	14
Native Hawaiian and Other Pacific Islander	13	0.0	10	33
Other Race	4,470	13.3	1,029	27
Two or More Races	715	2.1	246	30
Hispanic[1]	9,054	27.0	2,218	28
Non-Hispanic	24,435	73.0	2,243	13

Source: U.S. Census Bureau, 2000.

[1] Members of all races may be counted as Hispanic, based on their country of origin or ethnicity.

Table 11. Dominant occupations in Graham County and the State of Arizona

Occupational Category	Graham County	Arizona
Management, professional, and related occupations	25.9%	32.7%
Sales and office occupations	23.5%	28.5%
Service occupations	20.8%	16.2%
Construction, extraction, and maintenance occupations	16.4%	11.0%
Production, transportation, and material moving occupations	11.5%	10.9%

Source: U.S. Census Bureau, 2000

Recreation residences and outbuildings require routine maintenance to remain in compliance with the requirements of the SUPs. Maintenance activities that cannot be accomplished by the owners are usually performed by a hired contractor. Most services are obtained from businesses located

in Safford. Additionally, other supplies and services, such as groceries, gasoline, and auto maintenance, required by recreation residence owners while in residence at the recreation residences, are generally obtained in Safford. No quantifiable data is available on the revenue generated by Safford area businesses as a result of these services.

Revenues to Graham County

Special-use permits issued for recreation residences within the Old Columbine and Turkey Flat tracts allow the use of NFS lands on which the residences sit. The recreation residences themselves are private property and are a source of tax revenue to Graham County. County records indicate annual tax revenues of $1,002 are collected on the residences within the Old Columbine tract and $6,300 are collected from Turkey Flat owners (Graham County Treasurer, 2006).

Counties receive Federal funds known as payments in-lieu of taxes (PILT) to replace revenue that is lost because of the tax-exempt nature of public lands administered by Federal agencies (1976 Payments in Lieu of Taxes Act). The amount is based on the amount of acreage administered by certain Federal agencies, population, a schedule of payments, the Consumer Price Index, other Federal payments made in the prior year, and the level of funding allocated by Congress.

In addition to PILT, counties have historically received payments from the Federal 25 Percent Fund, which accrues from fees generated by Coronado NF activities, with the exception of certain mineral programs, and is based on the number of NFS acres within each county. The 25 Percent Fund payments to some counties were affected by the enactment in 2000 of the Secure Rural Schools and Community Self-Determination Act (SRSCS)[14], which is intended to stabilize annual payments to states and counties for 6 years, which began in 2001. The new formula for computing annual payments is based on averaging a state's three highest payments between 1986 through 1999 to arrive at a compensation allotment or "full payment amount." Each county had to decide whether to continue to receive payments under the 25 Percent Fund or to receive its proportionate share of the State's full payment amount under SRSCS. Graham County elected to receive its proportionate share of the State's full payment amount under SRSCS.

Environmental Consequences

Direct and Indirect Effects – No Action

Social Environment

If no action is taken, permit holders would have continued use of their lots and recreation residences for 10 years, after which they would be required to remove all improvements. Many permit holders would consider this a loss of an important element of their lifestyle and an adverse impact to their standard of living. For families who have held a permit over multiple generations, a place that has been a part of family culture and tradition would be lost. While the tradition could potentially be continued in another location, some elements specific to the current recreation residence's location, surroundings, and characteristics would be lost.

Many permit holders would experience a feeling of loss when a physical element important to their sense of place is removed, potentially reducing their enjoyment of the area. Those who

[14] The SRSCS (P.L. 106-393) was enacted to provide transitional assistance to rural counties affected by the decline in revenue from timber harvests on Federal lands. Traditionally, these counties relied on a share of receipts from timber harvests to supplement local funding for school systems and roads.

experience historical structures as a physical tie to the past would likely feel a strong sense of loss. For these individuals, a paper record is likely to be considered a poor substitute. The ability to pass this connection on to future generations would be limited to the communication of verbal and written histories.

On the other hand, if no action is taken, an important element of the Western Apache social and cultural environment would be restored. Removal of the residences would help protect their sacred TCP by returning the tracts to a more natural state and fostering a natural fire regime. Concerns about disrespectful and inappropriate behavior on the mountain would be reduced. Their ability to pass on to future generations the concept of respect for the entire mountain would be enhanced. Because Apache history and wisdom is inextricably tied to a sense of "place" (Basso 1996), an improvement in their ability to hand down traditional values, morality, history, and identity would be realized.

Concerns about the effect that the presence of recreation residences has on NFS land and fire management decisions would continue for the next 10 years. Following removal of the recreation residences, concerns about their perceived effect on habitat for the Mt. Graham red squirrel would be eliminated. However, the dispersed recreation use that is anticipated to occur in these sites may present new concerns with regard to the squirrel and other natural resources.

With regard to fire management, the Forest Service would have greater flexibility to manage wildland fire to enhance ecosystem health and restore the natural fire regime. The presence of other permitted facilities in the area such as the Mt. Graham International Observatory, Arizona Bible Camp, electronic sites, and developed recreation facilities would continue, however, to influence the need for fire suppression.

Population

Use of the existing recreation residences is limited to a maximum of 180 days per year. Actual use of the recreation residences is often limited to a few weekends and an occasional stay of a week or more (Bennett, 2006c). None of the recreation residences are primary residences. Although the ability to own a recreation residence within a relatively short driving distance may make Graham County more attractive to some recreation residence owners as a location for their permanent residence, removal of the recreation residences would not be expected to have any direct or indirect impacts on the local population.

Economy

For the 10-year closeout period, there would be no change in the economic contribution made to the local economy because of the existence and use of the 88 recreation residences in the Old Columbine and Turkey Flat tracts. Recreation residence owners would continue to obtain services and supplies from local businesses.

At the end of 10 years, permit holders would be required to remove all improvements. The required removal of each recreation residence may represent the loss of a capital investment for the permit holder. Approximately 56 percent of the recreation residences were constructed in the late 1920s to the early 1940s. The remaining recreation residences were constructed during the 1950s, with a few in the 1960s (Graham County Assessor, 2006). Most of these facilities have exceeded the original design life and as such would be fully depreciated. However, many have been remodeled or updated over the years, effectively extending the original design life.

Regardless, a residence still in use is of value to its owner and represents a loss if it must be demolished. The limited cash value (replacement cost less depreciation) of the residences in these two tracts ranges from a low of $1,500 to a high of $38,000 with an overall average of approximately $13,500 (Graham County Assessor, 2006).

The cost of removing improvements would be borne by the permit holders. The cost of removal of structural improvements is estimated at approximately $3,000 per recreation residence. Removal costs would include the deconstruction and removal of all buildings and foundations and reshaping of the site to return it to a natural contour. Sites would then be revegetated using a native seed mix. The cost of revegetation is estimated at approximately $200 per site and would also be borne by the permit holders. The Forest Service would incur expenses to administer the restoration of the site. Forest Service costs are estimated at approximately $125 per recreation residence.

Following removal of the recreation residences, services and supplies that had been provided by local businesses to permitted recreation residence owners would no longer be needed. A majority of recreation residence owners (60 percent) (USDA-FS, 2006) are residents of Graham County and it is anticipated that their spending would continue to remain within the county. The business of recreation residence owners with primary residences outside the county would be lost. However, no measurable effects on local employment or income are anticipated. The removal of improvements at the end of 10 years may stimulate a very small amount of short-term employment revolving around removal of structural improvements and rehabilitation activities.

Forest Service and County Revenues

If no action is taken, Graham County would continue to collect annual property tax revenues of approximately $7,500 from recreation residence owners (Graham County Treasurer, 2006) and the Forest Service would continue to collect special use permit fees of approximately $53,296 annually through December 31, 2018 (USDA-FS, 2006c). After this date, all improvements would be removed. County property tax revenues would be reduced by approximately $7,500 (Graham County Treasurer, 2006). Forest Service revenues associated with the Old Columbine and Turkey Flat Recreation Residence tracts would cease.

As explained above, counties in which NFS lands are located receive payments from either the 25 Percent Fund or the SRSCS. Graham County chose to take payment under the SRSCS. Therefore, SRSCS payments to Graham County would not change as a result of implementation of alternative 1. However, the SRSCS legislation and associated payments terminated in 2006. SRSCS was extended and payments funded for 2007, however, Congress has yet to take action to extend it beyond 2007. If SRSCS is not extended, payments may be made under the 25 Percent Fund Act.

If payments under the 25 Percent Fund are resumed, Graham County would receive 25 percent of the receipts collected for the recreation residence SUPs for the next 10 years. This would be approximately $13,300 annually in 2006 dollars. After 10 years, the special-use permits would expire, and no further funds would be collected, resulting in a reduction in annual 25 Percent Fund revenues to the county of approximately $13,300.

The total revenue loss to the county would be approximately $20,600 annually, which represents approximately 0.05 percent of the county's 2006 total budget (Arizona Tax Research Association, 2006). This reduction is not expected to adversely impact county services.

Financial and Economic Present Net Value (PNV)

The measure of financial and economic present net value (PNV) has been determined for the alternatives addressed in this EIS.

Financial PNV examines revenue and cost implications from the perspective of the Forest Service. It could also be said that this is the perspective of the taxpayer. Only those revenues and costs that are recorded in financial records are included in this analysis. When considering quantitative issues, financial PNV analysis offers a consistent measure in dollars that can be used to compare alternatives. This type of analysis does not account for non-market benefits, opportunity costs, individual values, or other values, benefits and costs that are not easily quantifiable. This is not to imply that such values are not significant or important, but to recognize that non-market values are difficult to represent with appropriate dollar figures. The values that are not included in this part of the analysis are often at the center of disagreements and interest people have in forest resource projects. Therefore, financial PNV should not be viewed as a complete answer, but as one tool decisionmakers use to gain information about resources, alternatives, and tradeoffs between costs and benefits.

Economic PNV examines a broader definition of benefits by considering the value of national forest uses that are not captured in the marketplace. In this analysis, costs and benefits to permit holders are the primary additions over a financial analysis. Some outcomes, such as biological diversity, visual amenities, and some social impacts have no monetary values or costs that have been established by USDA or the Forest Service. While some research studies have explored the development of such values, these values are considered in a non-monetary fashion by natural resource impacts analysis.

Net public benefit is an important concept in the current regulations for carrying forest management activities (benefits minus all the associated Forest Service inputs and negative effects (costs), whether they can be quantitatively valued or not). Thus, net public benefits, conceptually are the sum of this economic analysis plus the net value of non-priced outputs and costs. It is not the result of economic analysis alone. Many relevant factors cannot be quantified or expressed in monetary terms. The agency endeavors to maximize net public benefit through public participation in the planning process. By seeking public input and designing alternatives and mitigation measures to achieve the desired future condition while minimizing adverse effects and analyzing effects relative to the issues and concerns, an agency achieves the maximum net public benefit. The economic PNV analysis is but one element that must be considered together with the impacts to other resources that are evaluated in this EIS.

PNV is defined as the value of discounted benefits (or revenues) minus discounted costs. A PNV analysis includes all outputs to which monetary values are assigned. In deriving PNV figures, costs are subtracted from benefits to yield a net value. “Future values” (i.e., benefits received in the future) are discounted using an appropriate discount rate to obtain a “present value.” The PNV of a given alternative is the discounted sum of all benefits minus the sum of all costs associated with that alternative. PNV estimates attempt to condense a large amount of information into a single value. This value must be used with caution.

Table 12 displays the financial and economic PNV for the no action alternative. All dollars are in constant dollars with no allowance for inflation. A 7 percent discount rate was used over a period of 20 years, from 2009 through 2028. Revenues are not reduced for payments made to states and counties. No action had the lowest financial and economic PNV of the alternatives evaluated in this EIS.

Table 12. Financial and economic present net value (PNV) for no action (20 year planning horizon)

Value	Present Value (Thousands of Dollars)
Forest Service Revenues	$400.50
Forest Service Costs	-$146.30
Public Benefits	$1,244.10
Public Costs	-$812.70
Financial PNV	$254.30
Economic PNV	$431.40

Environmental Justice

If the residences are removed, the social and cultural benefits would accrue mainly to the Western Apache, because the residences are incompatible with their TCP. Table 10 indicates that almost half of the Native Americans within Graham County live below the poverty level, and it is assumed that most of these Native Americans are Western Apaches who live on the San Carlos Apache Reservation.

Direct and Indirect Effects – Proposed Action

Social Environment

Under this alternative, there would be no change to the existing condition. Existing recreation residence permits would be issued for a 20-year period. Permit holders would have the continued use of their lots and attached recreation residences until December 31, 2028, when the permits would again need to be considered for issue. Permit holder lifestyles and standard of living as related to the access to and use of these residences would be maintained. For those families who have maintained multigenerational traditions tied to a recreation residence, this alternative represents the ability to continue a family tradition and maintain family culture.

Permit holders who attach importance to physical reminders of the past would favor this alternative most strongly. Sense of place for these individuals would be maintained. Existing recreation residences could be preserved for the next generation.

Conversely, issuing 20-year permits for the recreation residences would continue their effects on an important element of the Western Apache social and cultural environment. Desecration of the Western Apache sacred TCP would continue, as would their concerns about disrespectful and inappropriate behavior on the mountain. The Apaches' ability to pass on to future generations the concept of respect for the entire mountain would be diminished, and their ability to convey to their children traditional values, morality, history, and identity would be reduced.

The presence of recreation residences would continue to be a consideration in the determination of current and future management activities including fire prevention and suppression. Permit holders would continue to seek assurance that their properties would be protected from the effects of catastrophic wildland fire. Restoration of a natural fire regime would be politically difficult. The perception of effects resulting from the presence of these recreation residences to Mt.

Graham red squirrel habitat would continue. Those who favor the removal of residences in favor of habitat concerns would remain unsatisfied.

Population

There would be no change from the existing condition under this alternative; therefore, there would be no effect on the local population.

Economy

There would be no change to the economy if the proposed action is implemented. Existing contributions to the local economy would be maintained as recreation residence owners would continue to obtain services and supplies from local businesses. Permit holders would be required to continue the maintenance of improvements as in the past, incurring a similar level of expense.

Forest Service and County Revenues

No change to Graham County or Forest Service revenues would result from the proposed action. The county would continue to collect annual property tax revenues of approximately $7,300 from recreation residence owners until 2028 (Graham County Treasurer, 2006). Likewise, the Forest Service would continue to collect annual special-use permit fees of approximately $53,296 for the same period (USDA-FS, 2006c).

If the SRSCS is extended, there would be no effect on Federal funds allocated to the county. If the SRSCS is not extended, and payment under the 25 Percent Fund Act resume, Graham County would receive annual payments of approximately $13,300 from associated permit fees in addition to 25 percent of other Forest Service revenues.

Financial and Economic Present Net Value (PNV)

Table 13 displays the financial and economic PNV associated with the issuance of new permits. All dollars are in constant dollars with no allowance for inflation. A 7 percent discount rate was used over a period of 20 years, from 2009 through 2028. Revenues are not reduced for payments made to states and counties. The proposed action would have the highest financial and economic PNV of the alternatives evaluated in this EIS.

Table 13. Financial and economic present net value (PNV) for the proposed action (20 year planning horizon)

Value	Present Value (Thousands of Dollars)
Forest Service Revenues	$604.10
Forest Service Costs	-$212.20
Public Benefits	$4,163.70
Public Costs	$-$988.60
Financial PNV	$2,398.60
Economic PNV	$3,175.10

Environmental Justice

The issuance of permits is detrimental to the culture and religion of the Western Apache, because the presence of the residences is contrary to protection of the mountain as a TCP. As table 10 indicates, almost half of the Native Americans within Graham County live below the poverty level, and it is assumed that most of these Native Americans are Western Apaches who live on the San Carlos Apache Reservation.

Direct and Indirect Effects – Issue Turkey Flat Only

Social Environment

Direct and indirect effects related to issuing new term permits for the Turkey Flat recreation residence tract would be the same as described for the proposed action. There would be no change to the existing condition relative to these permits. The 74 permit holders with residences located in the Turkey Flat tract would have the continued use of their lots and associated improvements until December 31, 2028, when new permits would be needed. Turkey Flat permit holder lifestyles and standards of living related to the access to and use of these recreation residences would be maintained.

Fourteen permit holders in the Old Columbine tract would have continued use of their lots for 10 years, after which they would be required to remove all improvements. These permit holders would consider this an adverse effect to their lifestyle and standard of living. Many recreation residences in this tract have been handed down through multiple generations within the same family. Loss of the permit would adversely affect the family culture and tradition. While the tradition could potentially be continued in an alternative location, some elements specific to the current recreation residence's location, surroundings, and characteristics would be lost.

Sense of place for permit holders would be maintained. All recreation residences in the Old Columbine tract would be removed in 10 years. Those who value physical reminders of the past would perceive the removal of these recreation residences as an adverse effect to their sense of place and a loss to future generations.

For the Western Apaches, removal of the Columbine recreation residences would have part of the same beneficial effect as the No Action alternative. Issuing permits for the Turkey Flat tract residences would have part of the same detrimental effect as the proposed alternative.

Concerns about the effect that the presence of recreation residences has on National Forest System land and fire management decisions would be alleviated somewhat under this alternative. Except for no action, this alternative would have the greatest potential to improve to the Mt. Graham red squirrel because of the location of the Old Columbine tract relative to these important habitat areas (see chapter 3, "Wildlife" section).

Removal of the residences in the Old Columbine tract would reduce some citizens' concern about the effects on fire management decisions. However, permit holders in the Turkey Flat tract would continue to favor protection from the effects of catastrophic wildland fire. The residences in the Turkey Flat tract and other improvements in the Old Columbine area, such as the Mt. Graham International Observatory, Arizona Bible Camp, electronic sites, and numerous Forest Service developed recreation facilities, would continue to require consideration when determining fire prevention and suppression tactics or other National Forest System land and fire management decisions.

Population

No effects on the population are anticipated.

Economy

Contributions to the local economy for the 10-year closeout period would remain unchanged from the existing condition. After removal of the 14 recreation residences located in the Old Columbine tract, the demand for services and supplies in support of recreation residence permit holders would be slightly reduced; however, no measurable effect to employment or income is anticipated. Twelve of the Old Columbine permit holders have permanent residences within Graham County. The spending of these families would be expected to remain within the county. Spending by the remaining two permit holders would be lost from the local economy.

At the end of 10 years, permit holders in the Old Columbine tract would be required to remove all improvements. The required removal of each recreation residence may represent the loss of a capital investment for the permit holder. Approximately 29 percent of the recreation residences were constructed in the late 1920s to the early 1940s. The remaining recreation residences were constructed during the 1950s, with a few in the 1960s (Graham County Assessor, 2006). Most of these facilities have exceeded the original design life and as such would be fully depreciated. However, many have been remodeled or updated over the years, effectively extending the original design life. Regardless, a residence still in use is of value to its owner and represents a loss if it must be demolished. The limited cash value (replacement cost less depreciation) of the residences in the Old Columbine tract ranges from a low of $4,700 to a high of $22,000 with an overall average of approximately $12,000 (Graham County Assessor, 2006).

The removal of recreation residences at the Old Columbine tract would be a cost borne by the Old Columbine permit holders. The cost of removal is estimated at $3,000 per recreation residence. Removal would involve the deconstruction and removal of all buildings and foundations and reshaping of the site to return it to a natural contour. The 14 sites would then be revegetated with a native seed mix at an estimated cost to the permit holders of $200 per site. Forest Service costs to administer the removal of improvements are estimated at $125 per site (Bennett, 2006). The removal of improvements at these sites may stimulate a small amount of short-term employment revolving around removal of structural improvements and rehabilitation activities.

Forest Service and County Revenues

For the 10-year closeout period at Old Columbine, Forest Service and county revenues would remain unchanged. At the end of 10 years, Forest Service revenues would decrease to approximately $45,000 annually (USDA-FS, 2006c). County property tax revenues would only be collected on the recreation residences in the Turkey Flat tract and would be approximately $6,300 annually (Graham County Treasurer, 2006).

If the SRSCS is extended, there would be no effect on Federal funds allocated to the county. If the SRSCS is not extended, and payment under the 25 Percent Fund Act resume, Graham County would receive payments of approximately $11,250 from associated permit fees in addition to 25 percent of other Forest Service revenues. Total revenue loss to the county would be approximately $3,050 annually. No adverse impact to county services would be anticipated.

Financial and Economic Present Net Value (PNV)

Table 14 displays the financial and economic PNV associated with issuing new permits for Turkey Flat only. All dollars are in constant dollars with no allowance for inflation. A 7 percent discount rate was used over a period of 20 years, from 2009 through 2028. Revenues are not reduced for payments made to states and counties. Alternative 3 had the second highest financial and economic PNV of the alternatives evaluated in this DEIS.

Table 14. Financial and economic present net value (PNV) for issuing permits for Turkey Flat only (20 year planning horizon)

Value	Present Value (Thousands of Dollars)
Forest Service Revenues	$572.70
Forest Service Costs	-$201.70
Public Benefits	$3,749.10
Public Costs	-$962.60
Financial PNV	$371.00
Economic PNV	$2,786.40

Environmental Justice

Western Apache concerns would be partly addressed by removal of the recreation residences at the Old Columbine tract after 10 years. The number of residences to be removed represents 16 percent of the residences currently permitted on the mountain. Apache access to the 25 acres of the Old Columbine tract would be less inhibited by the presence of private homes. Members of the tribe would continue to have access to the mountain for cultural, religious, and ceremonial purposes, including the 25 acres located in Old Columbine.

Direct and Indirect Effects – Issue Old Columbine Only

Social Environment

Direct and indirect effects related to issuing 14 new special-use permits in the Old Columbine recreation residence tract would be the same as described for the proposed action. There would be no change to the existing condition relative to these permits. The 14 permit holders with residences located in the Old Columbine tract would have the continued use of their lots and associated improvements until December 31, 2028, when new permits would be necessary. Old Columbine permit holder lifestyles and standards of living related to the access to and use of these residences would be maintained.

Seventy-four permit holders in the Turkey Flat tract would have the continued use of their lots for 10 years, after which they would be required to remove all improvements. These permit holders would consider this an adverse effect to their lifestyle and standard of living. Loss of these permits may adversely affect culture and tradition for some families. While the tradition could potentially be continued in an alternative location, some elements specific to the current recreation residence's location, surroundings, and characteristics would be lost.

Sense of place for permit holders would be maintained. All recreation residences in the Turkey Flat tract would be removed in 10 years. Those who value the residences as physical reminders of the past would perceive their removal as an adverse effect to their sense of place and a loss to future generations.

For the Western Apaches, removal of the Turkey Flat recreation residences would have part of the same beneficial effect as the no action alternative. Issuing permits for the Columbine tract residences would have part of the same detrimental effect as the proposed alternative.

Concerns about the effect that the presence of recreation residences has on National Forest System land and fire management decisions would be alleviated slightly under this alternative. The removal of 74 residences in the Turkey Flat tract would reduce concerns about effects on fire management decisions to a limited extent. However, the permit holders in the Old Columbine tract would continue to favor protection of their assets from the effects of catastrophic wildland fire. The residences in the Old Columbine tract as well as other facilities authorized under the forest plan, such as the Mt. Graham International Observatory, the Arizona Bible Camp, electronic sites, and numerous Forest Service developed recreation facilities would continue to require consideration by the Forest Service when determining fire suppression tactics and land management decisions.

Population

No effects on the population are anticipated.

Economy

Contributions to the local economy for the 10-year closeout period would remain unchanged from the existing condition. After removal of the 74 recreation residences located in the Turkey Flat tract, the demand for services and supplies in support of recreation residence permit holders would be reduced; however, no measurable effect to employment or income is anticipated. Just over half of the Turkey Flat permit holders have permanent residences within Graham County. The spending of these families would be expected to remain within the county. Spending by the remaining permit holders would be lost from the local economy.

At the end of 10 years, permit holders in the Turkey Flat tract would be required to remove all improvements. The required removal of each recreation residence may represent the loss of a capital investment for the permit holder. Approximately 61 percent of the recreation residences were constructed in the late 1920s to the early 1940s. The remaining recreation residences were constructed during the 1950s, with a few in the 1960s (Graham County Assessor, 2006). Most of these facilities have exceeded the original design life and as such would be fully depreciated. However, many have been remodeled or updated over the years, effectively extending the original design life. Regardless, a residence still in use is of value to its owner and represents a loss if it must be demolished. The limited cash value (replacement cost less depreciation) of the residences in the Turkey Flat tract ranges from a low of $1,500 to a high of $38,000 with an overall average of approximately $13,800 (Graham County Assessor, 2006).

The removal of recreation residences at the Turkey Flat tract would be a cost borne by the Turkey Flat permit holders. The cost of removal is estimated at $3,000 per recreation residence. Removal would involve the deconstruction and removal of all buildings and foundations and reshaping of the site to return it to a natural contour. These 74 sites would then be revegetated with a native

seed mix at an estimated cost to the permit holders of $200 per site. Forest Service costs to administer the removal of improvements are estimated at $125 per site (Bennett, 2006). The removal of improvements at these sites may stimulate a small amount of short-term employment revolving around removal of structural improvements and rehabilitation activities.

Forest Service and County Revenues

Over the 10-year closeout period, Forest Service and county revenues would remain unchanged. At the end of 10 years, Forest Service revenues would decrease to approximately $8,200 annually (USDA-FS, 2006c). County property tax revenues would only be collected on the recreation residences in the Old Columbine tract and would be approximately $1,000 annually (Graham County Treasurer, 2006).

If the SRSCS is extended, there would be no effect on the amount of Federal funds paid to the county. If the SRSCS is not extended, and payment under the 25 Percent Fund Act resume, Graham County would receive annual payments of approximately $2,050 from associated permit fees in addition to 25 percent of other Forest Service revenues. Total revenue loss to the county would be approximately $17,500 annually, which would represent approximately 0.07 percent of the county 2006 budget (Arizona Tax Research Association, 2006). No adverse impact to county services would be anticipated.

Financial and Economic Present Net Value (PNV)

Table 15 displays the financial and economic PNV for alternative 4. All dollars are in constant dollars with no allowance for inflation. A 7 percent discount rate was used over a period of 20 years (2009 to 2028). Revenues are not reduced for payments made to states and counties. The alternative of issuing permits for Old Columbine only had the third highest financial and economic PNV of the alternatives evaluated in this EIS.

Table 15. Financial and economic present net value (PNV) for issuing permits for Old Columbine only (20 year planning horizon)

Value	Present Value (Thousands of Dollars)
Forest Service Revenues	$432.00
Forest Service Costs	-$156.80
Public Benefits	$1,658.80
Public Costs	-$838.70
Financial PNV	$275.20
Economic PNV	$820.10

Environmental Justice

If new permits are issued for Old Columbine only, 74 recreation residences at the Turkey Flat tract would be removed after 10 years. Western Apache concerns would be partially addressed by removal of the recreation residences at the Turkey Flat tract after 10 years. The number of residences to be removed represents 84 percent of the residences currently permitted on the mountain. Members of the tribe would continue to have access to the mountain for cultural,

religious, and ceremonial purposes. Access to the 52 acres of the Turkey Flat tract would be improved, less inhibited by the presence of private homes.

Cumulative Effects: Social and Economic Resources

No Action

For the first 10 years after a decision is made not to renew the recreation residence permits, there would be no change from the existing condition; therefore, there would be no cumulative effects during this period.

Following removal of the recreation residences, in years 11 through 20, the tracts would return to a more natural state, consistent with preservation of the Western Apache TCP. After cabin removal, resource management decisions, including those related to fire, would no longer be heavily influenced by the presence of recreational residences on NFS lands.

The Forest Service is planning the Pinaleño Ecosystem Restoration project. Consultation is currently underway with the San Carlos Apache Tribe and White Mountain Tribe to develop best management practices and appropriate treatments to begin the restoration of the Coronado NF ecosystem. Implementation of this proposal would contribute to improved habitat conditions for the Mt. Graham red squirrel and ecosystem health.

No measurable cumulative effects are expected relative to the population or the economy.

Proposed Action

With the proposed action, there would be no change from the existing condition; therefore, there would be no cumulative effects over a 20-year permit period.

In addition to the recreation residences in the Old Columbine and Turkey Flat tracts, the forest plan direction allows for the presence of numerous other permitted facilities in the area, such as the Mt. Graham International Observatory, the Arizona Bible Camp, electronic sites, and developed recreation facilities. Some individuals would continue to perceive that these facilities, incrementally with the recreation residences, adversely influence fire suppression and other land management decisions.

The Forest Service is planning the Pinaleño Ecosystem Restoration project. Consultation is currently underway with the San Carlos Apache Tribe and White Mountain Apache Tribe to develop BMPs and appropriate treatments to begin the restoration of the Coronado NF ecosystem. Implementation of this proposal would contribute to improved habitat conditions for the Mt. Graham red squirrel and ecosystem health. This project may also help to mitigate concerns for some individuals who object to current forest plan land allocations and their impact on the ecosystem.

No cumulative effects on the population or the economy are anticipated.

Issue Turkey Flat Only

For the 10-year closeout period at Old Columbine, there would be no change from the existing condition; therefore, there would be no cumulative effects over this period.

Following removal of the recreation residences in the Old Columbine tract, in years 11 through 20, the perception that Forest Service resource management decisions are influenced by the presence of private property on NFS lands would be reduced.

The Forest Service is planning the Pinaleño Ecosystem Restoration project. Consultation is currently underway with the San Carlos Apache Tribe and White Mountain Apache Tribe to develop BMPs and appropriate treatments to begin the restoration of the Coronado NF ecosystem. Implementation of this proposal would contribute to improved habitat conditions for the Mt. Graham red squirrel and ecosystem health. This project may also help to mitigate concerns for some individuals who object to current forest plan land allocations and their impact on the ecosystem.

No measurable cumulative effects are expected relative to the population or the economy.

Issue Old Columbine Only

For the 10-year closeout period, there would be no change from the existing condition at Turkey Flat; therefore, there would be no cumulative effects over this period.

Following removal of the recreation residences in the Turkey Flat tract, in years 11 through 20, the perception that Forest Service resource management decisions are influenced by the presence of private property on NFS lands would be reduced.

The Forest Service is in the process of developing the Pinaleño Ecosystem Restoration project. Consultation is currently underway with the San Carlos Apache Tribe and Western Apache Tribe to develop best management practices and appropriate treatments to begin the restoration of the Coronado NF ecosystem. Implementation of this proposal would contribute to improved habitat conditions for the Mt. Graham red squirrel and ecosystem health. This project may also help to mitigate concerns for some individuals who object to current forest plan land allocations and their impact on the ecosystem.

No measurable cumulative effects are expected relative to the population or the economy.

Wildlife Resources

Criteria that are generally used to evaluate impacts on wildlife and ecosystem sustainability include the potential for a reduction in species populations and diversity; depletion or fragmentation of plant and animal habitat; loss of threatened, endangered or other special status species; and impairment of ecological integrity, resilience or health, by such causes as disruption of food chains and alterations in predator-prey relationships.

Species Evaluated

The following discussion reports the results of an analysis of the potential for impacts to wildlife populations and habitat at and beyond the recreation residence tracts at Old Columbine and Turkey Flat. The analysis focuses on the following species having “special status”:

1. **Federally Listed Species:** those that are listed under the authority of the Endangered Species Act by the U.S. Fish and Wildlife Service (FWS) as threatened and endangered (TES), those proposed for listing as such, and areas that are designated by FWS as critical habitat in the proposed area of effect. FSM 2670.31 directs each forest to evaluate its

programs and site-specific actions to determine their potential effect on federally listed species, population viability across their ranges, and all occurrences contribute significantly to the conservation of the species. FSM 2670.32 directs that a biological evaluation be prepared to determine potential effects on species designated as "sensitive" by the Regional Forester. United States Department of Agriculture Regulation 9500-4 directs the Forest Service to avoid actions that may cause a sensitive species to become threatened or endangered (FSM 2670.12).

2. **Forest Service Sensitive (FSS) Species:** those that are listed by the Regional Forester as "sensitive" in Region 3 (USDA 1999)[15] "because there is concern for population viability across their range, and all occurrences contribute significantly to the conservation of the species." FSM 2670.32 directs that a biological evaluation be prepared to determine potential effects on species designated as "sensitive" by the Regional Forester. United States Department of Agriculture Regulation 9500-4 directs the Forest Service to avoid actions that may cause a sensitive species to become threatened or endangered (FSM 2670.12).
3. **Management Indicator Species (MIS):** Conceptually, MIS comprise a select list of species on individual forests that are representative of many other species. As such, they provide a basis for overall forest management based, in part, on the effects on these species and their habitats. National Forest Management Act (NFMA) implementing regulations (36 CFR 219.19) and Forest Service Manual (FSM) 2600 guidelines require that forest plans identify certain vertebrate and/or invertebrate species as MIS, and that these species be monitored "in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent" (FSM 2620.5).

Approach to Impacts Analysis

The Safford Ranger District biologist evaluated direct, indirect, and cumulative effects of the proposed action on TES, FSS, and MIS and documented its findings in a biological assessment and evaluation (BAE), which is filed in the NEPA project record (item 192). For the analysis, the treatment area was defined as land on which management actions would take place, while the cumulative effects analysis area was defined to include all areas where indirect effects may occur, not merely those areas in which actions would take place. The cumulative effects analysis area, unless otherwise noted, includes state and/or adjacent private land. Each determination of effect reported in the BAE represents the overall expected effect of the proposed management actions on TES species.

The BAE was compiled using, but not limited to, the following information sources:

- a review of the literature related to the ecology of TES;
- a review of the following documents: Mt. Graham Red Squirrel Recovery Plan (U.S. Fish and Wildlife Service 1993); Mexican Spotted Owl Recovery Plan (U.S. Fish and Wildlife Service 1995); Final Designation of Critical Habitat for the Mexican Spotted Owl (U.S. Fish and Wildlife Service 2004); and the forest plan (USDA-FS, 1986, as amended);
- a review of Coronado National Forest TES, FSS, and MIS species records; and

[15] This list was updated in 2007. Regional Forester direction in a memo dated September 7, 2007, was that ongoing impacts analyses for which scoping was completed should continue to use the 1999 list.

- field evaluations of habitat conditions in and adjacent to the residence tracts.

Because of the complexity of issues related to Mt. Graham, in particular, threats to the viability of the Mt. Graham red squirrel, this impacts analysis is presented as follows: (1) the presence or absence of a TES is reported for each area of potential effect; (2) general information is presented for each TES; (3) direct and indirect effects on individual TES are reported separately, followed by a Section 7, ESA, determination of effect for the area; (4) effects on Forest Service Sensitive (FSS) species and Management Indicator Species (MIS) are discussed and evaluated; and (5) cumulative effects and determinations are reported.

Endangered Species Act Consultation

Section 7 of the Endangered Species Act (ESA) of 1973 requires Federal agencies to consult with the FWS on potential impacts to listed species and habitat before a proposed action is implemented. Section 7(a)(2) requires each Federal agency, in consultation with the Secretary, Department of the Interior, to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. In fulfilling ESA requirements, each agency must use the best scientific and commercial data available. This section of the act sets out the consultation process, which is further implemented by regulation (50 CFR §402).

"Formal" consultation with FWS is mandated if impacts to a species are not expected to be discountable or insignificant. Because of this, the forest initiated formal consultation with the FWS on January 24, 2007, with the submittal of a BAE for FWS review (Project Record, Items 191 and 192). A biological opinion (BO) regarding effects on the Mt. Graham red squirrel, Mexican spotted owl, and Apache trout was received from the FWS on August 18, 2008. In the BO, the FWS concurred with the determinations made in the BAE, which are discussed in the following sections. A copy of the BO is provided in appendix C to this EIS.

Federally Listed Threatened and Endangered Species

The project encompasses approximately 25 acres of mixed conifer in the Old Columbine area, and about 52 acres in the mixed conifer and pine-oak types in the Turkey Flat area. The mixed conifer areas mainly consist of Douglas-fir (*Pseudotsuga menziesii*), southwestern white pine (*Pinus strobiformis*), and ponderosa pine (*Pinus ponderosa*). In the Old Columbine area, the mixed conifer also includes invasive nonfire-adapted species from higher elevations, such as corkbark fir (*Abies lasiocarpa* var. *arizonica*) and Engelmann spruce (*Picea engelmanii*). The pine-oak types are dominated by ponderosa pine, mixed with Gambel oak (*Quercus gambelii*) and Emory oak (*Quercus emoryi*).

Table 16 summarizes federally listed threatened and endangered species and habitat in the vicinity of both recreation residence tracts. Impacts to the jaguar, Mexican gray wolf, and bald eagle are not evaluated, because the species are not known to occur within or near either tract. Effects on the Apache trout are evaluated for the Old Columbine tract, but not Turkey Flat, because there are no streams in the latter tract.

Table 16. Federally listed threatened and endangered species occurrence and habitat in the area of the Safford Ranger District recreation residence tracts

Species (ESA Designation)	Old Columbine	Turkey Flat
Mt. Graham red squirrel (Endangered)	Occurs near the analysis area; suitable habitat available nearby; potential suitable habitat within the tract.	Occurs near the analysis area; suitable habitat available nearby, but not within the tract.
Mexican spotted owl (Threatened)	Occurs within the analysis area; suitable habitat available.	Occurs within the analysis area; suitable habitat available.
Apache trout (Threatened)	Occurs downstream of the analysis area.	Does not occur within the analysis area.
Jaguar (Endangered)	Does not occur within either analysis area.	
Mexican gray wolf (Endangered)	Does not occur within either analysis area.	
Bald Eagle (Threatened)	Does not occur within either analysis area.	

Affected Environment, Mt Graham Red Squirrel (*Tamiasciurus hudsonicus grahamensis*)

Habitat

The endangered Mt. Graham red squirrel (MGRS) is one of 25 subspecies of red squirrels in North America. Its habitat is conifer forest, especially old-growth spruce-fir, Douglas-fir and mixed conifers, and its only remaining population is found in the upper elevations of the Pinaleños Mountains. The MGRS was thought to have been extinct in the 1950s, but small numbers of squirrels were "rediscovered" in the 1970s. The squirrel was added to the Federal endangered species list in 1987 by the U.S. Fish and Wildlife Service (FWS), after the estimated population in 1986 was observed to be less than 400. Loss of MGRS habitat because of past logging, drought, insect infestations, and catastrophic fires has exacerbated the decline in population.[16]

Recreation residences at Old Columbine are located within MGRS habitat, and their continued existence precludes the restoration of natural vegetation that would comprise squirrel habitat on approximately 77 acres of forest land. In addition, the presence of humans at the recreation residences increases the probability that individual squirrels may be accidentally injured or killed.

The MGRS inhabits a narrow selection of habitats, which include high elevation areas with Douglas-fir and Engelmann spruce trees, and the transition zone comprised of Douglas-fir, corkbark fir, Engelmann spruce, southwestern white pine, and ponderosa pine. Current information on red squirrel habitat on Mt. Graham reports that approximately 11,700 acres of

[16] http://medusa.as.arizona.edu/graham/envir.html

coniferous forest are occupied (USDI-FWS, 1992, USDI-FWS, 1999). Recent studies by the Arizona Game and Fish Department (AGFD) indicate that approximately 16,680 acres of "potentially suitable" habitat exists above 7,750 feet elevation (Hatten, 2000). Of occupied habitat, approximately 2,700 acres are considered excellent or good quality (USDI-FWS, 1999). Hatten (2000) estimated as much as 27,181 acres might be suitable as red squirrel habitat, but only a portion of this is occupied.

Approximately 1,900 acres of critical habitat was designated for the MGRS in 1990 (USDI-FWS, 1990; see figure 10, MGRS critical habitat). The areas determined to be critical habitat were based upon the fact that, at the time of listing of the species, these areas "contain[ed] major concentrations of the Mt. Graham red squirrel, and the habitat necessary to its survival, including cover, food sources, nest sites, and midden sites (USDI FWS, 1990)." As such, the areas represent the highest elevations (i.e., those above 10,000 feet) in the Pinaleño Mountains, as well as slightly lower elevations on north-facing slopes, which provide the cooler, moister surroundings necessary for successful midden sites. All of the spruce-fir vegetation association is included within the boundaries of critical habitat, along with a small portion of the mixed conifer.

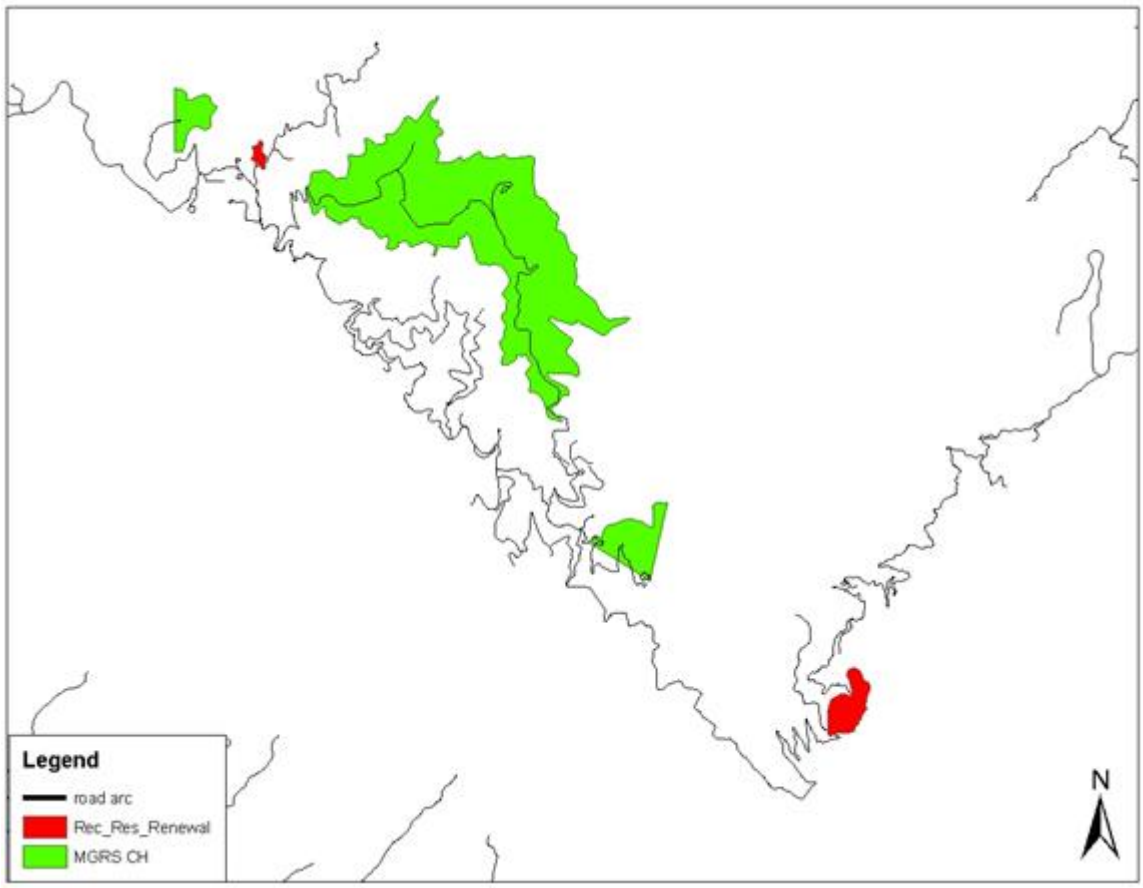
The 25-acre tract at Old Columbine comprises 0.2 percent of the 11,700 acres on Mt. Graham considered to be occupied by the MGRS (USDI-FWS, 1999), or 0.09 percent of the 27,181 acres considered to be suitable as MGRS habitat by Hatten (2000). The 52-acre Turkey Flat tract represents 0.4 percent of the area considered as occupied by the MGRS (USDI-FWS, 1999), or 0.2 percent of the area considered as suitable for occupancy by Hatten (2000). Neither recreation residence tract is located within designated critical habitat for the MGRS.

Middens

Mt. Graham red squirrels create middens, which are areas that consist of piles of cone scales in which squirrels cache additional cones and other items as an over-wintering food source. Middens are typically located in areas with high canopy closure near food sources (e.g., Douglas-fir, corkbark fir, and Engelmann spruce trees). Such placement allows specific moisture levels to be maintained within the midden, thereby creating prime storage conditions for cones and other food items such as mushrooms, acorns, and bones. The squirrel also prefers to establish middens in areas that have large snags or downed logs that provide cover and travel routes (USDI-FWS, 1993).

All known squirrel midden locations in the vicinity of the recreation residence tracts, both historical and present, were considered in this impacts analysis to ensure a conservative analysis, i.e., one favoring protection of the species. An AGFD database of all midden locations found since 1996 served as the basis for the effects analysis, and all active, inactive, and disappeared middens were considered in the analysis.

Old Columbine Tract: Several midden sites have been recorded in the past on the Old Columbine tract. According to the most recent information from AGFD, most of these are considered as having been "removed" from the database (Personal communication, Tim Snow, AGFD, with Anne Casey, Safford Ranger District, April 7, 2006). Classification as "removed" means that these middens have decomposed to the point that they no longer have any of the characteristics of active middens. That is, there is no mound of cone scales that provide an area for storing cones through the winter, no cone scales from recent feeding activities, and no signs the area has been used by a red squirrel for more than three survey periods.



Source: USDI-FWS, 1990

Figure 10. Mt. Graham red squirrel critical habitat, as designated in 1990, in relation to Safford Ranger District recreation residence tracts

Because three historic midden locations in the vicinity of the tract had not been surveyed recently, field surveys[17] were completed on June 7, 2006. Two of the three middens were found to be active, and one had disappeared. Both of the active middens were located outside the residence area, with the closest being approximately 15 feet from an outhouse on the west side of the tract.

Turkey Flat Tract: The Turkey Flat recreation residence tract lies at the edge of the mixed conifer vegetation association and leads downhill to a pine-oak association. The mixed conifer forest is generally suitable for middens mountainwide. However, near this tract, habitat is dry and warm because of its aspect and elevation, which makes it less suitable for middens. The pine-oak association at Turkey Flat is also in a hot, dry area that is not at all suitable for middens.

Prior to 2008, no middens had been found within the 52-acre Turkey Flat tract. The closest midden was located more than 450 feet away from the nearest structure at Turkey Flat (a water tank), more than 700 feet from any of the residences, and about 250 feet higher in elevation than any of the residences. However, in the summer of 2008, during tree marking for another project, the district biologist discovered an active midden on the Upper Turkey Flat recreation residence

[17] Field surveys conducted by Ms. Anne Casey, Safford Ranger District biologist, and Ms. Thetis Gamberg, FWS, Tucson.

tract. The FWS was advised of this find (see appendix C) for its consideration in formal ESA consultation regarding the MGRS.

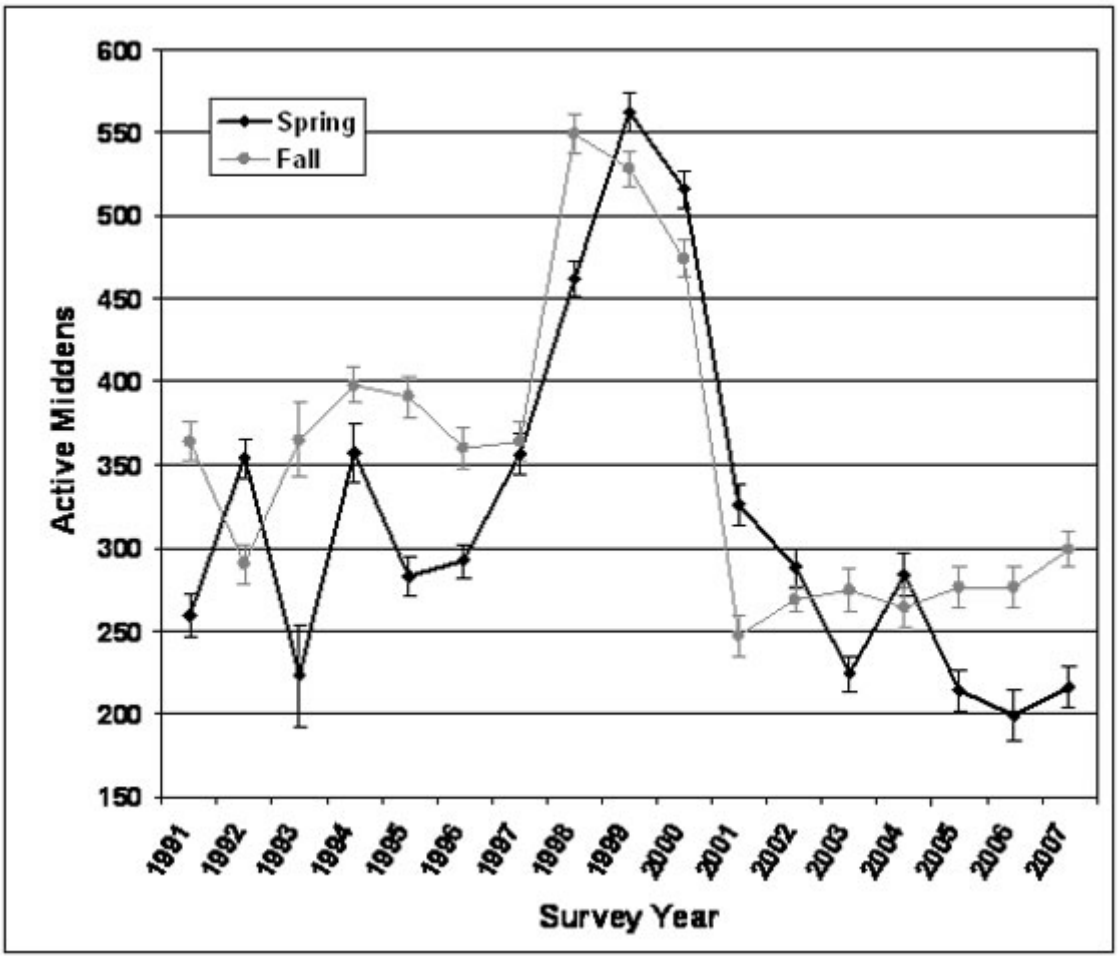


Figure 11. Population estimates for the Mt. Graham red squirrel since 1986

Population

Issues that affect both habitat and population of the MGRS include predation; tree infestation by native and exotic insects (Koprowski et al., 2005); direct mortality; the loss of habitat and middens as a consequence of catastrophic wildland fire (Koprowski et al., 2006); human disturbance; road and trail traffic; use of recreation sites (USDI-FWS, 1992); loss or reduction of food sources because of drought; and potential competition with an introduced squirrel (Abert's squirrel, *Sciurus aberti*) for food and territory (Edelman et al., 2005).

Arizona Game and Fish Department (AGFD) and the Forest Service have conducted biannual population estimates of MGRS since 1986. The spring 2004 MGRS census estimated a range of 284 (± 13) MGRS occupying the Pinaleño Mountains before the Nuttall Complex wildland fire. The fall 2004 census, conducted approximately 2 months after the Nuttall fire, reported a population estimate of 264 (± 12), showing a small decline attributed to direct mortality from the fire. A more notable decline was shown in the results of the spring 2005 census, which indicated a population size of 214 (± 12). This decline is believed to have resulted from latent indirect

effects of the Nuttall fire, such as loss of cover, loss of food caches when middens were burned, and mortality of orphaned young (Personal communication, J. Koprowski, University of Arizona, with Mt. Graham Red Squirrel Recovery Team, May 8, 2006). A rebound was shown by the fall 2005 census, which estimated 276 squirrels (± 12). However, the spring 2006 census estimated a population of 199 squirrels (± 15), almost a 10 percent decline from the previous spring count. The fall 2006 estimate rebounded to a population of 276 squirrels (± 12). In spring of 2007, the population was estimated to be 216 (± 12) squirrels, and was followed by another increase in the fall of 2007, when the population was estimated to be 299 (± 11) squirrels. The chronology of MGRS estimates of population is depicted in figure 13 (AGFD, unpublished data).

Environmental Consequences, Mt. Graham Red Squirrel

Direct and Indirect Effects, Alternative 1 – No Action

Old Columbine. Residences and improvements, such as water tanks and gas tanks, would be removed from this area in 2018, at the end of the 10-year permit closeout period. Henceforth, the natural vegetation would return in a series of successional stages, including a grassy stage, leading to a shrub stage, followed by the eventual growth of tree species. The mix of new growth would likely resemble the vegetation surrounding the recreation residence area, i.e., mostly mixed conifer.

Tree densities are quite high throughout the Pinaleño Mountains, and there are signs of density induced weaknesses, such as disease and susceptibility to insect infestation (Personal communication, Craig Wilcox, Safford Ranger District, silviculturist, with Anne Casey, Safford Ranger District, biologist, August 8, 2006; see also Gersonde and O'Hara 2005). It has been reported that decreased tree density, such as that which exists in the Old Columbine tract, may actually increase nutrients available for cone production in surrounding trees (Stoll and Schmid 1998). Given this observation, it is possible that the increased density of trees that results from eventual reforestation at Old Columbine may not benefit the MGRS because it may reduce nutrients available to surrounding trees, thereby decreasing cone production and the squirrel's food supply. If residence removal is combined with maintenance of open space on the tract, temporary short-term disturbances may be offset by long-term benefits.

Removal of residences would involve the intermittent use of noisy equipment and vehicles, ground disturbance, and human presence, all of which would temporarily disturb squirrels but would have insignificant or discountable impacts. Because of the proximity of an active midden near the outhouse, there is a possibility that removal activities could cause injury or death to a squirrel and/or any offspring present. If the outhouse is left standing, the midden would remain intact. However, the proximity of access roads and deconstruction of other buildings would continue to pose a danger to any foraging squirrel on the tract.

Turkey Flat. Considering the natural warmth and dryness on this tract, the removal of residences would not likely directly or indirectly affect the MGRS. Further, vegetation similar to that which occurs presently would be expected to re-populate this tract, and it would not be suitable as MGRS habitat.

Cumulative Effects of Alternative 1 on Mt. Graham Red Squirrel

Other developed areas across the mountain include the Arizona Bible Camp, the astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each of these areas is located within a manmade opening in the forest that is maintained by regular

removal of brush and hazard trees. All sites are within potential habitat for the red squirrel except for Ladybug, which is a dry pine-oak vegetation type.

Regular thinning and removal of brush at these additional sites continues to limit cover available for the MGRS. Also, removal of snags may decrease available nesting habitat and cache sites. In addition, occasional human presence at all sites may affect the squirrel foraging and nesting behavior.

Three vegetation thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Depending on the size of the trees thinned by these projects, a small amount of cover for squirrels would be lost. However, trees remaining in each treated stand would receive additional nutrients, which will increase tree growth rates and cone production, both of which benefit the squirrel.

If the recreation residences are removed at the two tracts, vegetation at the sites would replenish through natural succession, and eventually, new habitat for the squirrel would become available. Therefore, the no action alternative would have no adverse cumulative or additive effect with the other uses of the forest that affect squirrel habitat.

Recent wildfires on the Safford Ranger District (e.g., Clark Peak Fire and Nuttall Complex wildfire) reduced the amount of MGRS foraging and nesting habitat in areas that burned at high intensities. While initial impacts were negative, the restoration of natural ecosystem processes will benefit forest health and the MGRS in the long term as cone crops increase in size and the forest becomes better adapted to wildland fire.

Wildfire use, large wildfires, and fire suppression are known to alter the composition of overstory and understory trees that provide cover, nest sites, and food sources, either by fire damage and/or vegetation removal/cutting to create fire lines. On the other hand, fire creates a mosaic of vegetation seral stages, which releases nutrients to surrounding forested areas. Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with no action are impossible to quantify. However, in general, the damage caused by wildland fire on the two tracts, if unsuppressed, would likely be to reduce MGRS habitat by a maximum of 77 acres, or 0.3 percent of suitable habitat on the mountain. The reduction in habitat from creation of fire lines would be discountable relative to the suitable habitat of 27,181 acres estimated by Hatten (2000).

No Action – Effects Determination, MGRS

Although the occupied area within the Old Columbine tract represents an extremely small portion of potential habitat and population of the MGRS, the fact that one squirrel midden and perhaps its occupant(s) may be impacted during residence removal at Old Columbine indicates that no action "*may affect, and is likely to adversely affect*" the MGRS.

Direct and Indirect Effects, Alternative 2 – Proposed Action

Old Columbine. The MGRS using the active midden near the outhouse may be disturbed by human presence at the residences as well as other casual forest users. This midden site is in an area of unusually open canopy, and the midden and squirrel could be adversely affected by human disturbance because it lies on a slight slope and is easily accessible.

Ongoing research of the MGRS indicates that it has a lifespan of about 3 years, which allows it to breed but once (Personal communication, J. Koprowski, University of Arizona, with Mt. Graham Red Squirrel Recovery Team, May 8, 2006). Thus, when continuous use of a midden is observed, it does not always indicate that the resident squirrel is acclimated to human presence. What may happen when the microclimate is of high quality is that, when one resident is lost, another squirrel will use the midden.

Because of human presence near the active midden near the outhouse, the potential exists for accidental injury or death of a squirrel.

Turkey Flat. The MGRS in this area could potentially be disturbed by human presence and noise, but the nearby off-tract midden would not be directly impacted. Indirect effects may result from the need for fire suppression at the tract and, therefore, the inability for Forest Service fire managers to use natural ignition fires (i.e., lightning-caused fires) to burn areas that are historically adapted to fire. Overall, issuing new permits for the Turkey Flat residences is not likely to directly or indirectly affect the Mt. Graham red squirrel.

Cumulative Effects of Alternative 2 on Mt. Graham Red Squirrel

Other developed areas across the mountain include the Arizona Bible Camp, the astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each of these areas is located within a manmade opening in the forest that is maintained by regular removal of brush and hazard trees. All sites are within potential habitat for the red squirrel except for Ladybug, which is a dry pine-oak vegetation type.

Regular thinning and removal of brush at these additional sites continues to limit cover available for the MGRS. Also, removal of snags may decrease available nesting habitat and cache sites. In addition, occasional human presence at all sites may affect the squirrel foraging and nesting behavior.

Three vegetation thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Depending on the size of the trees thinned by these projects, a small amount of cover for squirrels would be lost. However, trees remaining in each treated stand would receive additional nutrients, which will increase tree growth rates and cone production, both of which benefit the squirrel.

If the recreation residence permits are issued, the vegetation cover at each tract would remain the same. Therefore, the proposed action would have no adverse cumulative or additive effect with the other uses of the forest that affect squirrel habitat.

Recent wildfires on the Safford Ranger District (e.g., Clark Peak Fire and Nuttall Complex wildfire) reduced the amount of MGRS foraging, caching, and nesting habitat in areas that burned at high intensities. While initial impacts were negative, the restoration of natural ecosystem processes will benefit forest health and the MGRS in the long term as cone crops increase in response to nutrient release and the forest becomes better adapted to wildland fire.

Wildfire use, large wildfires, and fire suppression are known to alter the composition of overstory and understory trees that provide cover, nest sites, and food sources, either by fire damage and/or vegetation removal/cutting to create fire lines. On the other hand, fire creates a mosaic of vegetation seral stages, which releases nutrients to surrounding forested areas. Because fire is a

randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the proposed action are impossible to quantify. However, in general, the damage caused by wildland fire on the two tracts, if unsuppressed, would likely be to reduce MGRS habitat by a maximum of 77 acres, or 0.3 percent of suitable habitat on the mountain. The reduction in habitat from creation of fire lines would be discountable relative to the suitable habitat of 27,181 acres estimated by Hatten (2000).

Proposed Action – Effects Determination, MGRS

Although the occupied area within the Old Columbine tract represents an extremely small percentage of potential habitat and population of the MGRS, the fact that one squirrel midden and perhaps its occupant(s) may be impacted by human presence at and near recreation residences at Old Columbine supports a finding that the proposed action "*may affect, and is likely to adversely affect*" the MGRS. The FWS concurred with this finding in a BO issued August 18, 2008. The BO assigns a "take" of two squirrels, and reports that, "…*this level of take is not likely to result in jeopardy to the species*" (see appendix C).

Alternative 3 – Renew Turkey Flat Only

Old Columbine. Direct, indirect, and cumulative effects would be the same as reported above under alternative 1.

Turkey Flat. Direct, indirect, and cumulative effects would be the same as those reported above under the text for alternative 2.

Alternative 4 – Renew Old Columbine Only

Old Columbine. Direct, indirect, and cumulative effects would be the same as those reported above under alternative 2.

Turkey Flat. Direct, indirect, and cumulative effects would be the same as those reported above under alternative 1.

Affected Environment, Mexican Spotted Owl (*Strix occidentalis lucida*)

The Mexican spotted owl (MSO) occurs throughout Arizona and New Mexico, parts of Colorado and Utah, and south into Mexico. It is one of three subspecies of spotted owls; the others are the northern (*S. o. caurina*) and the California spotted owl (*S. o. occidentalis*). The Mexican subspecies is geographically isolated from both of the others.

Mexican spotted owls roost during day and hunt at dusk and at night. They breed primarily in dense, old-growth mixed conifer forests, ponderosa pine-Gambel oak forests, and riparian forests located on steep slopes, especially in deep, shady ravines (Fletcher and Hollis, 1994). Breeding sites have high canopy closure, high basal area, many snags, and many downed logs. Owls usually nest in cavities about 80 feet up coniferous trees; however, they also use scrapes on cliff sites or abandoned platform nests. Pairs may not breed yearly. Incubation lasts from 28 to 32 days. Males feed females and young until young are 2 weeks old. Young fledge in 34 to 36 days (Arizona Game and Fish Department, 2001).

Breeding season begins in late February or March, with juveniles fledging between mid-May and mid-June (USDI-FWS, 1995). Formal nighttime callback surveys are performed four times per

year between May 1 and July 31 in each of four protected activity centers (PACs; i.e., 600-acre areas identified around nesting areas) in the Pinaleños. If owl presence is confirmed within a PAC, daytime surveys are performed to locate owl roosting and nesting sites. Owl nest sites are protected within "core areas," which are composed of 100 acres of the highest quality owl habitat surrounding the nest site.

Multistoried forest with many potential patches is desirable habitat for MSO foraging. Woodrats are the most frequently taken prey and provide most biomass. Birds, lagomorphs (rabbits), and insects are also frequently taken. In Arizona, range size for single owls averages 1,600 acres and combined home ranges occupied by pairs 2,000 acres (Arizona Game and Fish Department, 2001).

Designated Critical Habitat

Critical habitat for the MSO in the Pinaleños was designated by the FWS in August 2004 (see figure 12, MSO critical habitat). Primary habitat constituents for this subspecies include sections of spruce-fir forest, mature mixed conifer forest, pine-oak associations, riparian forests, and canyon habitats. Each of these include uneven-aged stands, snags and downed logs, canopy closure at or above 40 percent, and trees greater than or equal to 12-inch diameter at breast height (DBH), which are preferred characteristics for nesting. Owl recovery also depends upon maintenance of a diverse mosaic of habitats, including meadows and other open areas, for the owls to have foraging grounds and a diverse prey base (USDI-FWS, 2004). Protected activity centers (PACs)[18] and core areas within PACs (100-acre areas around nesting sites) were designated, based on recent protocol survey results (see figure 13, MSO PACs).

[18] PACs are 600-acre areas in which owl nesting and foraging activities are focused

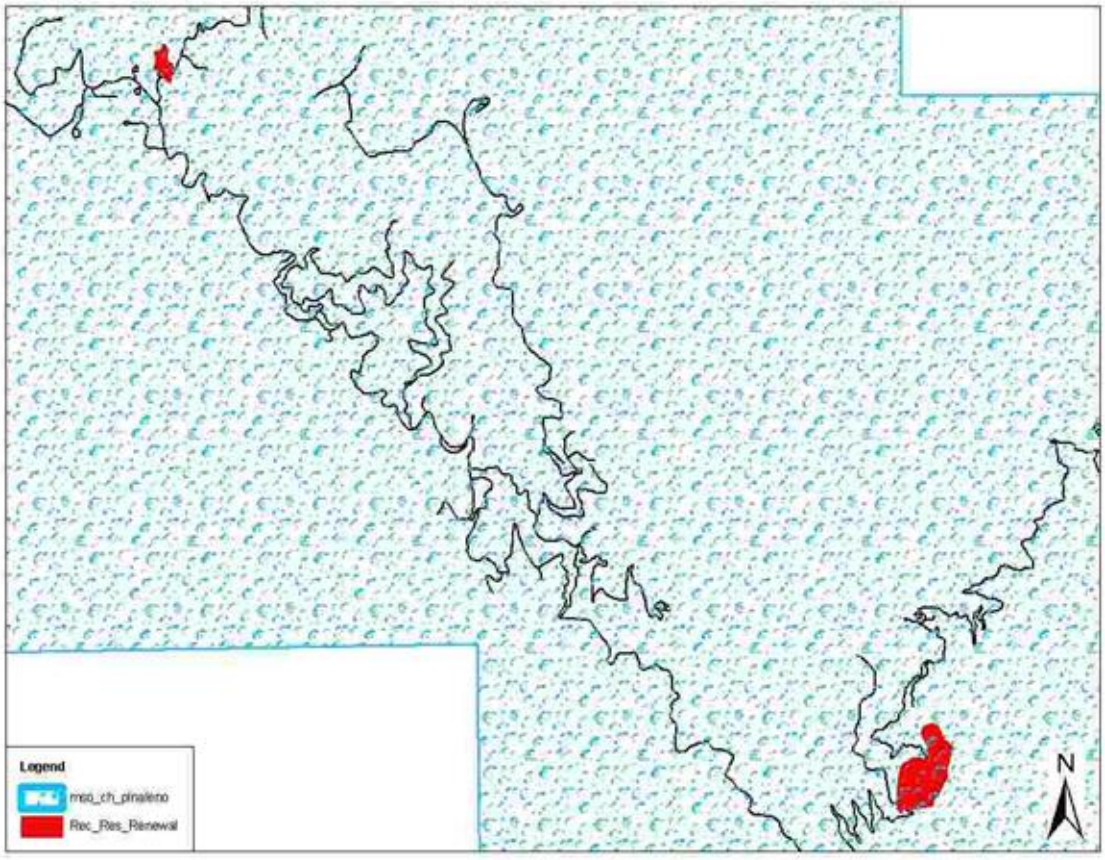


Figure 12. Mexican spotted owl critical habitat on the Safford Ranger District relative to the recreation residence tracts

Old Columbine

The 25-acre Old Columbine tract is not within a PAC and comprises 0.02 percent of the critical habitat available for the MSO in the Pinaleño Mountains. In 2005, ESA consultation addressed the potential impacts of vegetation thinning on 8 acres at the southern portion of the tract (Consultation No. AESO/SE 02-21-05-I-0818). The FWS determined that these 8 acres would be exempted from critical habitat status.

The other 17 acres of the tract, which comprise 0.015 percent of MSO critical habitat, consist of a mix of small meadows interspersed with recreation residences and pockets of mixed conifer vegetation of varying density. Primary constituent elements of critical MSO habitat exist in the northern portion of the tract, including the vegetation association, uneven-aged stand structure, high canopy closure, presence of downed logs, and a large number of trees greater than 12 inches DBH. Vegetation on the eastern and southeastern portions was treated recently by the removal of trees less than 9-inches DBH and pile burning. Logs and snags over 9-inches DBH were retained. Wind-throw and insect infestations have opened the canopy. With regard to primary constituent elements, this area supports a few trees greater than 12-inches DBH, but canopy cover is fairly low, and there is little downed woody material. The western and southern parts of the tract contain a large meadow and several recreation residences that are surrounded by forest, with

many trees greater than 12-inches DBH, and high canopy closure. There is a small amount of downed woody material available in this area.

A water tank at Old Columbine is located approximately 500 feet from the nearest core area in the Grant Vista PAC[19]. This core area has been surveyed 8 times in the last 13 years. While surveys confirmed the presence of a single adult owl each time, there has never been confirmation of a pair or offspring. It is possible this area actually represents lower quality habitat used by satellite animals rather than breeding pairs.

The core area of the Mill Site PAC has been surveyed 8 times over the past 13 years, and no nest sites were found. However, the Mill Site PAC was occupied by a pair during seven seasons, and offspring were confirmed twice.

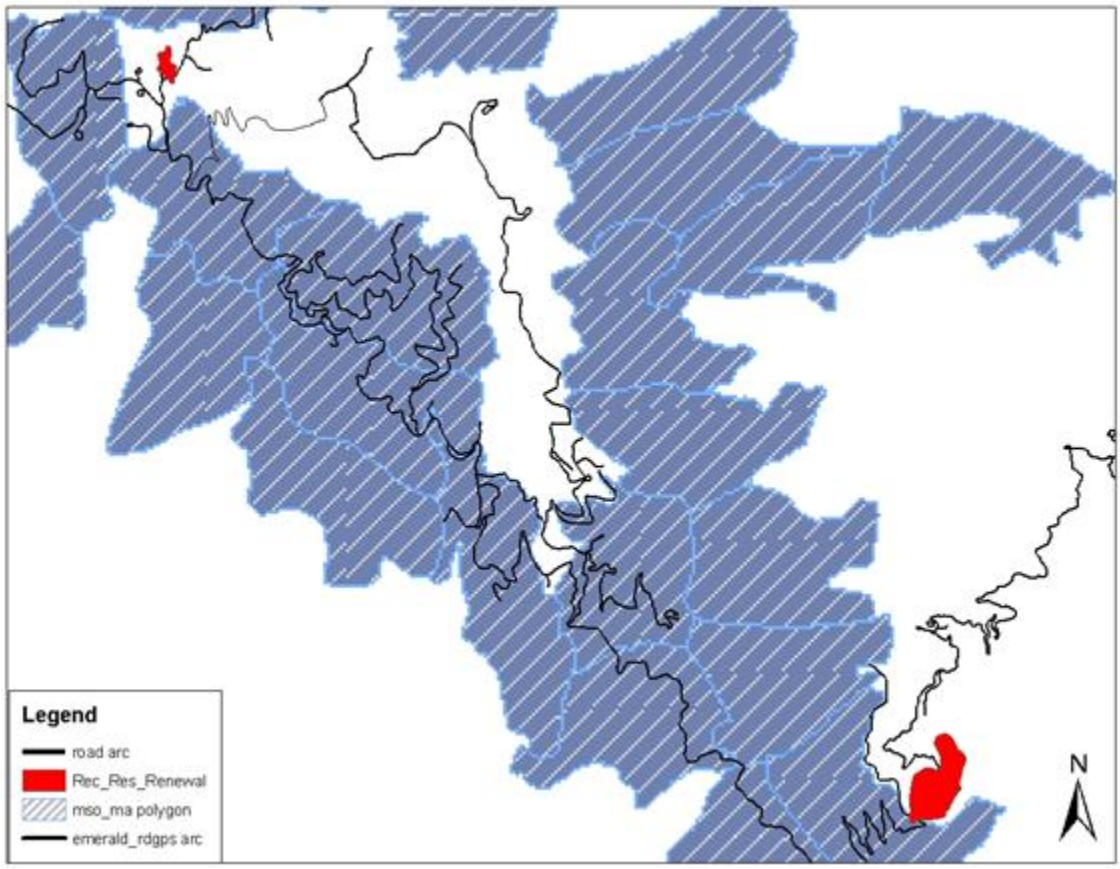


Figure 13. Mexican spotted owl protected activity centers (PACs) on the Safford Ranger District relative to recreation residence tracts

[19] Locations of PACs and core areas are not specifically identified to protect owls and nest sites.

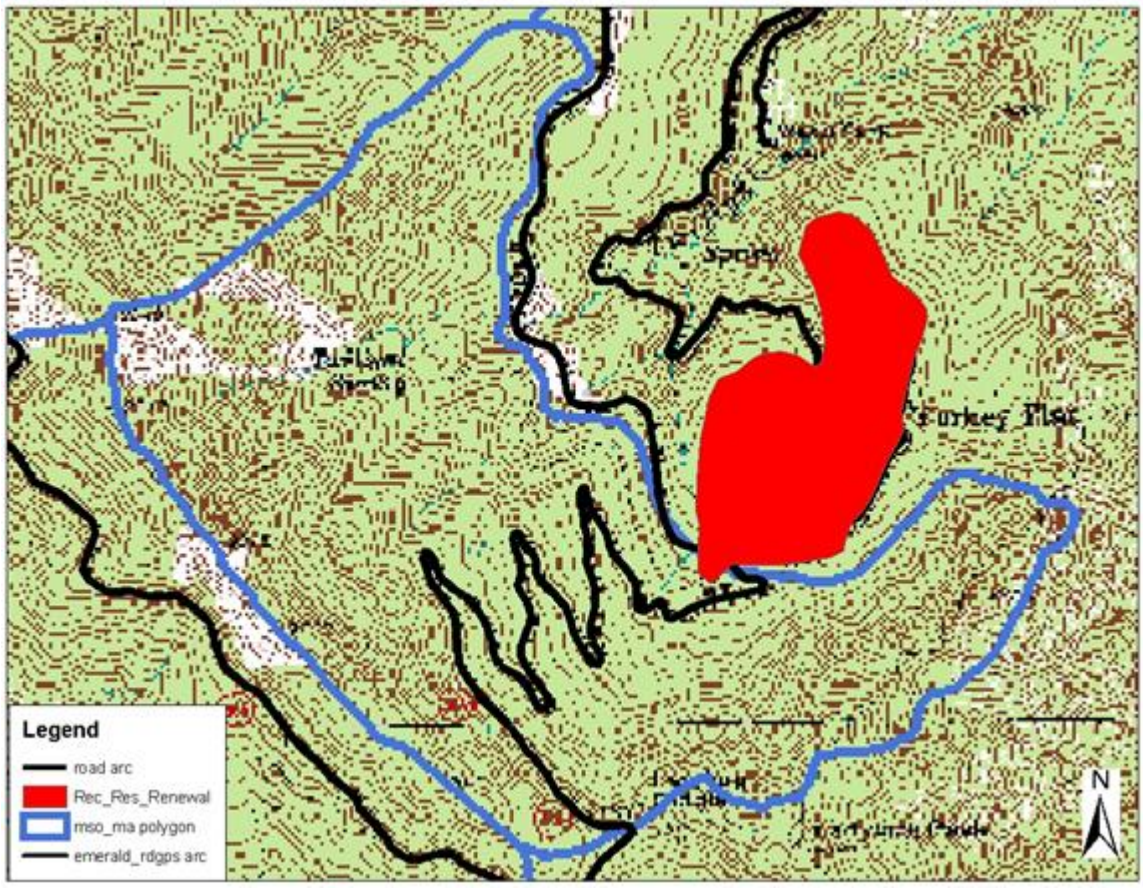


Figure 14. Mexican spotted owl protected activity centers (PACs) relative to the Turkey Flat recreation residence tract on the Safford Ranger District

Turkey Flat

The Turkey Flat tract consists of 52 acres of land which comprise 0.05 percent of the critical habitat available for MSO in the Pinaleño Mountains. In 2005, ESA consultation was completed with the FWS (Consultation No. AESO/SE 02-21-05-I-0818) regarding potential impacts of vegetation thinning on MSO critical habitat on about two-thirds of this area (approximately 35 acres). The FWS determined that the 35-acre treatment area would be considered exempt from critical habitat status. The remaining 17 acres comprise 0.02 percent of critical habitat available to the MSO on the tract.

Two acres of the Turkey Flat tract are designated MSO critical habitat and comprise 0.3 percent of the Turkey Flat PACs (see figure 14, Turkey Flat MSO PACs). They are located around a water tank that supplies the recreation residences and include a small (less than 0.5 acre) open area that leads to the water tank. The area supports some of the primary constituent elements for MSO habitat, including the pine-oak association, uneven-aged stand structure, and canopy cover greater than 40 percent. It could be considered foraging habitat for MSO, although the size of trees in the immediate area (most trees have a DBH less than 10 inches) would likely not provide nesting habitat.

The area around the Turkey Flat residences would likely provide good foraging habitat, however, nests have not been found there. Better nesting habitat is more likely to occur in the mixed conifer areas of the mountain. The Turkey Flat PAC has been surveyed 12 times since 1990 and has been considered occupied all but one time that it was surveyed.

The distance from the Turkey Flat tract to the nearest core area is approximately 1,000 feet, and the distance from the Turkey Flat water tank to the nearest known nest is 2,470 feet. A trail near the Twilight Spring area is more than 600 feet away from the nest.

Environmental Consequences, Mexican Spotted Owl

Alternative 1 – No Action, Direct and Indirect Effects

Old Columbine. During the removal phase, noise from equipment, ground disturbance, and human presence would occur intermittently for several months. Although no breeding birds have been reported in recent surveys, removal activities would be restricted during MSO breeding season.

Following removal of residences and other improvements, such as water tanks and gas tanks, and the closure of access roads, nesting may occur in this area. However, it would take approximately 60 to 80 years for the forest canopy to close sufficiently to become suitable MSO breeding habitat. In the long term, increases in primary constituent elements, such as increased number of large trees, accumulation of downed woody material, and increased canopy cover would be expected as natural succession occurs.

While a future increase in the number of trees on the tract may provide new roosting sites, it may correspondingly decrease the mosaic of small mammal (prey) habitat available. Only a few studies have reported the effects of a decrease in forest openings on populations of small mammals[20]. The analysis in this EIS assumes that, if the creation of openings and other diversity in wildlife habitat causes an increase in small mammal species diversity and abundance, then the reduction in the diversity of wildlife habitats would cause a reduction in diversity and abundance. After residences are removed, wildland fire may be used for resource enhancement. Fire would help retain a mosaic of small mammal habitat.

Turkey Flat. This site is dry and flat, which may account for its open vegetation structure. Revegetation may provide additional trees for roosting, although alteration of the mosaic of small mammal habitat onsite may adversely affect the prey base of the MSO (Waters and Zabel 1998). Again, it should be noted that there is very little research on the effects on small mammals that are induced by the removal of forest openings.

Following removal of residences and improvements, nesting may occur in this area. However, it would take approximately 60 to 80 years for the forest canopy to close sufficiently to become suitable MSO breeding habitat. In the long term, increases in primary constituent elements, such as increased number of large trees, accumulation of downed woody material, and increased canopy cover would be expected as natural succession occurs. After residences are removed, wildland fire may be used for resource enhancement. Fire would help retain a mosaic of MSO prey habitat on the tract.

[20] Ecke et al. 2002, Fisher and Wilkinson 2005, Tews et al. 2004, Waters and Zabel 1998,Wilcove et al. 1986; for a more complete discussion of landscape ecology and community dynamics, see Turner et al. 2001 or Garrett and Peles 1999.

Cumulative Effects

Other developed areas across the mountain include the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each of these areas is located within a manmade opening in the forest that is maintained by regular removal of brush and hazard trees. Regular thinning and removal of brush at these additional sites continues to limit cover available for MSO prey species. However, an increase in the mosaic of available habitat can also stimulate increased diversity of prey species, which can benefit the MSO. Removal of snags may decrease available nesting habitat. Occasional human presence can also affect the MSO foraging and nesting behavior.

Three vegetation thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. NatureServe (2005) has recommended that initial steps for the recovery of the MSO subspecies focus on removal of wildfire threats and avoiding even-aged stand management practices. Depending on the size of the trees thinned by these projects, a small amount of cover for MSO prey species would be lost. However, trees remaining in each stand would receive additional nutrients, which will increase tree growth rates and cover, which should lead to increased availability and increased quality of MSO habitat in the future.

If the recreation residence permits are issued, the vegetation cover at each tract would remain the same. Therefore, the proposed action would have no adverse cumulative or additive effect with the other uses of the forest that affect MSO habitat.

Recent wildfires on the Safford Ranger District (e.g., Clark Peak Fire and Nuttall Complex wildfire) reduced the amount of MSO foraging and nesting habitat in areas that burned at high intensities. While initial impacts were negative, the restoration of natural ecosystem processes will benefit forest health and the MSO in the long term as foraging habitat for its prey increases with a mosaic of vegetation associations and seral stages and the forest becomes better adapted to wildland fire.

Wildfire use, large wildfires, and fire suppression are known to alter the composition of overstory and understory trees that provide cover, nest sites, and food sources, either by fire damage and/or vegetation removal/cutting to create fire lines. On the other hand, fire stimulates grass, forb, and shrub growth and creates a mosaic of vegetation seral stages, which may encourage increased diversity of MSO prey species.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the proposed action are impossible to quantify. However, in general, the damage caused by wildland fire on the two tracts, if unsuppressed, would likely be to reduce MSO habitat by a maximum of 77 acres. Lost habitat from creation of fire lines would be discountable.

If the recreation residences are removed at the two tracts, vegetation at the sites would replenish through natural succession, and eventually, new habitat for the MSO may become available. Therefore, the no action alternative would have no adverse cumulative or additive effect with the other uses of the forest that affect MSO habitat.

No Action – Effects Determination, MSO

Based on the above analysis, it was determined that removal of the recreation residences at both Old Columbine and Turkey Flat "*may affect, but is not likely to adversely affect*" the MSO. It is also likely that the removal of recreation residences would benefit MSO habitat in the long term.

Alternative 2 – Proposed Action, Direct and Indirect Effects

Old Columbine. If permits are issued, human presence and noise may continue to disturb the MSO. However, given its nocturnal foraging behavior, effects are expected to be discountable. Manmade openings (e.g., wood piles, grassy areas, shrubs near the edge of denser forest, and closed canopy areas) would continue to enhance the diversity of MSO prey species by offering a diversity of habitat. Openings also provide a release of nutrients to nearby trees, which may provide additional food sources for prey species.

If permits are issued and the tract continues to be occupied for another 20 years, there would be little change in vegetative cover. Therefore, changes in primary constituent elements of MSO critical habitat would not be expected.

Turkey Flat. If permits are issued, human presence and noise would continue to disturb the MSO. However, given its nocturnal foraging behavior, effects are expected to be discountable. As this tract is fairly open and flat, nest sites are unlikely to be widely available (FWS 1995). Manmade openings (e.g., wood piles, grassy areas, shrubs near the edge of denser forest, and closed canopy areas) would continue to enhance the diversity of MSO prey species by offering a diversity of habitat. Openings also provide a release of nutrients to nearby trees, which may provide additional food sources for prey species.

No changes in vegetation would take place in the Turkey Flat area under this alternative; as a result, no changes in primary constituent elements of critical habitat would be expected.

Occasional increased occupancy of the residences may slightly increase hiking in the general area, but there are several natural features that limit the impacts that hiking may have on the MSO and its habitat. Because of the steep terrain that surrounds the flat area of the Turkey Flat tract, hikers would likely stay on the trail rather than walk in the direction of the documented nest site. In addition, because of the heavy cover in the upper portion of Turkey Flat, it is unlikely that hikers would notice a nest and be so curious as to approach it and investigate.

Cumulative Effects

Hiking. A concern was raised during the scoping of this NEPA review about the potential cumulative effects on nesting MSOs caused by forest users who hike near the residence tracts. These concerns may have arisen from research conducted by Swarthout and Steidl (2003), which concluded that the cumulative effects of high levels of short duration recreation hiking near nests may be detrimental to MSO. In an earlier research paper, it was recommended a 72-foot buffer be established around nests documented along heavily used trails (Swarthout and Steidl 2001).

Because the number of recreation residences would remain the same, there is no expectation that total visitors to the tracts would significantly increase in the future. Use is expected within the Old Columbine tract a total of 50 to 60 days per year, and 30 to 40 days per year in the Turkey Flat tract (See chapter 3, "Recreation" section).

Summer use of the recreation residence areas is generally light; however, residence owners occasionally have family gatherings of approximately 50 people, sometimes as frequently as 10 times between April and November annually. Each gathering typically lasts no more than a day, with occasional higher than normal occupancy for a 3-day weekend. Most users remain within the recreation residence tracts. However, some will hike during these gatherings. More than 90 percent of those who hike will use existing trails (Personal communication, Sharon Wallace, zone recreation specialist, with Anne Casey, Safford Ranger District, July 18, 2007).

A hiking trail from Old Columbine to the Webb Peak area does not lead to a core area. The Ash Creek Trail from the Old Columbine tract parallels the length of the Mill Site PAC, but remains over 250 feet away from the core area, which was determined based on historical sightings and aerial photos of vegetation in the PAC. Because of the steepness of this trail, its use in areas over 1 mile from the residences is generally low (less than 20 people per day during the highest traffic) (Personal communication, Sharon Wallace, zone recreation specialist, with Anne Casey, Safford Ranger District, July 18, 2007). Dense cover in this area makes it unlikely that hikers would spot a nest and approach to investigate.

Other Activities. Other developed areas across the mountain include the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each of these areas is located within a manmade opening in the forest that is maintained by regular removal of brush and hazard trees. Regular thinning and removal of brush at these additional sites continues to limit cover available for MSO prey species. However, an increase in the mosaic of available habitat can also stimulate increased diversity of prey species, which can benefit the MSO. Removal of snags may decrease available nesting habitat. Occasional human presence at all sites may also affect the MSO foraging and nesting behavior.

Three vegetation thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. NatureServe (2005) has recommended that initial steps for the recovery of the MSO subspecies focus on removal of wildfire threats and avoiding even-aged stand management practices. Depending on the size of the trees thinned by these projects, a small amount of cover for MSO prey species would be lost. However, trees remaining in each stand would receive additional nutrients, which will increase tree growth rates and cover, which should lead to increased availability and increased quality of MSO habitat in the future.

If the recreation residence permits are issued, the vegetation cover at each tract would remain the same. Therefore, the proposed action would have no adverse cumulative or additive effect with the other uses of the forest that affect MSO habitat.

Recent wildfires on the Safford Ranger District (e.g., Clark Peak Fire and Nuttall Complex wildfire) reduced the amount of MSO foraging and nesting habitat in areas that burned at high intensities. While initial impacts were negative, the restoration of natural ecosystem processes will benefit forest health and the MSO in the long term as foraging habitat for its prey increases with a mosaic of vegetation associations and seral stages and the forest becomes better adapted to wildland fire.

Wildfire use, large wildfires, and fire suppression are known to alter the composition of overstory and understory trees that provide cover, nest sites, and food sources, either by fire damage and/or vegetation removal/cutting to create fire lines. On the other hand, fire stimulates grass, forb, and

shrub growth and creates a mosaic of vegetation seral stages, which may encourage increased diversity of MSO prey species.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the proposed action are impossible to quantify. However, in general, the damage caused by wildland fire on the two recreation residence tracts, if unsuppressed, would likely be to reduce MSO habitat by a maximum of 77 acres. Lost habitat from creation of fire lines would be discountable.

Proposed Action – Effects Determination, MSO

Based on the above analysis, it was determined that issuing of the residence permits for both Old Columbine and Turkey Flat tracts "*may affect, but is not likely to adversely affect*" the MSO. Renewal of the permits would result in discountable changes in vegetation of the tracts and, therefore, would not result in loss of any existing primary constituent elements of critical habitat. For this reason, permit renewal would have "*no effect*" on MSO critical habitat.

Alternative 3 – Renew Turkey Flat Only

Old Columbine. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 1.

Turkey Flat. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 2.

Alternative 4 – Renew Old Columbine Only

Old Columbine. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 2.

Turkey Flat. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 1.

Affected Environment, Apache trout (*Oncorhyncus apache*)

This fish species is golden-yellow or olive yellow, with a golden belly. Spotting pattern is an even distribution of pronounced, moderate-sized, rounded or oval black spots on the sides of the body and on top of the head. The adipose fin is usually bordered with black. The dorsal, pelvic, and anal fins are tipped with a white to orange color, and an orange to yellow cutthroat mark is present under the jaw. A diploid number of 56 chromosomes and an arm number of 106 in both Apache trout and Gila trout differentiate the species from all other western trout (Minckley, 1973; Behnke, 1992).

Within the Pinaleño Mountains, Apache trout are found in Grant and Ash Creeks. Ash Creek drainage runs through the Old Columbine recreation residence site and proceeds downhill; trout occur approximately 3 miles downstream. There is no habitat for the Apache trout on the Turkey Flat tract.

This trout prefers cool, clear, high elevation streams and rivers. It tends to be restricted to elevations of approximately 5,780 feet and higher. Woody streamside vegetation is dominated by fir and pine species, quaking aspen *(Populus tremuloide*s), willow *(Salix* spp.), and Arizona alder

*(Alnus oblongifoli*a) (Harper 1978). Some fish found in Grant and Ash Creeks are known hybrids of Apache and rainbow trout. For this reason, the population of these fish within the Pinaleño Mountains is considered nonessential to the recovery of the species. At the time of writing, no population estimates are available (Personal communication, Scott Gurtin, AGFD, with Anne Casey, Safford Ranger District, August 23, 2004).

Spawning occurs from March through mid-June, varying with elevation. Maturity was found to occur in 3 years at a size of approximately 13 centimeters (5.1 inches). Fecundity increases with size of fish. Fry hatch in 30 days and emerge from redds (spawning nests) after another 30 days, then exhibit nocturnal downstream movements (Harper, 1978; Rinne, 1990).

Environmental Consequences, Apache Trout

Adverse impacts to Apache trout can occur when copious amounts of runoff degrade water quality by introducing sediment and pollutants. Significant concentrations of introduced sediment and pollutants may result in direct effects that cause injury or death, and indirect effects on aquatic flora and fauna that comprise food sources for the species.

Alternative 1 – No Action, Direct and Indirect Effects

Old Columbine. Direct and indirect effects on Apache trout are not expected if no action is taken, despite the fact that removal of improvements may include ground-disturbing activities by heavy equipment and vehicles. To minimize erosion and runoff to Ash Creek, the forest would require permit holders to implement best management practices that are specified in FSH 2509.22. A grassy patch in the center of the tract would provide a ready source of seeds to begin replenishment of site cover and minimize future runoff to Ash Creek.

Apache trout in Grant and Ash Creek are known to have hybridized with introduced rainbow trout, and as such, are not suitable for use in reintroduction or for recovery of the species.

Cumulative Effects

Other developed areas across the mountain include the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each of these areas is located within a manmade opening in the forest that is maintained by regular removal of brush and hazard trees. The Heliograph and Ladybug sites are not within watersheds that support Apache trout habitat.

Grasses, shrubs and trees at these sites minimize erosion to the watershed and runoff to streams that support Apache trout. Except for post-fire runoff, there is no evidence that erosion from these areas has adversely affected the Apache trout. Recent wildfires on the Safford Ranger District (e.g., Clark Peak Fire and Nuttall Complex wildfire) reduced the amount of vegetation present and generated large quantities of ash that deposited in watersheds occupied by Apache trout. On the other hand, these fires have created a mosaic of vegetation seral stages, which improve watershed conditions in the long term, by increasing infiltration of water, decreasing overland erosion, and decreasing sheeting.

Three vegetation thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Restoration of frequent, low-intensity fires will reduce the

probability of the occurrence of a high-intensity fire and the consequent erosion and runoff it generates. This will, in turn, improve the quality of waters occupied by Apache trout.

If the recreation residences are removed at the two tracts, vegetation at the sites would replenish through natural succession. Increased ground cover would reduce the degree of erosion from each tract. Best management practices would be followed during the removal phase of the project in order to prevent immediate erosion events. Therefore, the no action alternative would have no adverse cumulative or additive effect with the other uses of the forest that may affect Apache trout.

No Action – Effects Determination, Apache Trout

The removal of recreation residences at the Old Columbine tract "*may affect, but is not likely to adversely affect*" the Apache trout. There is no habitat for Apache trout at Turkey Flat; therefore, there would be "*no effect*" on the species at this location.

Alternative 2 – Proposed Action, Direct and Indirect Effects

Old Columbine. The recreation residences on this tract currently use water originating in Columbine Spring. This use would continue with the issuing of the permits. Currently, there is no evidence that Apache trout is adversely affected in any way by this use. These fish are also known to have hybridized with introduced rainbow trout, and as such, are not suitable for use in reintroduction or for recovery of the species.

No additional runoff or sediment deposit in streams would result from the issuing of new permits, because no ground-disturbing activities would occur. The dirt roads leading into and around the recreation residences would continue to be a source of runoff into Ash Creek during heavy precipitation. However, there is no current evidence that runoff is adversely affecting the Apache trout downstream.

Cumulative Effects

Other developed areas across the mountain include the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each of these areas is located within a manmade opening in the forest that is maintained by regular removal of brush and hazard trees. The Heliograph and Ladybug sites are not within watersheds that support Apache trout habitat.

Grasses, shrubs and trees at these sites minimize erosion to the watershed and runoff to streams that support Apache trout. Except for post-fire runoff, there is no evidence that erosion from these areas has adversely affected the Apache trout. Recent wildfires on the Safford Ranger District (e.g., Clark Peak Fire and Nuttall Complex wildfire) reduced the amount of vegetation present and generated large quantities of ash that deposited in watersheds occupied by Apache trout. On the other hand, these fires have created a mosaic of vegetation seral stages, which improve watershed conditions in the long term, by increasing infiltration of water, decreasing overland erosion, and decreasing sheeting.

Three vegetation thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Restoration of frequent, low-intensity fires will reduce the

probability of the occurrence of a high-intensity fire and the consequent erosion and runoff it generates. This will, in turn, improve the quality of waters occupied by Apache trout.

If the recreation residence permits are issued, the vegetation cover at each tract would remain the same. Therefore, the proposed action would have no adverse cumulative or additive effects of the other uses of the forest that affect Apache trout habitat.

Proposed Action – Effects Determination, Apache Trout

Issuing new permits for residences on the Old Columbine tract "*may affect, but is not likely to adversely affect*" the Apache trout. There is no habitat for Apache trout at Turkey Flat; therefore, issuing the residence permits would have "*no effect*" on the species.

Alternative 3 – Renew Turkey Flat Only

Old Columbine. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 1.

Turkey Flat. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 2.

Alternative 4 – Renew Old Columbine Only

Old Columbine. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 2.

Turkey Flat. Direct, indirect, and cumulative effects would be the same as those reported above for alternative 1.

Forest Service Sensitive Species

Species Evaluated

Populations of each species designated by the Regional Forester as Forest Service sensitive (FSS) must be maintained at viable levels in habitats distributed throughout their geographic range on National Forest System lands (FSM 2670.22). The population viability of FSS species becomes a concern when downward trends in populations or habitat capability are predicted. When the Forest Service undertakes or approves an activity on National Forest System lands, the Agency seeks to avoid or minimize impacts to FSS.

Table 17 lists the status of FSS on the Coronado, based on the FSS species listed by the Southwestern Regional Forester in 1999[21]. White text below indicates species for which impacts are evaluated in this EIS.

[21] The FSS species list was updated on September 7, 2007. Region 3 issued accompanying guidance that "NEPA analyses for projects that have been through the scoping process and where issues have been identified are not required to utilize the revised list of sensitive species." Thus, the analysis in this EIS is based on the July 21, 1999, Regional Forester list of FSS species.

Table 17. Habitat and occurrence of Forest Service Sensitive Species at recreation residence tracts on the Safford Ranger District

Species Name	Turkey Flat Recreation Residence Area	Columbine Recreation Residence Area
MAMMALS		
White-bellied long-tailed vole	Occurs within the analysis area; suitable habitat available.	Occurs within the analysis area; suitable habitat available.
Pinaleño pocket gopher	Not within the analysis area.	Occurs within the analysis area; suitable habitat available.
BIRDS		
Apache northern goshawk	Foraging habitat available.	Foraging habitat available.
Peregrine falcon	Foraging habitat available.	Foraging habitat available.
Common black-hawk	Not within the analysis area.	Not within the analysis area.
Flammulated owl	Occurs within the analysis area; suitable habitat available.	Occurs within the analysis area; suitable habitat available.
Gould's wild turkey	Occurs within the analysis area; suitable habitat available.	Occurs within the analysis area; suitable habitat available.
AMPHIBIANS		
Lowland leopard frog	Not within the analysis area.	Not within the analysis area.
INVERTEBRATES		
Pinaleño monkeygrasshopper	Not within the analysis area.	Occurs within the analysis area; suitable habitat available.
A tiger beetle (*Amblycheila baroni*)	Not within the analysis area.	Not within the analysis area.
Aryxna giant skipper	Not within the analysis area.	Not within the analysis area.
Obsolete viceroy	Not within the analysis area.	Not within the analysis area.
Chiricahua white butterfly	Occurs within analysis area; suitable habitat available.	Occurs within the analysis area; suitable habitat available.
A tiger Beetle (*Cicindela purpurea cimerrona*)	Occurs within the analysis area; suitable habitat available.	Occurs within the analysis area; suitable habitat available.
Clark Peak talussnail	Not within the analysis area.	Not within the analysis area.
Mimic talussnail	Occurs within the analysis area; suitable habitat available.	Not within the analysis area.
Pinaleño talussnail	Not within the analysis area.	Not within the analysis area.
Wet Canyon talussnail	Not within the analysis area.	Not within the analysis area.

Species Name	Turkey Flat Recreation Residence Area	Columbine Recreation Residence Area
Pinaleño mountainsnail	Not within the analysis area.	Not within the analysis area.
PLANTS		
Chiricahua dock	Not within the analysis area.	Not within the analysis area.
Coppermine milk vetch	Occurs within the analysis area; suitable habitat available.	Not within the analysis area.
Mock pennyroyal	Occurs within the analysis area; suitable habitat available.	Not within the analysis area.
Arizona alum root	Occurs within the analysis area; suitable habitat available.	Not within the analysis area.
Bigelow thoroughwort	Not within the analysis area.	Occur within the analysis area; suitable habitat available.
Arizona giant sedge	Not within the analysis area.	Not within the analysis area.
Broad leaf ground cherry	Not within the analysis area.	Not within the analysis area.
Chihuahuan sedge	Not within the analysis area.	Not within the analysis area.
Chihuahuan stickseed	Occurs within the analysis area; suitable habitat available.	Not within the analysis area.
Mexican broomspurge	Not within the analysis area.	Not within the analysis area.
Superb beardtongue	Not within the analysis area.	Not within the analysis area.
Pinaleño Jacob's ladder	Not within the analysis area.	Occurs within the analysis area; suitable habitat available.
Rusby hawkweed	Not within the analysis area.	Occurs within the analysis area; suitable habitat available.
White-flowered cinquefoil	Occurs within the analysis area; suitable habitat available.	Occurs within the analysis area; suitable habitat available.
Trans-Pecos Indian paintbrush	Not within the analysis area.	Not within the analysis area.

Environmental Consequences, White-bellied Long-tailed Vole (*Microtus longicaudus leucophaeus*)

The white-bellied long-tailed vole occupies high elevation (6,000 to 10,500 feet), grassy meadows, flats, areas along boggy stream bottoms and roadsides, cienegas[22], and openings in coniferous forest. It builds runways through thick grass and steep slopes with bunchgrasses to provide easy access from its burrows to grassy food supplies, extending them under snow in

[22] A perennially wet area supported by a spring or other water source, also called "wetland," "marsh," or "swamp."

winter. Nests of grass are built within the burrows, and burrow openings (about 2 inches in diameter) are found near logs, stumps, and clumps of vegetation (AGFD 2003).

This vole is active during the day and throughout the winter. At times, it is semi-aquatic. Grasses and green, succulent vegetation are primary components of its diet. It also eats grass seeds, the bark of willows and alders, roots and fungi. Owls (barn, great-horned, long-eared and short-eared), prairie falcons, weasels and martens are its known predators (AGFD 2003).

This subspecies occurs only in the Pinaleño Mountains; the current population appears to be stable. This vole is considered common in appropriate habitat (AGFD 2003). It occurs on both residence tracts.

No Action

With no action, meadow habitat may be lost as natural succession leads to a thickening of the shrub understory and eventual tree growth, the latter of which would increase canopy closure. Loss of open areas may make the tracts less suitable as vole habitat. However, there are several other meadows in the Pinaleños that provide excellent habitat for this species, including Hospital Flat, Chesley Flat, Peters Flat, and an area south of the Columbine administrative site. In addition to these established meadows, many smaller meadows and forest openings were created by recent wildland fires on the district. Given the availability of other vole habitat in the vicinity, the loss of less than 77 acres of vole habitat due to natural succession would not result in a trend toward Federal listing or loss of viability of the vole.

Proposed Action

If permits are issued for the tracts, onsite vegetation and human presence would remain the same. Habitat and population of the vole would not be changed by the proposed action.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest that is maintained by periodic removal of brush and hazard trees. This maintenance makes additional pockets of habitat available for these voles. In the long term, these pockets serve to improve the survival rate of the subspecies by dispersing its population over a broad area, which, in turn, makes individuals less susceptible to mortality from large wildland fires or other random events.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Thinning in the vicinity of the Turkey Flat tract may create new pockets of habitat for the vole.

Wildland fire and fire suppression can cause localized mortality of voles. On the other hand, although fire damages and destroys trees, this damage opens pockets of vole habitat. Wildland fire use and wildland fires also encourage regeneration of grasses and other plants that serve as a food source for voles.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex wildland fire) decreased vole habitat in areas that burned at high intensity. In moderately burned areas, the reintroduction of fire as a natural process may promote more sustainable forest conditions and improve vole habitat in the long term.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or the proposed action are impossible to quantify. However, in general, damage caused by wildland fire on the two tracts, if unsuppressed, could reduce vole habitat by 77 acres.

If the recreation residences are removed at the two tracts, vegetation at the sites would replenish through natural succession and eventually close existing pockets of vole habitat. Because other reasonably foreseeable actions on the mountain would have no adverse impacts to the vole and may actually improve vole habitat, the additive effects from no action would be offset. There would be no trend toward Federal listing or loss of viability of the species.

If the permits for the recreation residences are issued, the vegetation that comprises vole habitat would remain the same. Therefore, cumulative impacts from the proposed action would be discountable. There would be no trend toward Federal listing or loss of viability of the species.

Environmental Consequences, Pinaleño Pocket Gopher (*Thomomys umbrinus grahamensis*)

This pocket gopher, which inhabits alpine meadows and cienegas within coniferous forests from 6,000 to 10,000 feet in elevation, may occur on the Old Columbine tract. The species is generally associated with understory vegetation composed of perennial grasses *(Festuca, Bromu*s) and various forbs, such as sneeze-weed (*Helenium hoopesii*). The overstory or adjacent forest includes spruce-fir and mixed conifer forest (Hoffmeister 1956).

No Action

If no action is taken and the Old Columbine residences are removed, the future natural succession of vegetation would likely decrease the availability and quality of gopher habitat, unless action is taken to conserve the meadow. However, the loss of less than 25 acres of gopher habitat is not likely to result in a trend toward Federal listing of the gopher or loss of viability of the species.

Proposed Action

If the proposed action is implemented, no vegetation or ground-disturbing activities would occur, and the Old Columbine meadow would continue to exist and provide habitat for this species.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest that is maintained by regular removal of brush and hazard trees. Regular removal of brush maintains pockets of habitat for the gopher. These pockets may improve the long-term survival of the subspecies by dispersing its population over a broad area, which, in turn, would make individual gophers less susceptible to mortality from large wildland fires or other random events.

Wildland fire and fire suppression can cause localized mortality of gophers; however, fires also damage and destroy trees, which creates new pockets of gopher habitat. Fire also encourages regeneration of grasses and other plants that are food sources for gophers.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) likely decreased gopher habitat in areas that burned at high intensity. In moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improve gopher habitat in the long term.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or the proposed action are impossible to quantify. However, in general, damage caused by wildland fire on the Old Columbine tract, if unsuppressed, could reduce gopher habitat by 25 acres.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Removal of trees in the upper Turkey Flat tract may create pockets of new habitat for the gopher.

If the recreation residences are removed at Old Columbine, vegetation at the site would replenish through natural succession and eventually close existing pockets of gopher habitat. Because other reasonably foreseeable actions on the mountain would have no adverse impacts to the gopher and may actually improve gopher habitat, cumulative impacts with no action would be discountable.

If the permits for the recreation residences are issued, the vegetation that comprises gopher habitat would remain the same. Therefore, cumulative impacts from the proposed action would be discountable.

Environmental Consequences, Apache Northern Goshawk (*Accipiter gentilis apache*)

This species is found throughout Arizona, generally in high elevation, old-growth ponderosa pine and mixed-conifer forests, as well as plateaus. It breeds at elevations above 6,000 feet, choosing Arizona pine and ponderosa pine for nest (eyrie) placement; from one to eight nests are built in March and early April. Short distance foraging flights are taken from the nest to prey upon tree squirrel, rock squirrel, cottontail rabbit, band-tailed pigeon, mourning dove, Stellar's jay, northern flicker, and Montezuma (Mearn's) quail (AGFD 2003). Both tracts may be used for foraging throughout the year.

Goshawk populations are reported to have declined nationwide over the past 50 years. In the project area, populations are expected to decline slightly because of fire suppression, loss of prey habitat, insect and tree disease outbreaks, and loss of nesting habitat resulting from grazing (AGFD 2003).

No Action

No action would also, in the short term, result in noise and increased human presence, both of which may disturb foraging during removal activities. Goshawk foraging habitat may be lost as the tracts naturally revegetate. Natural plant succession would tend toward a thickening of the shrub understory and eventual tree growth, which would increase canopy closure and decrease

habitat for prey species. However, this loss would not likely result in a trend toward Federal listing or loss of viability of the species.

Proposed Action

If permits are issued for the tracts, onsite vegetation would remain the same. There would not be a trend toward Federal listing or loss of viability of the species.

Cumulative Effects

Other reasonably foreseeable actions in the project area include the activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. This clearing of vegetation may create pockets of habitat for small mammals and birds that serve as prey for goshawks (Ecke et al. 2002, Fisher and Wilkinson 2005, Tews et al. 2004).

Wildland fire and fire suppression can cause localized mortality of goshawks, particularly when there are young in the nest. However, fire also damages and destroys trees, which provides new pockets of prey habitat. Wildland fire may also serve to encourage regeneration of grasses and other plants that serve as a food source for prey species.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) likely decreased goshawk prey habitat in areas that burned at high intensity. Although the initial impacts of fire are negative, it ultimately encourages the reestablishment of a mosaic of vegetation associations and seral stages that improve habitat for prey species in the long term.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or the proposed action are impossible to quantify. However, in general, damage caused by wildland fire on the two tracts, if unsuppressed, could reduce goshawk foraging habitat by 77 acres.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Thinning would create additional areas of habitat for goshawk prey species.

If the recreation residences are removed at both tracts, vegetation at the sites would replenish through natural succession and eventually close existing pockets of habitat for goshawk prey species. Because other reasonably foreseeable actions on the mountain would have no adverse impacts to the goshawk and may actually improve habitat for its prey, cumulative impacts from no action would be discountable. There would not be a trend toward Federal listing or loss of viability of the species.

If permits for the recreation residences are issued, the vegetation that comprises goshawk prey habitat would remain the same. Therefore, cumulative impacts from the proposed action would be discountable. There would not be a trend toward Federal listing or loss of viability of the species.

Environmental Consequences, Peregrine Falcon (*Falco perigrinus anatum*)

The peregrine falcon is both a FSS and MIS. Although it was a federally listed endangered species when designated in the forest plan as an MIS, the falcon was delisted in 1999. Populations have increased markedly since organochloride (DDT) pesticide use was banned in the United States (USDA 2005).

This species requires cliffs or cliff-like areas for nesting and feeds mainly on birds, with a lesser diet of mammals, amphibians, and insects (White et al. 2002). Both tracts may be used for foraging throughout the year, by wintering or migrating individuals and by individuals from nearby (off-tract) active eyries (high nests) during the breeding season. The primary threat to the viability of the species is disturbance of nest sites by recreational rock climbers and other users. In addition, ground-disturbing activities and/or other loud noise during the nesting season (March 1 to July 15) may affect reproductive success (USDA 2005).

No Action

Over the long term, removal of residences would change both the diversity and abundance of falcon prey species, because succession would alter species composition and structure on the tracts. No action would also, in the short term, result in noise and increased human presence, which may disturb foraging during removal activities. However, the loss of a small amount of prey habitat and temporary disturbance at the tracts is not likely to result in a trend toward Federal listing or loss of viability of the peregrine falcon.

Proposed Action

If the proposed action is implemented, no vegetation removal or ground-disturbing activities would occur at either tract. Thus, the diversity of prey species habitat would be maintained. No additional disturbance is expected in the vicinity of active eyries, therefore, no impacts on nesting birds are likely to occur. There would not be a trend toward Federal listing or loss of viability of the species.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening that is maintained by periodic removal of brush and hazard trees. This may create pockets of habitat for small mammals and birds that serve as prey for goshawks. Because the falcon uses a wide variety of vegetation types, including those modified by humans (White et al. 2002), the openings and human presence are not likely to deter its use of the tracts.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages within the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The falcon may temporarily avoid using treatment areas because of human presence and noise. Because no activities would be undertaken near eyries, where peregrines are most susceptible to disturbance (White et al. 2002), thinning activities would not likely result in the abandonment of nests.

Wildland fire and fire suppression damage or destroy overstory trees that provide cover. However, fires also stimulate grass, forb, and shrub growth and create a mosaic of vegetation seral stages, which encourage increased diversity of prey species.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire), the Santa Catalina Ranger District (Aspen and Bullock Fires), and the Nogales District (Florida Fire) likely decreased peregrine foraging habitat in areas that burned at high intensity. Although the initial impacts of fire are negative, it ultimately encourages the reestablishment of a mosaic of vegetation associations and seral stages that improve habitat for prey species in the long term.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or the proposed action are impossible to quantify. However, in general, damage caused by wildland fire on the two tracts, if unsuppressed, could reduce foraging habitat by 77 acres.

If the recreation residences are removed at both tracts, vegetation at the sites would replenish through natural succession and eventually close existing pockets of habitat for prey species. Because other reasonably foreseeable actions on the mountain would have no adverse impacts to the falcon and may actually improve habitat for its prey, cumulative impacts from no action would be discountable. There would not be a trend toward Federal listing or loss of viability of the species.

If permits for the recreation residences are issued, foraging habitat would remain the same. Therefore, cumulative impacts from the proposed action would be discountable. There would not be a trend toward Federal listing or loss of viability of the species.

Environmental Consequences, Flammulated Owl (*Otus flammeolus*)

The tiny flammulated owl (its length is 6 inches) is found in arid pine forests, often intermixed with oaks, and almost always with a brushy understory. Other tree species where the owl occurs include piñon pine, white fir, and, most often, Douglas-fir. The owl has been observed at elevations ranging from 5,000 to 8,000 feet in Arizona, is not usually found in low elevation pine-oak or in spruce-fir, and generally inhabits transitional zones and large canyon bottoms (AGFD 2005). Any pine and oak within the residence tracts is considered potential habitat. The owls forage for large insects, moths, and beetles (AGFD 2005).

Population trends for this species are unknown (AGFD 2005). Flammulated owl calls have been noted during previous Mexican spotted owl surveys within the project area (USDA-FS, unpublished data).

Logging is the primary threat to this species, and it is quite sensitive to insecticides. It is a secondary cavity nester, using openings created by primary cavity nesters for breeding (AGFD 2005).

No Action

If residences are removed, tree species composition on the tracts would change because of natural succession. This would likely provide additional owl habitat in the long term. It would not result in a trend toward Federal listing or loss of viability of the species.

Proposed Action

If permits for the recreation residences are issued, owl habitat would remain the same. The proposed action may result in disturbance to owls during periods of extended human presence, but this is not likely to result in a trend toward Federal listing or loss of viability of the species.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. Brush removal may remove some of the cover available to this species. Also, removal of snags could reduce the amount of nesting habitat available. Some human disturbance likely occurs in these areas when residences are being used.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. NatureServe (2005) has recommended that forests be thinned and burned to restore historic habitat conditions for this species. Thus, these activities would enhance owl habitat in the vicinity of the residence tracts.

Wildland fire and fire suppression may damage or destroy overstory and understory trees that provide cover. Although the initial impacts of fire are negative, it ultimately encourages the reestablishment of a mosaic of vegetation associations and seral stages that improve habitat for prey species in the long term. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) likely decreased foraging and nesting habitat in areas that burned at high intensity.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or the proposed action are impossible to quantify. However, in general, damage caused by wildland fire on the two tracts, if unsuppressed, could reduce foraging habitat by 77 acres.

If the recreation residences are removed at both tracts, vegetation at the sites would replenish through natural succession and eventually close existing pockets of habitat for prey species. Because other reasonably foreseeable actions on the mountain would have no adverse impacts to the owl and may actually improve habitat for its prey, cumulative impacts from no action would be discountable and would not result in a trend toward Federal listing or loss of viability of the species.

If permits for the recreation residences are issued, foraging habitat would remain the same. Therefore, cumulative impacts from the proposed action would be discountable and would not result in a trend toward Federal listing or loss of viability of the species.

Environmental Consequences, Gould's Wild Turkey (*Meleagris gallopavo mexicana*)

Gould's turkey is listed as both a FSS and MIS. The Pinaleño population was reintroduced in 2004, followed by an additional release in spring of 2005. The population has improved incrementally with the addition of wild-born poults (Personal communication, Anne Casey, Safford District biologist, with Duane Aubuchon, AGFD, June 15, 2007). AGFD reports recent

observations of the Pinaleño population in the lower elevation Grant and Moonshine Creek areas, and during the Nuttall Fire, they were observed at a higher elevation (507 Road) (AGFD, unpublished data).

This species forages on spring forbs and grasses, insects, and the fruits of juniper, *Vitis* spp. (grapes), and manzanita. It commonly roosts in pine, oak, sycamore, and cottonwood. The species generally occupies pine, pine-oak, and piñon pine-juniper habitat (Eaton 1992). Sustainability of the Pinaleño population is most likely to be influenced by weather/climate changes and nesting success in the project area (USDA 2005).

No Action

If residences are removed, vegetation composition on the tracts would change because of natural succession. This may provide additional turkey habitat in the long term. It would not result in a trend toward Federal listing or loss of viability of the species.

Proposed Action

If permits are issued, vegetation would remain the same on both tracts. This would not have an effect on turkey habitat and would not likely result in a trend toward Federal listing or loss of viability of the species.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. These sites provide openings that, in many areas, encourage the growth of grasses, forbs, and shrubs, including berry bushes and locust trees that are a food source for turkeys. Intermittent human presence also occurs in these areas; however, Gould's turkeys are regularly seen in and around these sites.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The Pinaleño Ecosystem Management (PEM) project (item 10) and special-use area thinning project (item 24) are focused solely on the understory of the forest, i.e., the removal of trees up to 9 inches DBH. Because of this, some cover would be lost. On the other hand, cleared areas would provide better foraging for seeds and insects. Trees that remain in thinned stands would receive additional nutrient release, which increases trees growth rates and mast production. Larger trees that remain in thinned stands would provide excellent turkey roosting sites. A few large diameter trees would be removed in the Turkey Flat area, which may stimulate understory shrub growth and provide foraging habitat.

Wildland fire and fire suppression can damage or destroy overstory trees that provide cover for the turkey. However, fires also stimulate grass, forb, and shrub growth when the canopy is opened, providing additional food sources.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire), the Santa Catalina Ranger District (Aspen and Bullock Fires), and the Nogales District (Florida Fire) probably decreased turkey habitat in areas that burned at high intensity. During

implementation of the Stockton Pass prescribed fire in 2007, turkeys were observed flying in and out of burning areas to forage for insects flushed by the fire. Thus, in moderately burned areas, turkeys may have received immediate foraging benefits from the fire.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or the proposed action are impossible to quantify. However, in general, damage caused by wildland fire on the two tracts, if unsuppressed, could reduce habitat by 77 acres. There would not likely be a trend toward Federal listing or loss of viability of the species.

If the recreation residences are removed at both tracts, vegetation at the sites would replenish through natural succession, ultimately closing areas presently open to foraging. The loss of less than 77 acres of open area would be discountable when considered in combination with the improvements in habitat resulting from other actions in the area. Thus, there would not be a trend toward Federal listing or loss of viability of the species.

If permits for the recreation residences are issued, habitat at Old Columbine would remain the same. Therefore, cumulative impacts from the proposed action would be discountable and would not result in a trend toward Federal listing or loss of viability of the species.

Environmental Consequences, Pinaleño Monkey Grasshopper (*Eumorsea pinaleno*)

Very little is known about this species; only four specimens have been collected on the forest. It is believed to occupy the same habitat as the Mt. Graham red squirrel, including old-growth Douglas-fir stands (AGFD 2001). It may occur in and around Old Columbine habitat. Population trends are unknown (AGFD 2001).

No Action

If the residences are removed, grasshopper habitat would gradually improve as succession returns the vegetation on 25 acres of Old Columbine to a natural state.

Proposed Action

If the proposed action is implemented, vegetation on Old Columbine would remain the same. Human disturbance would not adversely impact the grasshopper, except for maybe a lucky catch by a pet cat. There would not be a trend toward Federal listing or loss of viability of the species.

Cumulative Impacts

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. At present, these openings are not suitable habitat for the grasshopper.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) is focused solely on the understory of the

forest, i.e., removal of trees up to 9 inches DBH. Because of this, cover for grasshoppers would be lost. However, forest structure after treatment would be more resilient to wildland fire, and the long-term result would be a more sustainable habitat. A few larger diameter trees would be removed in the Turkey Flat area, which may create small openings that are unsuitable for these grasshoppers.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) likely decreased grasshopper habitat in areas that burned at high intensity. In moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improve the health of occupied habitat.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by wildland fire at Old Columbine, if unsuppressed, could reduce grasshopper habitat by 25 acres.

If the recreation residences are removed, vegetation at Old Columbine would replenish through natural succession, and suitable grasshopper habitat may return. This would be an additive benefit when considered cumulatively with other nearby activities.

If the permits are issued for Old Columbine, vegetation and habitat would remain the same. There would be no additive impacts that would result in a trend toward Federal listing or loss of viability of the grasshopper.

Environmental Consequences, Chiricahua White Butterfly (*Neophasia terlootii*)

This butterfly occupies the high elevation pine forest, usually above 6,200 feet. Eggs are laid on ponderosa pine and Engelmann spruce, where the larvae eat the leaves. Population trends for this species are unknown, but it may occur on both tracts (AGFD 2001).

No Action

If no action is taken, there is a potential benefit to butterfly habitat in the long term as the tracts become reforested.

Proposed Action

If the proposed action is implemented, vegetation on the tracts would remain the same. Thus, there would be no impact on the butterfly and no trend toward Federal listing or loss of viability of the species.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. These openings do not support suitable habitat for the butterfly; human disturbance at these sites is intermittent.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) is focused solely on the understory of the forest, i.e., removal of trees up to 9 inches DBH. Because of this, cover for butterflies would be lost. However, forest structure after treatment would be more resilient to wildland fire, and the long-term result would be more sustainable habitat. A few larger diameter trees would be removed in the Turkey Flat area, which may create openings that are unsuitable for Chiricahua white butterflies.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) likely decreased butterfly habitat in areas that burned at high intensity. In moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improve the health of occupied habitat. Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by wildland fire at both tracts, if unsuppressed, could reduce potential butterfly habitat by 77 acres.

If the recreation residences are removed, vegetation at both tracts would replenish through natural succession, and new butterfly habitat may return. This would be an additive benefit when considered cumulatively with benefits of other nearby activities.

If the permits are issued for Old Columbine, vegetation and habitat would remain the same. There would be no additive impacts that would result in a trend toward Federal listing or loss of viability of the butterfly.

Environmental Consequences, A Tiger Beetle (*Cicindela purpurea cimerrona*)

Cincindel purpurea cimerrona occupies high elevation meadows and grasslands and areas along trails. It is highly mobile on the ground surface in open areas and doesn't fly unless disturbed by predators or other animals. It preys on smaller insects. Primary predators of adult beetles include insect-eating birds, robberflies, and dragonflies. Some wasps (Tiphiidae) and bee-flies (Bombyliidae) also feed on their larvae. However, the beetle's greatest threat is man, from pesticide use and disturbance by off-highway vehicles (AGFD 2001).

Population trends for this species are currently unknown (AGFD 2001). This beetle may occur at both tracts.

No Action

The no action alternative would cause ground disturbance during residence removal, and the long-term result would be a slight decrease in available habitat as natural succession progresses and currently open areas become forested. However, this is not likely to result in a trend toward Federal listing or loss of viability of the tiger beetle.

Proposed Action

Because there are no vegetation or ground-disturbing activities in the proposed action, no adverse impacts would be expected. The proposed action would likely have a net positive effect, as habitat is preserved in the available small openings around the residences.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. These openings represent potential habitat for this species.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Because of the small diameter of trees being removed (less than 9 inches DBH), there would likely be no impacts to this beetle. Some larger diameter trees would be removed in the Turkey Flat area, which may create openings that are suitable for the tiger beetle.

Wildland fire and fire suppression may damage or destroy overstory and understory trees that provide the beetle with cover. Although the initial impacts of fire are negative, it ultimately encourages the reestablishment of a mosaic of vegetation associations and seral stages that improve habitat in the long term.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) likely reduced beetle habitat in areas that burned at high intensity. In moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improve the health of occupied habitat. Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by wildland fire at both tracts, if unsuppressed, could reduce potential beetle habitat by 77 acres.

If the recreation residences are removed, vegetation at both tracts would replenish through natural succession, and new beetle habitat would become available until trees close the canopy. This would be an additive benefit when considered cumulatively with benefits of other foreseeable activities.

If the permits are issued for Old Columbine, vegetation and habitat would remain the same. There would be no additive impacts that would result in a trend toward Federal listing or loss of viability of the tiger beetle.

Environmental Consequences, Mimic talussnail (*Sonorella imitator*)

This species inhabits rockslides from Clark Peak to Marijilda Canyon within the Pinaleño Mountains. Vegetation associated with talussnail populations includes oak, pine, and locust trees, depending on elevation (AGFD 2003). Habitat for this talussnail may occur at Turkey Flat. This species is becoming more common in areas formerly occupied by Pinaleño talussnails (*Sonorella grahamensis*) (AGFD 2003).

Because the no action alternative would not disturb habitat within talus slopes at Turkey Flat, activities that result from issuing new permits for the tract or residence removal are not likely to adversely impact the snail. Neither the proposed action nor no action would result in a trend toward Federal listing or loss of viability of the species.

None of the potential cumulative effects discussed in previous species descriptions is likely to occur within or cause adverse impacts to talus slopes. With the exception of wildland fires, there are no other cumulative effects to analyze for this species. Wildland fires may ignite duff that has built up on top of talus, and the heat from this burning may kill individuals of this species (AGFD 2003).

Environmental Consequences, Mock pennyroyal (*Hedeoma dentatum*), Coppermine milk vetch (*Astragalus cobrensis* var. *marguieri*), Arizona alum root (*Heuchera glomerulata*)

These three species occupy fairly open areas, trails, and roadsides in oak woodland, oak-pine, and pine forest up to approximately 8,500 feet in elevation. All tend to be found on north-facing slopes. Milk vetch and alum root are found in sandy and rocky soils, while pennyroyal tends to prefer sandy loams (AGFD 1999, 2000, 2004). Mock pennyroyal was once described as common and widespread within its range, but is now considered uncommon. There is no scientific explanation for the decline since the mid-1990s (AGFD 2000). Coppermine milk vetch is also considered to be declining (AGFD 1999). Arizona alum root population trends are undocumented (AGFD 2004). These species occur at the Turkey Flat tract.

No Action

If no action is taken, activities during residence removal may result in a temporary loss of individual plants. However, long-term effects would be positive as the tract returns to a more natural state.

Proposed Action

If permits are issued, there would be a continued intermittent human presence at Turkey Flat, which may result in an occasional loss of a plant as vehicles and people travel through the area. This impact would not likely result in a Federal trend toward listing of the species or loss of its viability on the forest.

Cumulative Effects

Other reasonably foreseeable actions in the project area include ongoing activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. These openings represent potential habitat for this species. Occasionally, individual plants may be trampled by forest users, but it is unlikely that this affects the success of the species as a whole.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Because of the small diameter of trees being removed (less than 9

inches DBH), no impacts to these plants are expected. A few larger diameter trees would be removed at Turkey Flat, which may create small openings that are suitable for all three species. Because project 10 is being done by hand and only small understory trees are to be removed, little disturbance to these species is expected.

Wildland fire and fire suppression may destroy or damage individuals of this species; however, the presence of these plants in fire-adapted ecosystems suggests that this plant is also likely to be resilient or adapted to fires. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) may have destroyed plants and habitat in areas that burned at high intensity. In more moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improved health of occupied habitat.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire at Turkey Flat, if unsuppressed, could reduce potential habitat for these plant species by 52 acres.

If the recreation residences are removed, vegetation at Turkey Flat would replenish through natural succession, and populations of these species may increase. This would be an additive benefit when considered cumulatively with benefits of other foreseeable activities.

If permits are issued for Turkey Flat, habitat and human disturbance would remain the same. There would be no additive impacts that would result in a trend toward Federal listing or loss of viability of these plant species.

Environmental Consequences, Rusby hawkweed (*Hieracium rusbyi*), Bigelow thoroughwort (*Eupatorium bigelovii*)

These two species occupy high elevation oak-juniper, mixed conifer forest, and aspen-conifer areas (8,000 to 9,500 feet) (AGFD 2004, 2004a). Both have the potential to occur on the Old Columbine tract. Bigelow thoroughwort tends to occupy somewhat rockier and wetter areas (AGFD 2004) than hawkweed, which is generally found in shady areas (AGFD 2004a). Thoroughwort prefers northeast- and southwest-facing slopes (AGFD 2004). Hawkweed seems to be fairly uncommon (AGFD 2004a). Thoroughwort has been documented in at least two sites within the Pinaleño Mountains, although population trends are unknown (AGFD 2004).

No Action

If no action is taken, activities during residence removal may result in a temporary loss of individual plants. However, long-term effects would be positive as the Old Columbine tract returns to a more natural state.

Proposed Action

If permits are issued, there would be a continued intermittent human presence at Old Columbine which may result in an occasional loss of a plant as vehicles and people travel through the area. This impact would not likely result in a Federal trend toward listing of the species or loss of its viability on the forest.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. Ladybug electronic site is on a warm, dry, south-facing slope, and as such, is unlikely to support these species. Occasionally, individual plants at the other sites may be trampled by forest users. It is unlikely that this occurs with such frequency as to affect the viability of these species, because human use occurs primarily in meadows and cleared areas within recreation sites, which do not support hawkweed and thoroughwort.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) is underway in a higher elevation than these species are likely to be found, with the exception of a small treatment area near Shannon Campground. Because all work there is being done by hand, and only small understory trees are to be removed, it is likely that there has been or will be little disturbance to these species.

Wildland fire and fire suppression may destroy or damage individuals of these species; however, the presence of these plants in fire-adapted ecosystems suggests that these species are likely to be resilient or adapted to fires. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) may have destroyed plants and habitat in areas that burned at high intensity. In more moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improved health of occupied habitat.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire at Old Columbine, if unsuppressed, could reduce potential habitat for these plant species by 25 acres.

If the recreation residences are removed, vegetation at Old Columbine would replenish through natural succession, and populations of these species may increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued for Old Columbine, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a trend toward Federal listing or loss of viability of these plant species.

Environmental Consequences, White-flowered Cinquefoil (*Potentilla albiflora*)

This species occupies rocky slopes and open coniferous forest, from 7,500 to 9,500 feet in elevation (Kearney and Peebles 1960). This plant may occur on both tracts.

No Action

If no action is taken, activities during residence removal may result in a temporary loss of individual plants. However, long-term effects would be positive, as the tracts return to a more natural state.

Proposed Action

If permits are issued, there would be a continued intermittent human presence on the tracts, which may result in occasional loss of a plant as vehicles and people travel through the area. This impact would not likely result in a Federal trend toward listing of the species or loss of its viability on the forest.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. This species occurs at most of these sites, primarily in the forest edges around developed areas. Occasionally, individual plants may be trampled by forest users. It is unlikely that this occurs with such frequency as to affect the viability of the species, because human use occurs primarily in meadows and cleared areas within recreation sites, which likely do not support cinquefoil in significant numbers.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Because all work for project 10 is being done by hand and only small understory trees are to be removed, it is likely that populations of cinquefoil would be affected, with the exception of occasional trampling of individual plants. A few larger diameter trees would be removed at Turkey Flat, which may create openings that are suitable for cinquefoil.

Wildland fire and fire suppression may lead to damage to individuals of this species; however, the presence of these plants in fire-adapted ecosystems suggests that this plant is also likely to be resilient or adapted to fires. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) may have destroyed plants and habitat in areas that burned at high intensity. In more moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improved health of occupied habitat.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire at both tracts, if unsuppressed, could reduce potential habitat for this plant species by 77 acres.

If the recreation residences are removed, vegetation at the tracts would replenish through natural succession, and populations of these species may increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a trend toward Federal listing or loss of viability of these plant species.

Environmental Consequences, Pinaleño Jacob's Ladder (*Polemonium flavum*)

This plant species inhabits rich, moist soils in coniferous forests between 7,500 and 9,500 feet elevation (Kearney and Peebles 1960) and likely occurs within the Old Columbine tract.

No Action

If no action is taken, activities during residence removal may result in a temporary loss of individual plants. However, long-term effects would be positive as the Old Columbine tract returns to a more natural state.

Proposed Action

If permits are issued, there would be a continued intermittent human presence on the Old Columbine tract, which may result in an occasional loss of a plant as vehicles and people travel through the area. This impact would not likely result in a Federal trend toward listing of the species or loss of its viability on the forest.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. This species likely inhabits most of these sites. Occasionally, individual plants may be trampled by forest users. It is unlikely that this occurs with such frequency as to affect the viability of the species, because human use occurs primarily in meadows and cleared areas within recreation sites, which likely do not support Pinaleño Jacob's ladder in significant numbers.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. Because all work for the PEM project (item 10) is being done by hand, and only small understory trees are to be removed, it is likely that populations of this species would not be adversely affected, with the exception of occasional trampling of individual plants.

Wildland fire and fire suppression may lead to damage to individuals of this species; however, their presence in a fire-adapted ecosystem suggests that this plant is also likely to be resilient or adapted to fires. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) may have destroyed plants and habitat in areas that burned at high intensity. In more moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improved health of occupied habitat.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire at both tracts, if unsuppressed, could reduce potential habitat for this plant species by 25 acres.

If the recreation residences are removed, vegetation at Old Columbine would replenish through natural succession, and populations of these species may increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a trend toward Federal listing or loss of viability of these plant species.

Environmental Consequences, Chihuahuan Stickseed (*Hackelia ursina*)

This plant usually grows in shade on moist, north-facing slopes, in oak-pine woodland forest at elevations from 5,000 to 8,000 feet (AGFD 2000). Its range is limited to Arizona and New Mexico (Kearney and Peebles 1960). No population trends are documented for this species (AGFD 2000). These plants are not common, but could potentially occur within the Turkey Flat tract. At present, the tract provides moist pockets of shade that can be used by this species.

No Action

If no action is taken, activities during residence removal may result in a temporary loss of individual plants. However, long-term effects would be positive as the Turkey Flat tract returns to a more natural state. If the residences are removed, further pockets of shaded areas may form as the area revegetates.

Proposed Action

If permits are issued, there would be a continued intermittent human presence on the Turkey Flat tract, which may result in occasional loss of a plant as vehicles and people travel through the area. This impact would not likely result in a Federal trend toward listing of the species or loss of its viability on the forest.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. Ladybug electronic site is on a warm, dry, south-facing slope, and as such, is unlikely to support plants of this species. Some recreation sites may support individual stickseed plants.

Occasionally, individual plants may be trampled by forest users. It is unlikely that this occurs with such frequency as to affect the viability of the species, because human use occurs primarily in meadows and cleared areas within recreation sites, which likely do not support stickseed populations.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) is ongoing at a higher elevation than this plant is likely to be found, with the exception of a small treatment area near Shannon Campground. Because all work at Shannon was done by hand and only small understory trees were removed, there was little disturbance to stickseed in the area. Some larger diameter trees are to be removed at Turkey Flat, which may create some small openings that are unsuitable for Chihuahuan stickseed.

Wildland fire and fire suppression damage or destroy individuals of this species; however, the presence of these plants in fire-adapted ecosystems suggests that it is likely to be resilient or adapted to fires. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) may have destroyed plants and habitat in areas that burned at high intensity. In

more moderately burned areas, reintroduction of fire as a natural process may promote more sustainable forest conditions and improved health of habitat.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire at Turkey Flat, if unsuppressed, could reduce potential habitat for this plant species by 52 acres.

If the recreation residences are removed, vegetation at Turkey Flat would replenish through natural succession, and populations of the species may increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a trend toward Federal listing or loss of viability of stickseed.

Management Indicator Species

Species Evaluated

The role of management indicator species (MIS) in national forest planning is described in the 1982 implementing regulations for the National Forest Management Act (NFMA) of 1976. These regulations require that certain vertebrate and/or invertebrate species present on a forest be identified as MIS and that they be selected because "their population changes are believed to indicate the effects of management activities" (36 CFR 219.19(a)(1).

The Forest Service Manual (FSM) defines management indicators as "Plant and animal species, communities or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent." (FSM 2620.5).

The NFMA regulations identify five categories of species that may be considered, where appropriate, as management indicator species:

- Endangered and threatened plant and animal species identified on State and Federal lists for the area.
- Species with special habitat needs that may be influenced significantly by planned management programs.
- Species commonly hunted, fished or trapped.
- Nongame species of special interest.
- Plant and animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.

Section 219.19(a)(6) requires that "Population trends of the management indicator species will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with State fish and wildlife agencies to the extent practicable."

Management indicator species and their habitat are monitored to observe trends in resources, evaluate management actions, and provide a timely warning of problems or undesirable

conditions affecting the resource. MIS were selected during the development of the 1986 "Coronado National Forest Land and Resource Management Plan" according to their being either threatened and endangered (TES), requiring special habitat needs, or in high public demand. The analysis of impacts to MIS as part of the NEPA process contributes to the identification of trends, which may necessitate development of mitigation or new alternatives when a proposed action is under consideration.

Table 18 lists the MIS for the Coronado that may occur in the project area and the forest plan indicator group(s) to which it (they) belong(s). The full list of Coronado MIS is available at http://www.fs.fed.us/r3/projects/2004-cor-misreport.pdf. An impacts analysis for those species in table 18 follows.

Table 18. Information on management indicator species on the Coronado National Forest, Safford Ranger District

Species	Coronado Forest Plan Indicator Group	Presence Within Recreation Tracts
Cavity Nesters		
Sulphur-bellied flycatcher	Cavity nesters, riparian, needs diversity, special-interest, TES	Occur within analysis area; suitable habitat available.
Primary[1] and Secondary[2] Cavity Nesters	Cavity nesters	Occur within analysis area; suitable habitat available.
Riparian Species		
Sulphur-bellied flycatcher	Cavity nesters, riparian, diversity, special-interest, TES	Occur within analysis area; suitable habitat available.
Black bear	Riparian, diversity, game	Occurs within analysis area; suitable habitat available.
Species Needing Diversity		
White-tailed deer	Diversity, herbaceous cover, game	Occurs within analysis area; suitable habitat available.
Sulphur-bellied flycatcher	Cavity nesters, riparian, diversity, special-interest, TES	Occur within analysis area; suitable habitat available.
Black bear	Riparian, diversity, game	Occurs within analysis area; suitable habitat available.
Species Needing Herbaceous Cover		
White-tailed deer	Diversity, herbaceous cover, game	Occurs within analysis area; suitable habitat available.
Mearn's quail	Herbaceous cover, game, special interest	Occur within analysis area; suitable habitat available.
Species Needing Dense Canopy		None of those listed in the forest plan occur in the analysis area.

Species	Coronado Forest Plan Indicator Group	Presence Within Recreation Tracts
Game Species		
White-tailed deer	Diversity, herbaceous cover, game	Occurs within analysis area; suitable habitat available.
Mearn's quail	Herbaceous cover, game, special interest	Occur within analysis area; suitable habitat available.
Black bear	Riparian, diversity, game	Occurs within analysis area; suitable habitat available.
Special Interest Species		
Mearn's quail	Herbaceous cover, game, special interest	Occur within analysis area; suitable habitat available.
Sulphur-bellied flycatcher	Cavity nesters, riparian,diversity, special-interest, TES	Occur within analysis area; suitable habitat available.
Threatened and Endangered Species		
Peregrine falcon	TES (has since been delisted)	Occur within analysis area; suitable habitat available.
Sulphur-bellied flycatcher	Cavity nesters, riparian,diversity, special-interest, TES	Occur within analysis area; suitable habitat available.
Apache trout	TES	Occurs within analysis area; suitable habitat available
Twin-spotted rattlesnake	TES	Occurs within analysis area; suitable habitat available.
Mt. Graham red squirrel	TES	Occurs within analysis area; suitable habitat available.
Gould's turkey	TES (reintroduced)	Occurs within analysis area; suitable habitat available.

[1] Primary Cavity Nesters: Ladder-backed woodpecker, Arizona woodpecker, northern flicker, Gila woodpecker, acorn woodpecker, hairy woodpecker.

[2] Secondary Cavity Nesters: American kestrel, elf owl, flammulated owl, whiskered screech owl, western screech owl, Northern pygmy-owl, Mexican spotted owl, elegant trogon, eared trogon, sulphur-bellied flycatcher, brown-crested flycatcher, ash-throated flycatcher, dusky capped flycatcher, Cordilleran flycatcher, violet green swallow, juniper titmouse, bridled titmouse, brown creeper, white-breasted nuthatch, red-breasted nuthatch, pygmy nuthatch, house wren, Bewick's wren, eastern bluebird, European starling, Lucy's warbler.

Sulphur-bellied Flycatcher (*Myiodynastes luteiventris*)

This species occupies mid-elevation riparian areas in Arizona, particularly those with sycamore (*Platanus* spp.), oak (*Quercus* spp.), walnut (*Juglans* spp.), and Arizona cypress (*Cupressus arizonica*) components (Ligon 1971). In these areas, the sulphur-bellied flycatcher forages for

insects, generally catching them in flight or picking them off shrubs and trees. Fruit from vines, mistletoe, and fruiting trees supplement their diet during non-breeding season (Fitzpatrick 1980). Nesting generally occurs at elevations between 3,640 and 7,500 feet (Corman and Wise-Gervais 2005). These flycatchers occupy the forest during breeding season only, which extends from June through September (USDA-FS, 2005).

Forestwide habitat for this species has not been estimated. The global population of sulphur-bellied flycatchers is considered stable, and in Arizona, it is considered common within a restricted range (USDA 2005). It is considered to be a common summer resident in the Pinaleños (Corman and Wise-Gervais 2005).

The Turkey Flat tract occurs within the range of elevations listed for this species, but it does not contain any true riparian zones. Therefore, use of the tract as foraging habitat by the flycatcher is likely to be limited.

The Old Columbine tract lies at the head of the Ash Creek drainage, but it is over 1,500 feet above the elevation range for nesting by this species. Therefore, use of the tract as foraging habitat is likely minimal.

No Action

If no action is taken, the residence tracts would revegetate naturally, as shrubs and grasses replenish areas denuded by structure removal activities. During normal vegetation succession, there would be periods of time that shrubs and vines would be available for the flycatcher. In later stages of natural succession, there would likely be trees, some of which would support mistletoe, which would also provide a food source for this species. During residence removal, foraging flycatchers might experience temporary disturbance and would likely avoid the area. Because of the mobility of this species and the presence of many riparian areas available in the Pinaleño Mountains, use of the residence tracts for foraging would likely be limited. The magnitude of habitat alteration resulting from residence removal would not be expected to change the population trajectory on the forest for this species.

Proposed Action

If permits are issued, the status quo would remain with regard to use of the tracts by this flycatcher, because site use and available habitat would remain the same.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. Because most of these sites have no riparian areas, flycatchers likely make minimal use of them for foraging and/or nesting. The magnitude of habitat alteration and human use of these sites would not be expected to change the population trajectory on the forest for this species.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) and thinning around special-use sites

(item 24) are ongoing in the understory, where trees up to 9 inches DBH are being removed. Because of the small diameter of the trees being removed, it is unlikely that these projects would have a measurable effect on flycatcher foraging habitat in this area. A few larger diameter trees will be removed in the Turkey Flat area, which may decrease habitat for these species by a negligible increment.

Wildland fire and fire suppression may destroy or damage vegetation and habitat; however, fires are known to stimulate insect activity, which may improve flycatcher foraging success. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire) have caused temporary losses of riparian habitat. However, nutrient releases from the fires should stimulate regeneration of trees and other plants that provide habitat and food sources for the flycatcher.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or the proposed action are impossible to quantify. However, in general, damage caused by a wildland fire at Old Columbine if unsuppressed, could reduce potential foraging habitat for this species by 25 acres. This magnitude of habitat alteration would not be expected to change the population trajectory on the forest for this species.

If the recreation residences are removed, vegetation at the tracts would replenish through natural succession, and populations of insect species may increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a change in the population trajectory on the forest for this species.

Primary and Secondary Cavity Nesters

Primary and secondary cavity nesters[23] potentially occur in all plant communities on both tracts. In general, these species require large, older age class trees and snags to provide a suitable substrate for cavities. Most of the Pinaleño Mountains are heavily wooded; thus, available cavities are probably not limited, particularly because of recent fires (Clark Peak Fire, 1996, and Nuttall Complex Fire, 2004) and insect activity (starting in the mid-1990s and ongoing). North American Breeding Bird Survey data for 1980 through 1999 indicate a significant downward trend for the Gila woodpecker and American kestrel. For all other primary or secondary cavity nesters, trends are reported as either not significant, or no data were available (USDI-GS, 2000).

Woody upland vegetation that is widespread on the mountain is expected to continue to mature. Large diameter trees are readily available, and there is a high production of snags, providing potential cavity nest sites as trees grow.

No Action

If no action is taken and residences are removed at either or both tracts, the sites would revegetate naturally, which would eventually provide up to 77 acres of additional wooded habitat. Over 100,000 acres of woody vegetation is currently available for these species. The additional acreage

[23] Primary cavity nesters are those species that excavate and nest in cavities, whereas secondary cavity nesters use cavities excavated by primary cavity nesters.

ultimately available after 50 plus years would be less than 1 percent of existing habitat, a very small but beneficial effect.

Population trends for cavity nesters vary: they show declines for northern flickers and American kestrels, statistically insignificant declines for ash-throated flycatchers and Bewick's wrens, stable trends for elegant trogons and sulphur-bellied flycatchers, and statistically insignificant increases for ladder-backed woodpeckers (USDA-FS, 2005). Given the small size of the project area relative to available habitat forestwide and the continued availability of large numbers of snags in the Pinaleño Mountains, the magnitude of habitat alteration resulting from residence removal would not be expected to change the population trajectory on the forest for this species.

Proposed Action

If permits are issued, the status quo would remain with regard to use of the tracts by primary and secondary cavity nesters, because site use and available habitat would remain the same.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Each is located within a manmade opening in the forest maintained by periodic removal of brush and hazard trees. Removal of hazard trees, which includes some snags that might be used by cavity-nesting species, may have localized impacts on primary cavity nesters. However, because of the widespread availability of snags and forestwide tree mortality and infestations of native and nonnative insects, the small increment of loss would not contribute significantly to cumulative effects.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) and thinning around special use sites (item 24) are ongoing in the understory, where trees up to 9 inches DBH are being removed. Because of the small size of trees being removed, it is unlikely that these projects would have a measurable effect on primary and secondary cavity nester foraging and nesting habitat on the forest. A few larger diameter trees are planned to be removed in the Turkey Flat area, which may decrease habitat for these species by a negligible increment.

Wildland fire and fire suppression may destroy or damage vegetation and habitat; however, fires are known to stimulate insect activity, which may benefit foraging success. Recent fires on the Santa Catalina Ranger District (Aspen and Bullock Fires) and the Nogales District (Florida Fire) have increased the forestwide availability of snags for use by these species.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire on these tracts, if unsuppressed, could reduce potential foraging and nesting habitat for these species by 77 acres. This increment of habitat alteration would not be expected to change the population trajectory on the forest for these species.

If the recreation residences are removed, vegetation at the tracts would replenish through natural succession, and wooded habitat would eventually increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a change in the population trajectory on the forest for these species.

Black Bear (*Ursus americanus*)

The black bear is a wide-ranging habitat generalist that prefers areas of dense cover and high vegetative diversity. Grass is known to be a very important component of the bear's diet in the spring (April through June). In summer, insects and grubs are added to the diet, and in fall, berries and acorns (Hoffmeister 1956).

Protective cover, such as that which is offered by chapparal and pine-oak woodlands, is also very important to bears, especially that which is in the 6-foot height class (LeCount 1984). Summer habitat use often is centered on riparian areas where water is available. Suitable black bear habitat occurs throughout both tracts, with highest densities expected in steep, brushy canyons at upper elevations. Lower elevation sites in the desert grassland and open woodlands may be used seasonally, but are not considered high quality habitat. There are 641,113 acres of black bear habitat forestwide; the two tracts (77 acres) could reasonably be considered as 0.01 percent of this total.

In general, black bear populations are primarily affected by environmental factors, such as rainfall, and by pressure from human activities, such as hunting and depredation removal (USDA-FS, 2005). Population level trends are difficult, if not impossible to detect. Poor mast crops in the early part of this decade may have led to a decreased carrying capacity for bears on the forest. However, most historically occupied habitat is still utilized by black bears (USDA-FS, 2005).

Hunting in the Pinaleños is managed by AGFD as Management Unit 31; the recent black bear sport harvest has been reported as follows (Personal communication, Duane Aubuchon, AGFD, with Anne Casey, Safford Ranger District, February 12, 2008; and "Coronado National Forest Management Indicator Species Population Status and Trends" (USDA-FS, 2005):

- 1996 7
- 1997 8
- 1998 7
- 1999 27
- 2000 23
- 2001 no data
- 2002 10
- 2003 8
- 2004 5
- 2005 7
- 2006 6

No Action

If no action is taken, the tracts would revegetate naturally, providing additional bear habitat as shrubs and grasses replenish areas denuded by residence removal activities. Grass and shrub

habitat would be available until trees begin to populate the site; they would provide additional acorns (mast) for foraging. During residence removal, bears would experience temporary disturbance and would likely avoid the area. Given the bear's mobility and the wide availability of nearby habitat, these effects would be discountable. In the long term, natural succession would result in an increase in the understory of non-woody species, which may include berry bushes, and eventual growth of oak trees that would increase the mast crop. Overall, these effects would have no measurable impact on the local and forestwide black bear population trajectory.

Proposed Action

If the proposed action is implemented, no change in bear density or abundance is expected. The openings maintained around the recreation residences may have a positive effect in that additional nutrients would be available to surrounding trees, which, in turn, would increase mast crops, particularly in the Turkey Flat area. Intermittent human presence may temporarily disturb bears, who would likely avoid the area. Overall, these effects would have no measurable impact on the local and forestwide black bear population trajectory.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. These sites provide openings that, in many areas, encourage the growth of shrubs, including berry bushes and locust trees that are a food source for black bears. Some human disturbance occurs in these areas; however, black bears continue to be reported near recreation residence tracts and campgrounds. Overall, effects of these sites on black bear habitat and population are negligible.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) and thinning around special use sites (item 24) are ongoing in the understory, where trees up to 9 inches DBH are being removed. Because of the small size of trees being removed and the limited acreage affected, the availability of quail habitat is unlikely to be measurably impacted. Removal of a few larger diameter trees in the Turkey Flat area may stimulate further understory grass, forb, and shrub growth, which would, thus, improve quail foraging habitat, but would not result in a measurable benefit to the local or forestwide population trajectory.

Wildland fire and fire suppression damage and/or destroy overstory trees that provide cover for the black bear. However, fires also stimulate grass and shrub growth by opening the canopy; this provides additional food sources for bear. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Wildland Fire), the Santa Catalina Ranger District (Aspen and Bullock Fires), and the Nogales District (Florida Fire) adversely affected black bear habitat in areas that burned at high intensity. Bears were likely displaced to other habitat on the forest or on adjacent private, state, and BLM lands. Despite this displacement, natural succession after the fires will, in the long term, improve bear habitat as a mosaic of vegetation associations and seral stages progress.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to

quantify. However, in general, damage caused by a wildland fire on these tracts, if unsuppressed, could reduce black bear habitat by 77 acres. This increment of habitat alteration would not be expected to change the population trajectory on the forest for this species.

If the recreation residences are removed, vegetation at the tracts would replenish through natural succession, and bear habitat would eventually increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a change in the population trajectory on the forest for black bear.

White-tailed Deer (*Odocoileus virginianus couesi*)

White-tailed deer use a variety of habitats but prefer areas of thick cover. During the fawning period, these deer rely on hiding cover to maintain fawn survival and recruitment (Ockenfels et al. 1991). Shrubs comprise the majority of a white-tailed deer diet, although forbs are seasonally important.

The white-tailed deer harvest in southern Arizona remained stable from 1990 through 2001, despite a slightly downward statewide trend. Recent fires on the forest were followed by regeneration in shrubs and forbs that benefited this species (USDA-FS, 2005). In addition, 2005 to 2007 represented fairly wet years in terms of monsoon precipitation, and local grasses and forbs grew rapidly in response, providing further food sources for white-tailed deer.

There are 1,430,071 acres of white-tailed deer habitat forestwide; these deer are regularly observed at and near both residence tracts. Thus, the 77 acres of residence tracts could reasonably be considered as white-tailed deer habitat. They comprise less than 0.01 percent of available habitat forestwide. Because of the relatively small size of the project area in relation to the available habitat forestwide, impacts would not contribute significantly to the forestwide population trajectory of white-tailed deer.

Like bear, deer populations are influenced by environmental factors, such as rainfall and its effect on food availability, predation, and pressure from human activities, such as hunting (USDA-FS, 2005). Population changes related to any of the alternatives evaluated in this EIS would be difficult to detect.

No Action

If no action is taken, the tracts would revegetate naturally, providing additional deer habitat as shrubs and grasses replenish areas denuded by residence removal activities. Grass and shrub habitat would be available until trees begin to populate the site and provide additional cover for deer. During residence removal, deer would experience temporary disturbance and would likely avoid the area. Given the deer's mobility and the wide availability of nearby habitat, these effects would be discountable. In the long term, natural succession would increase the understory growth of forbs and shrubs. Overall, these effects would have no measurable impact on the local and forestwide deer population.

Proposed Action

If the proposed action is implemented, no change in deer density or abundance is expected. The openings maintained around the recreation residences could have a positive effect in that they provide additional nutrients that encourage understory growth and higher quality shrub forage. Intermittent human presence may temporarily disturb deer, who would likely avoid the area. Overall, these effects would have no measurable impact on the local and forestwide trajectory of the white-tailed deer population.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. These sites provide openings that, in many areas, encourage the growth of grasses, forbs, and shrubs, including berry bushes and locust trees that are a food source for deer. Some human disturbance occurs in these areas; however, deer continue to be reported near recreation residence tracts and campgrounds. Overall, beneficial and adverse effects on forestwide white-tailed deer habitat and population are negligible.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) and thinning around special use sites (item 24) are ongoing in the understory, where trees up to 9 inches DBH are being removed. Because of the small size of trees being removed and the limited acreage affected, the availability of quail habitat is unlikely to be measurably impacted. Removal of a few larger diameter trees in the Turkey Flat area may stimulate further understory grass, forb, and shrub growth, which would, thus, improve quail foraging habitat, but would not result in a measurable benefit to the local or forestwide population trajectory.

Wildland fire and fire suppression damage and/or destroy overstory trees that provide cover for deer. However, fires also stimulate grass, forb and shrub growth by opening the canopy; this provides additional food sources for the species. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire), the Santa Catalina Ranger District (Aspen and Bullock Fires), and the Nogales District (Florida Fire) adversely affected deer habitat in areas that burned at high intensity. Deer were likely displaced to other habitat on the forest or on adjacent private, state, and BLM lands. Despite this displacement, natural succession after the fires will, in the long term, improve deer habitat as a mosaic of vegetation associations and seral stages progress.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire on these tracts, if unsuppressed, could temporarily reduce deer habitat by 77 acres. This increment of habitat alteration would not be expected to change the population trajectory on the forest for this species.

If the recreation residences are removed, vegetation at the tracts would replenish through natural succession, and deer habitat would eventually increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a change in the population trajectory on the forest for white-tailed deer.

Mearn's Quail (*Cyrtonyx montezumae mearnsi*)

Mearn's quail occupy a wide variety of vegetation associations, including desertscrub, grasslands, chaparral, broadleaf evergreen woodlands, coniferous woodlands, and riparian areas (USDA-FS, 2005). They have also been known to use areas of aspen (*Populus* spp.). Roosting and foraging sites generally have high total cover of grasses (49 to 54 percent). Diet consists mainly of acorns (*Quercus* spp.) and underground tubers (wood sorrel (*Oxalis* spp.), sedges (*Cyperus* spp.)); an insect component becomes important during the summer months (Stromberg 2000).

Forestwide, the population of Mearn's quail shows no clear trend, but AGFD harvest data indicate that harvest levels remain approximately the same as when this species was selected as an MIS in 1986. There are 225,410 acres of Mearn's quail habitat forestwide (USDA 2005). The Pinaleño Mountains are not considered among the highest density areas for Mearn's quail (USDA-FS, 2005). The 77 acres of recreation residence tracts are 0.03 percent of available forestwide habitat. Because of the small size of the project area relative to this, impacts of any alternatives evaluated in this EIS would not measurably affect forestwide populations of Mearn's quail.

No Action

If no action is taken, the tracts would revegetate naturally, providing additional habitat as shrubs, grasses, and forbs replenish areas denuded by residence removal activities. It is likely that this stage of succession would allow for increased insect populations, which would also provide additional food sources for Mearn's quail. Additional grass and shrub habitat would be available until succession progresses to a later stage with the growth of trees, which would provide additional food sources and cover for quail. During residence removal, quail might experience temporary disturbance and would likely avoid the area. Because of the mobility of this species and the amount of habitat available forestwide, negative impacts of no action on the population trajectory of Mearn's quail would be discountable. However, effects would be of benefit in the long term, because of an increase in understory growth of forbs and shrubs.

Proposed Action

If the proposed action is implemented, no change in quail density or abundance is expected. Openings maintained around recreation residences may provide additional nutrients and encourage understory growth in the surrounding area. However, human presence may cause temporary disturbance to quail when residences are occupied. Overall, these effects would have no measurable impact on the local and forestwide Mearn's quail population trajectory.

Cumulative Effects

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. These sites provide openings that, in many areas, encourage the growth of grasses, forbs, and shrubs that are a food source for quail. Intermittent human disturbance on the

tracts may cause quail to avoid the area. Overall, the beneficial and adverse effects of activities in these areas on forestwide quail habitat and population are negligible.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The PEM project (item 10) and thinning around special use sites (item 24) are ongoing in the understory, where trees up to 9 inches DBH are being removed. Because of the small size of trees being removed and the limited acreage affected, the availability of quail habitat is unlikely to be measurably impacted. Removal of a few larger diameter trees in the Turkey Flat area may stimulate further understory grass, forb, and shrub growth, which would, thus, improve quail foraging habitat, but would not result in a measurable benefit to the local or forestwide population trajectory.

Wildland fire and fire suppression damage and/or destroy overstory trees that provide cover for quail. However, fires also stimulate grass, forb and shrub growth by opening the canopy; this provides additional food sources for the species. Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Fire), the Santa Catalina Ranger District (Aspen and Bullock Fires), and the Nogales District (Florida Fire) adversely affected quail habitat in areas that burned at high intensity. Individuals were likely displaced to other habitat on the forest or on adjacent private, state, and BLM lands. Despite this displacement, natural succession after the fires will, in the long term, improve foraging habitat as a mosaic of vegetation associations and seral stages progress.

Because fire is a randomly occurring event of unpredictable intensity and duration, the additive effects that it might have in combination with the no action or proposed action are impossible to quantify. However, in general, damage caused by a wildland fire on these tracts, if unsuppressed, could temporarily reduce quail habitat by 77 acres. This small increment of habitat alteration would not be expected to change the population trajectory on the forest for this species.

If the recreation residences are removed, vegetation at the tracts would replenish through natural succession, and quail habitat would eventually increase. This would be an additive benefit when considered cumulatively with the impacts of other foreseeable activities.

If the permits are issued, habitat and human disturbance would remain the same. There would be no additive impacts with other actions that would result in a change in the population trajectory on the forest for Mearn's quail.

Peregrine Falcon (*Falco perigrinus anatum*)

The peregrine falcon is both a FSS and a MIS. A species and habitat description and an assessment of potential impacts from no action and the proposed action, including cumulative effects, were provided in the discussion of FSS earlier in this EIS. There is no estimate of forestwide habitat available for this species, however, surveys indicate that the forestwide population has been increasing since 1986 (USDA 2005).

Based on the impacts analysis reported in the FSS discussion, neither no action nor the action alternatives would have a measurable effect on the forestwide population trajectory of the peregrine falcon.

Apache trout (*Oncorhyncus apache*)

A species and habitat description and an assessment of potential impacts from no action and the action alternatives, including cumulative effects, were provided in the discussion of TES earlier in this EIS. There are 19.6 miles of Apache trout habitat forestwide. However, this habitat is considered unsuitable for contributing to species recovery efforts because of the potential for genetic contamination with other salmonid species.

The Old Columbine tract lies at the headwaters of Ash Creek, which supports trout more than 3 miles downstream of the tract. There is no available trend data for this species, but based on AGFD survey activities in the late 1980s and the 1990s, all historical habitats are occupied (USDA 2005). There are no trout streams on or downstream of Turkey Flat.

Based on the impacts analysis reported in the TES discussion, no action and all action alternatives would not have individual or cumulative measurable effects on the forestwide population trajectory of Apache trout.

Twin-spotted Rattlesnake (*Crotalus pricei pricei*)

This rattlesnake is locally common on talus slopes in ponderosa pine, aspen, and mixed conifer, generally above 8,000 feet in elevation. It eats lizards and small mammals, and breeding occurs from late June through August. Habitats for this species are relatively secure on the Coronado NF. The greatest threat to the species appears to be illegal collecting (USDA 2005). Recent research efforts have indicated that historic habitat in the Pinaleño Mountains remains occupied.

There are 46,351 acres of twin-spotted rattlesnake habitat forestwide, and this snake is considered fairly common within a restricted range (USDA 2005). The 77 acres comprising the recreation residence tracts are not considered twin-spotted rattlesnake habitat, because no talus slopes fall within their boundaries. Because of this, no impacts are expected from no action or the action alternatives, and there would be no changes in the trajectory of forestwide populations of twin-spotted rattlesnakes.

Other reasonably foreseeable actions in the project area include activities at the Arizona Bible Camp, astrophysical site, Heliograph and Ladybug electronic sites, recreation sites, and administrative sites. Of these sites, only the Heliograph electronic site occurs directly adjacent to an area with a talus slope. This talus slope was at one time under the canopy cover of mixed conifer forest, but high-intensity fire burned the north side of the slope during the Nuttall Complex Fire of 2004, essentially clearing the overstory and leaving many large snags scattered across the area. The area has since become stabilized with some grasses growing among the talus, and some small patches are starting to become populated with aspen saplings. Thus, it is unlikely that there are twin-spotted rattlesnakes at the Heliograph site that could be affected by human presence.

Three thinning projects (see table 2, items 10, 11, and 24) are currently in the planning or implementation stages in the mountain range. These projects have a combined objective of restoring the vegetation component of the forest to a condition wherein fire will play a natural role in ecological processes. The areas of the PEM project (item 10) and special-use project (item 24) do not contain talus slopes, so their activities would not affect twin-spotted rattlesnakes. The PERP project boundary encompasses areas of talus, but because talus slopes are generally steep (more than 40 percent slope), treatments would not be undertaken there. Thus, it is unlikely that

thinning projects would have a measurable impact on the forestwide population trajectory of the twin-spotted rattlesnake.

Recent wildland fires on the Safford Ranger District (Clark Peak Fire and Nuttall Complex Wildland Fire), the Santa Catalina Ranger District (Aspen and Bullock Fires), and the Nogales District (Florida Fire) reduced forestwide habitat for this rattlesnake in areas that burned at high intensity. Ongoing research indicates that historical habitats in the Pinaleños are still occupied by this snake; therefore, it is unlikely that Safford district fires have contributed adversely to a decline in the forestwide population.

There is no habitat for the rattlesnake on the residence tracts. Therefore, wildland fire in the tracts would not change the population trajectory on the forest for this species.

There is no habitat for the rattlesnake on the residence tracts. Therefore, implementation of the no action or the action alternatives in combination with the effects of other reasonably foreseeable actions would not change the population trajectory on the forest for the twin-spotted rattlesnake.

Mount Graham Red Squirrel (*Tamiasciurus hudsonicus grahamensis*)

A species and habitat description and an assessment of potential impacts from no action and the action alternatives, including cumulative effects, were provided in the discussion of the federally endangered MGRS earlier in this EIS.

Past estimates of red squirrel habitat on Mt. Graham reported that approximately 11,700 acres of coniferous forest were occupied (FWS 1992, FWS 1999). More recent studies by the AGFD indicate that approximately 16,680 acres of "potentially suitable" habitat occurs above 7,750 feet elevation (Hatten 2000). The most recent estimate of total suitable MGRS habitat on Mt. Graham was also provided by Hatten (2000), who reported that as much as 27,181 acres on Mt. Graham may be suitable MGRS habitat and that only a portion of this is presently occupied.

The 25-acre Old Columbine tract is suitable habitat for the MGRS. Recent (2006) surveys[24] reported no middens within the tract, and two active middens outside the tract, the closest being 15 feet from an outhouse near one of the residences.

The 52-acre Turkey Flat tract is lower in elevation and drier than Old Columbine because of its southern aspect; it is not considered to be prime MGRS habitat. Nevertheless, during a 2006 survey midden was observed within 500 feet away from a water tank that serves the residences. For this analysis, both tracts were considered to be red squirrel habitat. When considered relative to Hatten's estimate, the tracts comprise between 0.3 to 0.5 percent of "potentially suitable" habitat that is available forestwide.

No Action

If no action is taken, temporary disturbance by humans and vehicles during removal of improvements may disturb the squirrel, but in the long term, the tracts would experience natural succession that would in 50 to 100 years become red squirrel habitat. As a result, a slight increase in potential squirrel habitat of up to 77 acres (between 0.3 to 0.5 percent of present forestwide habitat) would be realized. This is a very small increment and is not likely to contribute significantly to a change in the forestwide population trajectory of the MGRS.

[24] Field visit by Anne Casey, Safford district biologist, and Ms. Thetis Gamberg, FWS.

Proposed Action

The area around the Old Columbine recreation residences has long been occupied by the MGRS despite the presence of residences and humans. While human disturbance would continue with permit renewal, the acreage of habitat available to the species would not change. The recent biological opinion issued by the FWS regarding potential impacts to the endangered MGRS concurred with the Forest Service assessment that the proposed action "may affect, and is likely to adversely affect" the MGRS (USDA 2007). The BO reported that an incidental "take" of two squirrels may occur if the proposed action is implemented. Such a loss would not contribute significantly to the forestwide population trajectory of the squirrel.

Cumulative Effects

Cumulative effects of other reasonably foreseeable actions were reported earlier in this EIS in the TES discussion. Based on the analysis, no action and the action alternatives would not have a measurable effect on the forestwide population trajectory of the MGRS.

Gould's Turkey (*Meleagris gallopavo mexicana*)

Gould's turkey is listed as both a FSS and MIS. A description of the species and habitat and an assessment of impacts are provided in the FSS discussion above.

There is no estimate of acres of available habitat forestwide, but this species also occurs in the Huachuca, Peloncillo, and Galiuro Mountains of the Coronado NF (USDA 2005). Since reintroductions in specific locations in the Pinaleños in 2004 and 2005, turkeys have increased in number and spread to all areas of the mountains (Safford Ranger District Sighting Information, unpublished data).

The 77 acres comprising both tracts could reasonably be considered turkey habitat; turkeys are regularly seen in and around the Old Columbine area. Gould's turkey habitat available within the Pinaleño Mountains is about 198,400 acres, which includes areas of spruce-fir forest, mixed conifer forest, pine-oak woodlands, chaparral areas, and desert grasslands; recent sightings have been reported in all of these vegetation associations (Safford Ranger District Sighting Information, unpublished data). The 77 acres of the two tracts comprises less than 0.04 percent of locally available turkey habitat.

No Action

If no action is taken, the tracts would revegetate naturally, providing additional habitat as shrubs, grasses, and forbs replenish areas denuded by removal activities. It is likely that this stage of succession would allow for increased insect populations, which would also provide additional food sources for Gould's turkeys. Additional grass and shrub habitat would be available until succession progresses to a later stage, allowing the growth of trees, which could also provide additional food sources and roosting sites for turkeys.

During residence removal, turkeys may be temporarily disturbed by human presence and noise and would likely avoid the area. However, they would benefit in the long term, because of an increase in understory growth of forbs and shrubs. In the short term, habitat alteration on the tracts may disturb the turkey, but in the long term, natural succession would result in an incrementally small net local increase (0.04 percent) in turkey habitat. This change would not alter the Gould' turkey population trend either locally in the Pinaleños or forestwide.

Proposed Action

If the proposed action is implemented, no change in turkey density or abundance is expected. Openings maintained around recreation residences may provide additional nutrients and encourage understory growth in the surrounding area. However, human presence may cause temporary disturbance to turkeys when residences are occupied.

These changes would have a negligible impact on turkey populations locally and forestwide.

Cumulative Effects

Cumulative effects of other reasonably foreseeable actions on Gould's turkey were reported earlier in this EIS in the FSS discussion. Based on the analysis, no action and the action alternatives would not have a measurable effect on the forestwide population trajectory of the turkey.

Fire Management

Prescribed fire application for the management of fuels, use of wildland fire (natural ignitions) for resource improvement and fuel reduction, fire suppression, and public and firefighter safety are all affected by the presence of the recreation residences and other human-made structures on the district.

Many ecosystems depend on fire for their composition and health. Fire, ranging from low-intensity to high intensity, from frequent intervals to infrequent intervals, is an important natural process in forest, brush, and prairie environments. Some ecosystems, like open ponderosa pine stands, depend on frequent lower intensity fires in cycles of 5 to 25 years (Danter 2008). Other ecosystems, such as chaparral (Manzanita/scrub oak), depend on periodic higher intensity fires with intervals of 15 to 20 years (Danter 2008). In mixed conifer regimes, fire tends to occur less frequently with higher intensity. Yet each fire scenario is important in maintaining those ecosystems. When natural processes or aggressive fire suppression removes periodic fire from fire-dependent environments, rapid changes in species density, composition and structure can occur, leading to overcrowding, decline in species health, and possible insect and disease outbreak. Concurrently, fuels continue to build up contributing to unwanted catastrophic wildfire.

The Forest Service seeks to improve overall forest health and lessen the risk of catastrophic, destructive wildland fires by working to bring the forests closer to historic, ecological conditions. It also realizes that human values and structures usually warrant protection and mitigation from possible devastating effects of a catastrophic wildland fire. Whether through natural ignitions or prescribed fire applications, both low and high intensity fires can be beneficial to help achieve these goals of protecting human resources while restoring a healthier ecological condition. Prior to European settlement, Southwestern ponderosa pine forests had far fewer trees than today and had frequent, low-intensity surface fires. To the Western Apaches, restoration of the fire-adapted ecosystem in the Pinaleños is important in protecting *Dzil Nchaa Si'an*, their sacred mountain and TCP.

Regulatory Framework

The "Coronado National Forest Fire Management Plan" (USDA-FS, 2006a) documents the various strategies used to determine the appropriate management response (AMR) to wildland

fires as well as strategies for managing the burnable vegetation (fuel) in the management areas identified in the forest plan; fire management units (FMUs); fire management analysis zones (FMZs); and ecosystem management areas (EMAs).

The National Fire Plan addresses approaches for accomplishing hazardous fuel reduction and for assisting communities that have been or may be threatened by wildland fire, and Federal Wildland Fire Management Policy states that the protection of human life is the single overriding suppression priority. Fires are suppressed at minimum cost, considering firefighter and public safety, and all values to be protected, consistent with resource objectives.

Fire Management Analysis Zones

The Coronado NF is presently divided into planning units, referred to as fire management analysis zones (FMZs), which are grouped according to common fire management direction and fire behavior characteristics. These include:

- FMZ AA: This zone occurs at high elevations having high resource value. Seventy-five percent of the Pinaleño Mountains EMA lies in this zone. Vegetation in this zone includes mixed conifer, ponderosa pine, and oak woodland communities. The high resource values of this zone are linked to the presence of recreation residence tracts, private land and structures, multiple high use recreation areas, threatened and endangered species, and astrophysical sites.
- FMZ BB: This zone occurs at low elevations having low resource values. Twenty-five percent of the Pinaleño EMA is in this zone.
- FMZ CC: This zone occurs at low elevations having high resource values. There are no FMZ CC zones in the project area.

FMZ AA and BB zones are of great value to the Western Apache Tribe and San Carlos Apache Tribe, as both comprise *Dził Nchass Si'an,* a TCP and sacred site.

Fire Suppression Considerations

Over an analysis period from 1985 to 1996, FMZ AA has experienced the highest percentage of natural (lightning) and human origin (62 percent). Both tracts were threatened by recent wildland fires in their immediate vicinity, the most recent in 2004 (the Nuttall Fire) and the other within the last decade (Clark Peak Fire, 1996).

Affected Environment

Vegetation in the Old Columbine tract is primarily mixed conifer with a considerable amount of intermixed spruce. Some of these stands have been previously thinned. This tract sits at the top of the drainage, which makes it vulnerable to wildland fire because of the high potential for uphill runs.

In the Turkey Flat area, the lower elevation stand is a pine-oak mix, and the upper elevation is a drier mixed conifer with small amounts of spruce intermixed. This area has a very heavy fuel loading, which could promote extreme fire behavior. This tract sits approximately mid-slope of the drainage, which places the structures in the worst part of the canyon for fire protection.

In both tracts, the potential for extreme fire behavior is high because of ongoing drought conditions, high winds, low humidity, and steep slopes. Inside the tract boundaries, the vegetation (trees and brush) and ground debris (pine needles and sticks) would be intermixed with any burnable material, including structures and contents, vehicles, propane tanks, wood piles, and outdoor furniture.

The fire regime condition class (FRCC)[25] for these areas is class 3, which indicates that the fire regime has been substantially altered from its natural (historical) range (Hahn et al., 2003). The natural range or reference condition is a close approximation of what the regime would have been prior to Euro-American settlement in the area. The natural range is preferable for ecosystem restoration and the integrity of the Western Apache TCP and sacred site.

Fire regime condition classes measure the degree of an ecosystem's departure from reference conditions. The three fire regime condition classes are based on no or low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the reference conditions (Hann et al., 2003). This departure is identified by changes in key ecosystem components, such as vegetation characteristics (species composition, structural stage, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances, such as insect and disease mortality, grazing, and drought. Possible causes of this departure include, but are not limited to, fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, and introduced insects and disease (Schmidt et al., 2002). All departures from natural conditions and their causes are considered by the Western Apache to adversely affect the integrity of the *Dził Nchaa Sian* TCP and sacred site.

The Turkey Flat tract is situated in the interior of a canyon, and the fuels in the area can best be described as both fuel model 2 (ponderosa pine with a grass understory as the primary carrier of fire) and fuel model 9 (ponderosa pine with needle cast as the primary carrier) (Anderson, 1982). The Old Columbine tract is located at the top (head) of the canyon as the slope starts to level out. This area is located in an area that transitions from fuel models 2 and 9, into fuel model 10 (mixed conifer with heavy dead and down ground fuels) which burns at a much higher intensity due to the heavier concentration of ground fuels (Anderson,1982).

Environmental Consequences

Direct and Indirect Effects, Old Columbine

No Action

This area is especially vulnerable to wildland fire because of its location at the top of Ash Creek. Fires in or near Ash Creek have the potential to run up-canyon, creating extreme fire behavior and threatening the recreation residences. In the Old Columbine tract, a considerable amount of fuel thinning was done during the Nuttall Fire of 2004.

[25] A fire regime condition class (FRCC) is a classification of the degree of departure from the natural (historic) regime. There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes (http://www.nwcg.gov/teams/wfewt/message/FrccDefinitions.pdf).

If the residences are removed, costly thinning ($1,000 per acre plus) would not need to be repeated to maintain a defensible space[26]. Also, future structure protection would not be necessary, and expenditure of funds for such would significantly decline.

Using the latest wildland fire situation analysis (WFSA) to calculate suppression costs, the daily costs for initial attack would average $60,000 to $100,000 per day and extended attack would average $100,000 to $150,000+ per day depending on time of year and current conditions in the tracts. In the future, cost savings would be realized for possible redirection to additional thinning and suppression in other areas, such as Forest Service facilities, the Arizona Bible Camp, telescopes, and other facilities that remain.

Additionally, with the structures gone, wildland fire use and prescribed fire would be easier to implement as management tools to improve the FRCC, and improving the FRCC would help restore the natural ecosystem, which would benefit the ecosystem of the Western Apache TCP.

Proposed Action

If new permits are issued, the need for Forest Service fuel thinning projects and fire suppression would continue. This would require the dedication of taxpayer funds for firefighting and would continue to present a risk of damage to firefighting equipment and injury or death to firefighting crews. The return of a natural fire cycle of low-intensity fires would be impeded. Restoration of the natural ecosystem of the Western Apache TCP and sacred site would be delayed for another 20+ years.

Issue Turkey Flat Only

See impacts under alternative 1 for Old Columbine and alternative 2 for Turkey Flat.

Issue Old Columbine Only

See impacts under alternative 1 for Turkey Flat and alternative 2 for Old Columbine.

Direct and Indirect Effects, Turkey Flat

No Action

Fuel reduction projects are currently being implemented to aid in the protection of structures and alter fire behavior. If the structures are removed after the expiration of the 10-year closeout permit, these projects would no longer need to be repeated. Savings in human resources and funds could be utilized for other wildland-urban interface projects on the district or forest.

With the structures removed, the opportunity for fire managers to apply a wildland fire use strategy would increase, and the decreased cost of firefighting to protect the structures would approach $60,000 to $150,000 per day. Furthermore, the need for complex mitigation measures would be eliminated. During wildland fire events, firefighting resources would be able to retreat to the road to construct a fire break rather than providing expensive structure protection in an area with poor access and egress, which compromises public and firefighter safety. In all cases, the exposure to firefighters would be greatly reduced.

[26] Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildland fire toward the structure. It also reduces the chance of a structure fire moving from the building to the surrounding forest. Defensible space is an area where flame lengths and fire intensity are reduced enough to allow firefighters to contain the spread of wildland fire.

Additionally, with the structures gone, wildland fire use and prescribed fire would be easier to implement as management tools to improve the FRCC, and improving the FRCC would help restore the natural ecosystem, which would benefit the ecosystem of the Western Apache TCP.

Proposed Action

If new permits are issued, the need for Forest Service fuel thinning projects and fire suppression would continue. Taxpayer revenue would continue to support fire suppression. The risk of damage to firefighting equipment and injury or death to firefighting crews would continue. The return of a natural fire cycle of low-intensity fires and restoration of the natural ecosystem of the Western Apache TCP and sacred site would be delayed for another 20+ years.

Issue Turkey Flat Only

See impacts under alternative 1 for Old Columbine and alternative 2 for Turkey Flat.

Issue Old Columbine Only

See impacts under alternatives 1 for Turkey Flat and alternative 2 for Old Columbine.

Cumulative Effects

No Action

The cumulative effect of removing the recreation residences, in conjunction with adjacent acres burned by recent large fires and the adjacent past and future fuel reduction projects, would be to promote more options for wildland fire management (i.e., wildland fire use and large prescribed burns) across the entire Pinaleño EMA. This, in turn, would expedite the improvement of the FRCC (Hahn et al., 2003) for the analysis area. Allowing naturally ignited fires with low to moderate fire behavior to burn would improve the composition of vegetation communities and encourage the succession of a more fire tolerant landscape. A fire tolerant landscape would burn with less intensity, and there would be little or no damage to old growth trees. Further, the fire-tolerant landscape would be in harmony with the ecosystem restoration regarded by the Western Apaches as essential to protecting their TCP and sacred site.

Proposed Action

Issuing new permits for the old Columbine and Turkey Flat tract would have a cumulative effect of reducing the ability of fire managers to use natural wildland fire and prescribed fire for ecosystem restoration or resource management purposes because of their potential threat to property. Smaller, more expensive fuel reduction projects would continue to be necessary for these tracts as well as all other structures on the mountain. This alternative would limit the options for improving the FRCC and restoring the Western Apache TCP and sacred site. In addition, there would continue to be a risk of fires igniting in recreation residence tracts and spreading into the forest. The Forest Service could exercise its authority to close the forest or limit use of recreation residence tracts during peak fire danger periods. The present use of risk-benefit analysis as part of wildland fire suppression would continue; firefighter safety would continue to be held above all risk to protect property.

Issue Turkey Flat Only

See impacts under alternative 1 for Old Columbine and alternative 2 for Turkey Flat.

Issue Old Columbine Only

See impacts under alternatives 1 for Turkey Flat and alternative 2 for Old Columbine.

Unavoidable Adverse Effects

Unavoidable adverse impacts of the proposed action are those that occur when:

- There are no reasonably practicable mitigation measures to avoid or minimize adverse impacts.
- There are no reasonable alternatives to the proposed action that satisfy the purpose of and need for the action, eliminate the impact(s), and/or in themselves, do not result in other or similar adverse impacts.

In essence, unavoidable adverse impacts on natural and human resources are those that would exist after project implementation, even after mitigation measures have been applied.

The proposed action of reissuing permits for the recreation residences on the Safford Ranger District would not result in any unavoidable adverse impacts to the various resources evaluated in this EIS.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments result in the absolute loss of a resource, such as the extinction of a species or the removal of a mineral or an ore from the earth. Irretrievable commitments are those that are lost for a limited period of time, such as the decrease in timber productivity of forested areas that are cleared for use as a power line right-of-way or road. An irreversible commitment is one that lasts forever; an irretrievable commitment is one that constrains the production or use of a renewable resource for a short to medium period of time (i.e., several or many years).

There will be no irreversible commitments of resources from any of the alternatives or actions analyzed in this EIS. Implementation of the proposed action would continue recreational use of the tracts for a minimum of 20 years, which is an irretrievable commitment that would delay natural succession and the eventual full restoration of the tracts to historic forest conditions.

Chapter 4. Consultation and Coordination

This EIS was prepared by the following Forest Service staff.

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The Forest Service consulted the many individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during development of this EIS (project record, item 9). Among them were the following agencies and tribes.

Federal, State, and Local Agencies

U.S. Fish and Wildlife Service

Advisory Council on Historic Preservation

Arizona Department of Economic Security

Arizona Department of Environmental Quality

Arizona Department of Water Resources

Arizona Game and Fish Department

Arizona State Historic Preservation Office

University of Arizona

Graham County Assessor

Graham County Treasurer

Tribes

Ak-Chin Indian Community

Ft. Sill Apache Tribe

Gila River Indian Community

Hopi Cultural Preservation Office

Mescalero Apache Tribe

Pascua Yaqui Tribe

Pueblo of Zuni

Salt River Pima-Maricopa Indian Community

San Carlos Apache Tribe

Tohono O'odham Nation

White Mountain Apache Tribe

Yavapai-Apache Nation

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Appendix

A. Example of Special-Use Permit, with Operation and Maintenance Plan

Authorization ID_____ FS-2700-5a (8/99)
Contact ID_____ OMB No. 0596-0082
Expiration Date_____ (mm/dd/yyyy)

U.S. DEPARTMENT OF AGRICULTURE
Forest Service
TERM SPECIAL USE PERMIT
For Recreation Residences
As of March 4, 1915, As Amended
(Ref. FSM 2710)

<Holder Name> of <Address, City, State, Zip Code> (hereafter called the holder) is hereby authorized to use national forest lands, for a recreation residence for personal recreational use on the <NF Name> National Forest, subject to the provisions of this permit including items I.A through___, on page(s)___through___. This permit covers___acres.

Described as: (1) Lot___of the <Name of Tract> tract.
(A plat of which is on file in the office of the Forest Supervisor.)

OR (2) <Legal Description> as shown on the attached map.

The following improvements, whether on or off the lot, are authorized in addition to the residence structure:

This use shall be exercised at least 15 days each year, unless otherwise authorized in writing. It shall not be used as a full-time residence to the exclusion of a home elsewhere.

THIS PERMIT IS NOT TRANSFERABLE
PURCHASERS OF IMPROVEMENTS ON SITES AUTHORIZED BY THIS PERMIT MUST SECURE A NEW PERMIT FROM THE FOREST SERVICE.

THIS PERMIT IS ACCEPTED SUBJECT TO ALL OF ITS TERMS AND CONDITIONS.

ACCEPTED _____ _____
HOLDER'S NAME AND SIGNATURE DATE

APPROVED _____ _____
AUTHORIZED OFFICER'S NAME AND SIGNATURE TITLE DATE

TERMS AND CONDITIONS

I. AUTHORITY AND USE AND TERM AUTHORIZED.

A. This permit is issued under the authority of the Act of March 4, 1915, as amended (16 U.S.C. 497), and Title 36, Code of Federal Regulations, Sections 251.50-251.64. Implementing Forest Service policies are found in the Forest Service Directives System (FSM 1920, 1950, 2340, 2720; FSH 2709.11, Chap. 10-50). Copies of the applicable regulations and policies will be made available to the holder at no charge upon request made to the office of the forest supervisor.

B. The authorized officer under this permit is the forest supervisor, or a delegated subordinate officer.

C. This permit authorizes only personal recreation use of a noncommercial nature by the holder, members of the holder's immediate family, and guests. Use of the permitted improvements as a principal place of residence is prohibited and shall be grounds for revocation of this permit.

D. Unless specifically provided as an added provision to this permit, this authorization is for site occupancy and does not provide for the furnishing of structures, road maintenance, water, fire protection, or any other such service by a Government agency, utility association, or individual.

E. Termination at End of Term: This authorization will terminate on <Insert Date>.

II. OPERATION AND MAINTENANCE.

A. The authorized officer, after consulting with the holder, will prepare an operation and maintenance plan which shall be deemed a part of this permit. The plan will be reviewed annually and updated as deemed necessary by the authorized officer and will cover requirements for at least the following subjects:

1. Maintenance of vegetation, tree planting, and removal of dangerous trees and other unsafe conditions
2. Maintenance of the facilities.
3. Size, placement and descriptions of signs.
4. Removal of garbage or trash.
5. Fire protection.
6. Identification of the person responsible for implementing the provisions of the plan, if other than the holder, and a list of names, addresses, and phone numbers of persons to contact in the event of an emergency.

III. IMPROVEMENTS.

A. Nothing in this permit shall be construed to imply permission to build or maintain any improvement not specifically named on the face of this permit or approved in writing by the authorized officer in the operation and maintenance plan. Improvements requiring specific approval shall include, but are not limited to: signs, fences, name plates, mailboxes, newspaper boxes, boathouses, docks, pipelines, antennas, and storage sheds.

B. All plans for development, layout, construction, reconstruction or alteration of improvements on the lot, as well as revisions of such plans, must be prepared by a licensed engineer, architect, and/or landscape architect (in those states in which such

licensing is required) or other qualified individual acceptable to the authorized officer. Such plans must be approved by the authorized officer before the commencement of any work.

IV. RESPONSIBILITIES OF HOLDER.

A. The holder, in exercising the privileges granted by this permit, shall comply with all present and future regulations of the Secretary of Agriculture and all present and future federal, state, county, and municipal laws, ordinances, or regulations which are applicable to the area or operations covered by this permit. However, the Forest Service assumes no responsibility for enforcing laws, regulations, ordinances and the like which are under the jurisdiction of other government bodies.

B. The holder shall exercise diligence in preventing damage to the land and property of the United States. The holder shall abide by all restrictions on fires which may be in effect within the forest at any time and take all reasonable precautions to prevent and suppress forest fires. No material shall be disposed of by burning in open fires during a closed fire season established by law or regulation without written permission from the authorized officer.

C. The holder shall protect the scenic and esthetic values of the National Forest System lands as far as possible consistent with the authorized use, during construction, operation, and maintenance of the improvements.

D. No soil, trees, or other vegetation may be removed from the National Forest System lands without prior permission from the authorized officer. Permission shall be granted specifically, or in the context of the operations and maintenance plan for the permit.

E. The holder shall maintain the improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer. The holder shall fully repair and bear the expense for all damage, other than ordinary wear and tear, to national forest lands, roads and trails caused by the holder's activities.

F. The holder assumes all risk of loss to the improvements resulting from acts of God or catastrophic events, including but not limited to, avalanches, rising waters, high winds, falling limbs or trees and other hazardous natural events. In the event the improvements authorized by this permit are destroyed or substantially damaged by acts of God or catastrophic events, the authorized officer will conduct an analysis to determine whether the improvements can be safely occupied in the future and whether rebuilding should be allowed. The analysis will be provided to the holder within 6 months of the event.

G. The holder has the responsibility of inspecting the site, authorized rights-of-way, and adjoining areas for dangerous trees, hanging limbs, and other evidence of hazardous conditions which could affect the improvements and or pose a risk of injury to individuals. After securing permission from the authorized officer, the holder shall remove such hazards.

H. In case of change of permanent address or change in ownership of the recreation residence, the holder shall immediately notify the authorized officer.

V. LIABILITIES.

A. This permit is subject to all valid existing rights and claims outstanding in third parties. The United States is not liable to the holder for the exercise of any such right or claim.

B. The holder shall hold harmless the United States from any liability from damage to life or property arising from the holder's occupancy or use of national forest lands under this permit.
C. The holder shall be liable for any damage suffered by the United States resulting from or related to use of this permit, including damages to national forest resources and costs of fire suppression. Without limiting available civil and criminal remedies which may be available to the United States, all timber cut, destroyed, or injured without authorization shall be paid for at stumpage rates which apply to the unauthorized cutting of timber in the state wherein the timber is located.

VI. FEES.
A. Fee Requirement: This special use authorization shall require payment in advance of an annual rental fee.
B. Appraisals:
1. Appraisals to ascertain the fair market value of the lot will be conducted by the Forest Service at least every 20 years. The next appraisal will be implemented in <Insert Date>.
2. Appraisals will be conducted and reviewed in a manner consistent with the Uniform Standards of Professional Appraisal Practice, from which the appraisal standards have been developed, giving accurate and careful consideration to all market forces and factors which tend to influence the value of the lot.
3. If dissatisfied with an appraisal utilized by the Forest Service in ascertaining the permit fee, the holder may employ another qualified appraiser at the holder's expense. The authorized officer will give full and complete consideration to both appraisals provided the holder's appraisal meets Forest Service standards. If the two appraisals disagree in value by more than 10 percent, the two appraisers will be asked to try and reconcile or reduce their differences. If the appraisers cannot agree, the Authorized Officer will utilize either or both appraisals to determine the fee. When requested by the holder, a third appraisal may be obtained with the cost shared equally by the holder and the Forest Service. This third appraisal must meet the same standards of the first and second appraisals and may or may not be accepted by the authorized officer.
C. Fee Determination:
1. The annual rental fee shall be determined by appraisal and other sound business management principles. (36 CFR 251.57(a)). The fee shall be 5 percent of the appraised fair market fee simple value of the lot for recreation residence use. Fees will be predicated on an appraisal of the lot as a base value, and that value will be adjusted in following years by utilizing the percent of change in the Implicit Price Deflator – Gross National Product (IPD-GNP) index as of the previous June 30. A fee from a prior year will be adjusted upward or downward, as the case may be, by the percentage change in the IPD-GNP, except that the maximum annual fee adjustment shall be 10 percent when the IPD-GNP index exceeds 10 percent in any one year with the amount in excess of 10 percent carried forward to the next succeeding year where the IPD-GNP index is less than 10 percent. The base rate from

which the fee is adjusted will be changed with each new appraisal of the lot, at least every 20 years.

2. If the holder has received notification that a new permit will not be issued following expiration of this permit, the annual fee in the tenth year will be taken as the base, and the fee each year during the last 10-year period will be one-tenth of the base multiplied by the number of years then remaining on the permit. If a new term permit should later be issued, the holder shall pay the United States the total amount of fees foregone, for the most recent 10-year period in which the holder has been advised that a new permit will not be issued. This amount may be paid in equal annual installments over a 10-year period in addition to those fees for existing permits. Such amounts owing will run with the property and will be charged to any subsequent purchaser of the improvements.

D. Initial Fee: The initial fee may be based on an approved Forest Service appraisal existing at the time of this permit, with the present day value calculated by applying the IPD-GNP index to the intervening years.

E. Payment Schedule: Based on the criteria stated herein, the initial payment is set at $ per year and the fee is due and payable annually on <Insert Date>. Payments will be credited on the date received by the designated collection officer or deposit location. If the due date(s) for any of the above payments or fee calculation statements fall on a non-workday, the charges shall not apply until the close of business of the next workday. Any payments not received within 30 days of the due date shall be delinquent.

F. Late Payment Interest, Administrative Costs and Penalties: Pursuant to 31 U.S.C. 3717, et seq., interest shall be charged on any fee amount not paid within 30 days from the date the fee or fee calculation financial statement specified in this authorization becomes due. The rate of interest assessed shall be the higher of the rate of the current value of funds to the U.S. Treasury (i.e., Treasury tax and loan account rate), as prescribed and published by the Secretary of the Treasury in the Federal Register and the Treasury Fiscal Requirements Manual Bulletins annually or quarterly or at the Prompt Payment Act rate. Interest on the principal shall accrue from the date the fee or fee calculation financial statement is due.

In the event the account becomes delinquent, administrative costs to cover processing and handling of the delinquency will be assessed.
A penalty of 6 percent per annum shall be assessed on the total amount delinquent in excess of 90 days and shall accrue from the same date on which interest charges begin to accrue.

Payments will be credited on the date received by the designated collection officer or deposit location. If the due date for the fee or fee calculation statement falls on a non-workday, the charges shall not apply until the close of business on the next workday. Disputed fees are due and payable by the due date. No appeal of fees will be considered by the Forest Service without full payment of the disputed amount. Adjustments, if necessary, will be made in accordance with settlement terms or the appeal decision.

If the fees become delinquent, the Forest Service will:

Liquidate any security or collateral provided by the authorization.

If no security or collateral is provided, the authorization will terminate and the holder will be responsible for delinquent fees as well as any other costs of restoring the site to it's original condition including hazardous waste cleanup.
Upon termination or revocation of the authorization, delinquent fees and other charges associated with the authorization will be subject to all rights and remedies afforded the United States pursuant to 31 U.S.C. 3711 et seq. Delinquencies may be subject to any or all of the following conditions:

Administrative offset of payments due the holder from the Forest Service. Delinquencies in excess of 60 days shall be referred to United States Department of Treasury for appropriate collection action as provided by 31 U.S.C. 3711 (g), (1).
The Secretary of the Treasury may offset an amount due the debtor for any delinquency as provided by 31 U.S.C. 3720, et seq.)

G. Nonpayment Constitutes Breach: Failure of the holder to make the annual payment, penalty, interest, or any other charges when due shall be grounds for termination of this authorization. However, no permit will be terminated for nonpayment of any monies owed the United States unless payment of such monies is more than 90 days in arrears.
H. Applicable Law: Delinquent fees and other charges shall be subject to all the rights and remedies afforded the United States pursuant to federal law and implementing regulations. (31 U.S.C. 3711 et seq.).

VII. TRANSFER, SALE, AND RENTAL.

A. Nontransferability: Except as provided in this section, this permit is not transferable.
B. Transferability Upon Death of the Holder:
   1. If the holder of this permit is a married couple and one spouse dies, this permit will continue in force, without amendment or revision, in the name of the surviving spouse.
   2. If the holder of this permit is an individual who dies during the term of this permit and there is no surviving spouse, an annual renewable permit will be issued, upon request, to the executor or administrator of the holder's estate. Upon settlement of the estate, a new permit incorporating current Forest Service policies and procedures will be issued for the remainder of the deceased holder's term to the properly designated heir(s) as shown by an order of a court, bill of sale, or other evidence to be the owner of the improvements.
C. Divestiture of Ownership: If the holder through voluntary sale, transfer, enforcement of contract, foreclosure, or other legal proceeding shall cease to be the owner of the physical improvements, this permit shall be terminated. If the person to whom title to said improvements is transferred is deemed by the authorizing officer to be qualified as a holder, then such person to whom title has been transferred will be granted a new permit. Such new permit will be for the remainder of the term of the original holder.
D. Notice to Prospective Purchasers: When considering a voluntary sale of the recreation residence, the holder shall provide a copy of this special use permit to the prospective

purchaser before finalizing the sale. The holder cannot make binding representations to the purchasers as to whether the Forest Service will reauthorize the occupancy.

E. Rental: The holder may rent or sublet the use of improvements covered under this permit only with the express written permission of the authorized officer. In the event of an authorized rental or sublet, the holder shall continue to be responsible for compliance with all conditions of this permit by persons to whom such premises may be sublet.

VIII. REVOCATION.

A. Revocation for Cause: This permit may be revoked for cause by the authorized officer upon breach of any of the terms and conditions of this permit or applicable law. Prior to such revocation for cause, the holder shall be given notice and provided a reasonable time – not to exceed ninety (90) days – within which to correct the breach.

B. Revocation in the Public Interest During the Permit Term:

1. This permit may be revoked during its term at the discretion of the authorized officer for reasons in the public interest. (36 CFR 251.60(b)). In the event of such revocation in the public interest, the holder shall be given one hundred and eighty (180) days prior written notice to vacate the premises, provided that the authorized officer may prescribe a date for a shorter period in which to vacate ("prescribed vacancy date") if the public interest objective reasonably requires the lot in a shorter period of time.
2. The Forest Service and the holder agree that in the event of a revocation in the public interest, the holder shall be paid damages. Revocation in the public interest and payment of damages is subject to the availability of funds or appropriations.
    a. Damages in the event of a public interest revocation shall be the lesser amount of either (1) the cost of relocation of the approved improvements to another lot which may be authorized for residential occupancy (but not including the costs of damages incidental to the relocation which are caused by the negligence of the holder or a third party), or (2) the replacement costs of the approved improvements as of the date of revocation. Replacement cost shall be determined by the Forest Service utilizing standard appraisal procedures giving full consideration to the improvement's condition, remaining economic life and location, and shall be the estimated cost to construct, at current prices, a building with utility equivalent to the building being appraised using modern materials and current standards, design and layout as of the date of revocation. If revocation in the public interest occurs after the holder has received notification that a new permit will not be issued following expiration of the current permit, then the amount of damages shall be adjusted as of the date of revocation by multiplying the replacement cost by a fraction which has as the numerator the number of full months remaining to the term of the permit prior to revocation (measured from the date of the notice of revocation) and as the denominator, the total number of months in the original term of the permit.
    b. The amount of the damages determined in accordance with paragraph a. above shall be fixed by mutual agreement between the authorized officer and the holder and shall be accepted by the holder in full satisfaction of all claims against the United States under this clause: Provided, That if mutual agreement is not reached, the authorized officer shall determine the amount and if the holder is

dissatisfied with the amount to be paid may appeal the determination in accordance with the Appeal Regulations (36 CFR 251, Subpart C) and the amount as determined on appeal shall be final and conclusive on the parties hereto: Provided further, That upon the payment to the holder of the amount fixed by the authorized officer, the right of the Forest Service to remove or require the removal of the improvements shall not be stayed pending final decision on appeal.

IX. ISSUANCE OF A NEW PERMIT.

A. Decisions to issue a new permit or convert the permitted area to an alternative public use upon termination of this permit require a determination of consistency with the Forest Land and Resource Management Plan (Forest Plan).

1. Where continued use is consistent with the Forest Plan, the authorized officer shall issue a new permit, in accordance with applicable requirements for environmental documentation.
2. If, as a result of an amendment or revision of the Forest Plan, the permitted area is within an area allocated to an alternative public use, the authorized officer shall conduct a site specific project analysis to determine the range and intensity of the alternative public use.
    a. If the project analysis results in a finding that the use of the lot for a recreation residence may continue, the holder shall be notified in writing, this permit shall be modified as necessary, and a new term permit shall be issued following expiration of the current permit.
    b. If the project analysis results in a decision that the lot shall be converted to an alternative public use, the holder shall be notified in writing and given at least 10 years continued occupancy. The holder shall be given a copy of the project analysis, environmental documentation, and decision document.
    c. A decision resulting from a project analysis shall be reviewed two years prior to permit expiration, when that decision and supporting environmental documentation is more than 5 years old. If this review indicates that the conditions resulting in the decision are unchanged, then the decision may be implemented. If this review indicates that conditions have changed, a new project analysis shall be made to determine the proper action.

B. In issuing a new permit, the authorized officer shall include terms, conditions, and special stipulations that reflect new requirements imposed by current Federal and State land use plans, laws, regulations, or other management decisions. (36 CFR 251.64).

C. If the 10-year continued occupancy given a holder who receives notification that a new permit will not be issued would extend beyond the expiration date of the current permit, a new term permit shall be issued for the remaining portion of the 10-year period.

X. RIGHTS AND RESPONSIBILITIES UPON REVOCATION OR NOTIFICATION THAT A NEW PERMIT WILL NOT BE ISSUED FOLLOWING TERMINATION OF THIS PERMIT.

A. Removal of Improvements Upon Revocation or Notification That A New Permit Will Not Be Issued Following Termination Of This Permit: At the end of the term of occupancy authorized by this permit, or upon abandonment, or revocation for cause, Act

of God, catastrophic event, or in the public interest, the holder shall remove within a reasonable time all structures and improvements except those owned by the United States, and shall return the lot to a condition approved by the authorized officer unless otherwise agreed to in writing or in this permit. If the holder fails to remove all such structures or improvements within a reasonable period – not to exceed one hundred and eighty (180) days from the date the authorization of occupancy is ended – the improvements shall become the property of the United States, but in such event, the holder remains obligated and liable for the cost of their removal and the restoration of the lot.

B. In case of revocation or notification that a new permit will not be issued following termination of this permit, except if revocation is for cause, the authorized officer may offer an in-lieu lot to the permit holder for building or relocation of improvements. Such lots will be nonconflicting locations within the national forest containing the residence being terminated or under notification that a new permit will not be issued or at nonconflicting locations in adjacent national forests. Any in-lieu lot offered the holder must be accepted within 90 days of the offer or within 90 days of the final disposition of an appeal on the revocation or notification that a new permit will not be issued under the Secretary of Agriculture's administrative appeal regulations, whichever is later, or this opportunity will terminate.

XI. MISCELLANEOUS PROVISIONS.

A. This permit replaces a special use permit issued to: <Previous Holder> on <Date>.

B. The Forest Service reserves the right to enter upon the property to inspect for compliance with the terms of this permit. Reports on inspection for compliance will be furnished to the holder.

C. Issuance of this permit shall not be construed as an admission by the Government as to the title to any improvements. The Government disclaims any liability for the issuance of any permit in the event of disputed title.

D. If there is a conflict between the foregoing standard printed clauses and any special clauses added to the permit, the standard printed clauses shall control.

<Note: Additional clauses may be added by the authorized officer to reflect local conditions. Delete these instructions prior to printing.>

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection on information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statues, along with the Term Permit Act, National Forest Ski Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and

Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Public reporting burden for this collection of information, if requested, is estimated to average 1 hour per response for annual financial information; average 1 hour per response to prepare or update operation and/or maintenance plan; average 1 hour per response for inspection reports; and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information, and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

OPERATION AND MAINTENANCE PLAN
FOR

RECREATION RESIDENCE

UNDER PERMIT TO

_____

Permit Holder/Owner

_____

XXXXXXXXX Tract, Lot No.

XXXXXXXX RANGER DISTRICT

CORONADO NATIONAL FOREST

I. INTRODUCTION

A. As owner of a recreation residence (cabin) on National Forest System (NFS) lands, you have been issued a term special-use permit, which is a contract between the Forest Service and the person(s) who signed that permit.

1. Clause II.A. of the special use permit requires that the Forest Service prepare (in consultation with the permit holder) an Operation and Maintenance Plan. This document fulfills that requirement, and is hereby made a part of the special-use permit. It will be reviewed annually and updated as necessary by the District Ranger.

2. If a change in the operation and maintenance plan warrants an environmental analysis, it will be conducted in accordance with National Environmental Policy Act (NEPA) and the effects of the changes documented.

B. To ensure that the lot and cabin are being appropriately maintained, an inspection will be scheduled annually, with a copy of the findings sent to you. A copy of the checklist we will use is available for review at the Ranger Station. If this Operation and Maintenance Plan is followed, in conjunction with the Term Special-Use Permit, together we can assure that mutual objectives are met.

C. The permit holder responsible for implementing this plan is:

_____

NAME

_____

ADDRESS

_____

PHONE

The person(s) to contact in the event of an emergency (if other than the holder) is:

_____ _____

NAME PHONE

II. LOT MAINTENANCE

A. Hazard Removal

It is the permit holder's responsibility to inspect the lot, driveway, and immediate adjoining areas to their lot for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing written permission from the Forest Service, to remove such hazards. If it is felt that any snag (a dead, standing tree), large limb, leaning tree (whether dead or green), etc., on or off the lot, is (or could become) a safety hazard, notify Douglas District Ranger. It is the permit holder's responsibility to remove any hazard, on or off the lot, which may pose a threat to safety.

B. Vegetation Maintenance

Vegetation maintenance, other than the fire prevention requirements (VIII. B.) of this plan, is discouraged due to a number of potential adverse impacts, such as erosion problems, reduction of wildlife habitat, and visual screening. If there is some vegetation removal that the holder considers necessary, contact the Ranger District office with a written proposal.

Planting of native species of trees, shrubs and flowers may be done to enhance or restore a natural appearing forested setting – after securing written permission from the Forest Service. Remember that little trees become big ones, so do not plant them too close to buildings. Planting of non-native species of trees, shrubs and flowers, is prohibited.

C. Miscellaneous Items

1. Swings, yard lights, signs, wires or other materials shall not be attached to trees.
2. Outdoor fire rings or pits are not authorized.
3. All items not specifically stated on the permit must be stored inside the cabin or removed from NFS lands when the residence is not in use. This includes all sports and play equipment (including horseshoe stakes, swings, etc), tools, signs, barbeque grills, picnic tables, fake plants, etc.
4. Authorization for outside lights needed for safety may be granted. Lights must be mounted on buildings. All outside lights must be shielded so the light shines directly on the yard or on entrances and not affect adjacent lots or NFS lands.
5. When approved, new electric lines (excluding the main service line) must be buried. Existing over-head lines will be buried when they are in need of replacement. All electrical work will meet current county codes.
6. Precautions to prevent soil erosion will be taken by keeping vehicles on established roads and by parking only in approved areas. Approved areas will be sufficient to hold two vehicles. Enlarging areas to allow additional vehicles is prohibited. Road culverts and water bars will be maintained free of debris and replaced when damaged.
7. The lot is not intended to be used as a storage area. After securing written permission from the District Ranger, all building materials that will be used within three months must be stored out-of-sight or neatly stacked. All other materials will be removed. No items will be stored on or under decks or patios.
8. The storage of motor vehicles, and the storage or use of camp trailers, fifth-wheeled trailers, recreational vehicles, etc, is prohibited.

9. Television antennas and satellite dishes may be used but must be removed and stored indoors when the cabin is not occupied. Antennas/dishes may not be attached to trees.
10. Gates, fences and walls will not be constructed.
11. The national flag of the United States of America and/or the flag of its States or Territories may be displayed. No other flags, banners, holiday ornaments, or lights may be displayed.
12. The District Ranger will be consulted prior to any soil disturbing activity, and work will not begin until approval is granted.

III. FACILITY MAINTENANCE

A. Structures

1. The foundation of the cabin should be checked yearly to ensure that it is structurally sound and in good repair. If dirt or leaves have accumulated against the foundation, they must be cleared away. If the cabin is on a slope and has an open space under it, a screen or latticework enclosing the foundation is required to prevent debris from collecting under it. Combustible material should never be stored under any structure.
2. All roof areas and gutters must be kept free of limbs, needles, and other debris. Loose roofing or shingles must be repaired. Check the eaves and around flashing for wood rot.
3. To blend with the national forest landscape and provide consistency between all recreation residence tracts on the Coronado National Forest, paint industry standards, to define appropriate colors, will be used. These standards include the Munsell Color System (combinations of hue, value and chroma are used to define each color) and light reflectance values (LRV). Generally, shades of green and brown are recommended; subdued grays may also be acceptable. Table 1 gives the range of the units that must be met within the authorized hues.

Table 1

Hue	Green	Green-Yellow	Yellow	Yellow-Red
Value	<5	<4	<5	<6
Chroma	<7	<4	<8	<4

a. Additionally, the following requirements must be met:
   (1) The cabin, roof, and all other improvements must meet the color standards listed in Table 1. The only exception is propane tanks, which may be left white.
   (2) Do not use glossy colors
   (3) Colors of paint, stains, and other building materials (such as roofing) shall have a light reflectance value under 30.
   (4) If roof color is different than wall color, avoid highly contrasting colors.
   (5) Color of trim, doors, and windows shall be the same or similar color as siding.

4. Prior to selecting your paint, stain, or any other exterior materials, permittee must secure approval from the Forest Service. If a deck is to be left in unfinished natural wood color, the surface must be treated with some type of clear waterproofing or linseed oil. Once a surface has been painted, it must be repainted regularly.
5. Exceptions to the color requirements include newly installed wood with clear protective coatings, existing cabins constructed of red brick or natural block.

IV. ADDITION OF STRUCTURES OR FACILITIES & CABIN RECONSTRUCTION

A. Only those structures listed on page 1 of the Term Special-Use Permit are authorized. Additional structures and facilities may be approved where & when appropriate. Environmental analysis for additional structures must be conducted, with the cost borne by the permit holder.

B. Construction of, addition to, or significant modification of, any building or structurally-significant facility will require detailed review and written approval, as follows:
   1. Proposals will be submitted to the District Ranger as per Clause III.B. of the Term Special-Use Permit. The detail of the plans will be commensurate with the scope of the project. After review of the concept, a letter of approval or disapproval will be provided to the permit holder.
   2. Environmental analysis for the reconstruction of, addition to, or significant modification of, any building or structurally-significant facility may be necessary, with the cost borne by the permit holder.
   3. Upon receipt of approval in concept, and the completion of any required environmental analysis, the permit holder shall apply for a building permit from the appropriate County. If the County does not require a construction permit, the holder will work with a registered/certified architect and acquire stamped plans.
   4. Upon receipt of the County building permit or stamped plans, the permit holder will forward a copy to the District Ranger.
   5. After review of the above documents by appropriate staff, the proposal will be approved by an amendment to the Term Special-Use Permit, returned for revisions, or disapproved by letter.
   6. Construction shall not begin until the project receives final approval.
   7. Reconstruction of any facilities, if approved, would be limited to the existing approved square footage.
   8. Room additions, screened porches, etc., will not be approved. The only exception for an increase in the square footage is for an indoor toilet facility which would replace existing outdoor toilet facilities. This addition should blend with the existing structure and may be approved up to 100 square feet. County permit or stamped plans are required. Outdoor facilities must be removed when replaced and not utilized as a shed.
   9. New sundecks may be authorized by the District Ranger and, if approved, would be no greater than the length of one side of the existing cabin by ten feet in depth.
   10. Cabins shall be simple, traditional, compact forms, not modern in architecture. Modest structures that blend with the landscape will minimize their visual impact on the national forest landscape. Proposals that include elements that are not typical, or

that draw attention to themselves, may be denied. Some examples of items to avoid include unnecessarily high foundations, unusual angles, nontraditional window styles or placement, ornate details, or synthetic siding (such as plastic or aluminum).

Additional information can be found in *The Environment Image Guide for the National Forests and Grasslands*, which is available on the internet at http://www.fs.fed.us/recreation/programs/beig/. For guidance on recreation residences on the Coronado National Forest, refer to chapter 4.6 "The Rocky Mountain Province."

C. The construction and maintenance of a wood storage box measuring no greater than 3 feet in width, 2 feet in height and 2 feet in depth may be constructed on a deck or adjacent to the cabin. This box must meet the color requirements.

D. The construction and maintenance of sports courts, including horseshoe pits, is not authorized. Sports equipment may be placed on site when the cabin is occupied, but must be removed when the cabin is not occupied.

E. Minor improvements and major maintenance activities can be authorized by the District Ranger.

V. SIZE, PLACEMENT AND DESCRIPTIONS OF SIGNS

Lot numbers will be posted at the driveway or on the cabin. The number must be plainly visible from the main road passing in front of the cabin. The owner's last name may be posted as well in letters no greater than 4 inches in height. Only one sign may be installed, and no other message may be on the sign. It should blend with the forest environment in color and texture. It may not be attached to a dead or green tree. No other signs will be authorized, except for temporary real estate "For Sale" signs.

VI. WATER SYSTEMS (if applicable)

A. Drinking Water Systems

1. The holder, as the water supplier and owner or operator of the drinking water system, is responsible for compliance with all applicable Federal, State, and local drinking water laws and regulations for the operation and maintenance of a public water system. This includes, but is not limited to, developing, operating, and maintaining the system, and conducting drinking water testing and taking the appropriate corrective and follow-up actions in accordance with Federal, State, and any other applicable requirements. For the purposes of this authorization, public water systems are defined in the Safe Drinking Water Act, as amended (42 U.S.C. 300f et seq.), and in the National Primary Drinking Water Regulations, Title 40, Code of Federal Regulations, part 141 (40 CFR part 141), or by State regulations if more stringent.

VII. WASTE DISPOSAL

A. Trash Disposal

1. "On-Site" trash disposal and the use of "burn barrels" or open pits are not authorized. All trash must be removed from NFS lands and disposed of in an approved sanitary landfill. If used, garbage cans must have secure lids; they must be emptied regularly.

If the garbage cans are not bear proofed, they must be stored inside at night and when the cabin is not occupied.

2. Unless authorized, branches and logs will not be disposed of either on or near the lot.

B. Sewage and Gray Water Disposal

1. Septic tank systems, and alternative on-site disposal systems must be installed and maintained in compliance with all applicable Federal, State, and local laws and regulations. See Arizona Administrative Code Title 18, Chapter 9 "Department of Environmental Quality Water Pollution Control" for the latest standards.
2. Gray water (wastewater collected separately from a sewage flow that originates from a clothes washer, bathtub, shower, and sink, but does not include wastewater from a kitchen sink, dishwasher, or toilet) may be separated from the black water waste (toilet, kitchen sink wastes) if disposed of by an approved method. See Arizona Administrative Code Title 18, Chapter 9 "Department of Environmental Quality Water Pollution Control" for the latest standards.
3. New Pit toilets (using vaults that are not sealed) are not allowed. Existing pit toilets shall be monitored and phased out (including building removal) within two years of permit issuance.
4. All outhouses must be fly-proofed, with a self-closing door.

VIII. FIRE PROTECTION

A. Structural Fires. The Forest Service limits action by its personnel on structural fires to the following, so long as such action can be carried out safely and is within the capability and training of the involved personnel:

1. Activities necessary for the protection of human life.
2. Activities necessary to control or contain the fire to the immediate area (using conventional wild-land fire suppression equipment).

YOU, AS THE PERMIT HOLDER, HAVE THE RESPONSIBILITY FOR PROTECTION OF THE CABIN FROM FIRE.

B. Fire Prevention

1. Firewood will be stacked in piles at least thirty feet from the main building and at least ten feet from smaller structures. The reason for this separation is that a large concentration of fuels would increase the severity of a fire, if one occurred. Dead flammable fuels will also be cleared to a distance of thirty (30) feet around the main building and ten (10) feet around woodpiles, butane tanks, etc.
2. A twenty-inch path will be cleared of flammable vegetation down to mineral soil around every structure. A path 5 feet wide will also be cleared to mineral soil around barbecue pits and grills. It is advisable to keep a hose or a bucket of water handy when cooking outdoors.
3. Permit holders shall abide by Coronado National Forest fire restrictions and closures. Fire restrictions and closures apply to indoor fires as well.
4. Stovepipes must extend at least 24" above the roof ridge and be equipped with spark arrester.

5. The spark arrester shall be twice the area of the chimney vent and constructed of corrosion resistant material of not less than 14 gauge mesh wire with openings not over 1/2" or less than 5/16".
6. Proper disposal of fireplace ashes requires that they be put in a covered metal container (no cardboard or wooden boxes!) and soaked with water. They should then sit overnight to make sure they are cold, before being taken off NFS lands to an appropriate disposal site.
7. All wires shall be a minimum of four feet from the chimney or stove pipe.
8. The electric meter box must be grounded, and all electrical wires must meet the National Electrical Code (NFPA 70).
9. Tree limbs must be trimmed to at least five feet back from electrical wires, and at least ten feet from chimney, stovepipe, and flue outlets.
10. If the cabin has running water, it should have an outside faucet in case of fire. Large-size fire extinguishers (A, B, C – 10 pound or larger) and at least one smoke detector are also encouraged.
11. No fireworks shall be stored or used on the land covered in the Term Special-Use Permit or in the structures thereon. Using fireworks will result in a citation and may result in the permit being suspended or terminated.

IX. ACCESS

The holder agrees to permit the free and unrestricted access to and upon the lot. See Section XI Miscellaneous Provision Clause R of the Term Special-Use Permit.

X. SALE OR TRANSFER OF THE CABIN

A. If a decision is made to sell the cabin, the following procedure will be followed:
   1. Contact the appropriate Ranger District Office and advise them of your intent to sell; this action should also be verified in a letter to the District Ranger. If possible, a forest officer will make a transfer inspection, noting substandard items (if any) which need correction. A copy of the inspection form will be sent to the permit holder; any deficient items should either be corrected immediately, or discussed with the prospective purchaser to ensure that proper corrective action will be taken. Upon completion of the corrective work, notify District personnel. If the cabin is sold with major deficiencies, a short-term permit may be issued to the new owner to allow time to correct the situation. When corrected, the standard permit would be issued.
   2. A copy of the Special-Use Permit must be provided to the prospective purchaser before finalizing the sale. They will be informed that the cabin shall not be used as a principal place of residence, which is defined as the main residence where most of the year (more than 183 days per annum) is spent. See I.R.S. Publication #17.
   3. The current permit holder and prospective buyer will submit Form-2700-3a, “Holder Initiated Revocation of Existing Authorization/ Request for a Special-Use Permit or Term Special-Use." Permits may only be issued to an individual or to a husband and wife. The Forest Service may not issue permits to (and thus the improvements may not be owned by) corporations, partnerships, multiple individuals or trusts. In addition to this form, a recorded Bill of Sale (or comparable legal document) is required. The completed forms and recorded Bill of Sale should be mailed or

delivered to the Ranger District office along with a $25.00 transfer fee (check or money order made payable to U.S.D.A. Forest Service).

4. The application will be processed and a new Permit prepared for signature(s), at which time the new owners will be contacted and an appointment made to review and issue the new Permit, and also prepare a new Operation and Maintenance Plan. This conference/phone call allows the opportunity for the prospective Permit Holder to ask questions, and to become a partner in the management of this area.

B. If a transfer of the cabin is necessary due to death or incapacity of the permit holder, the beneficiary or designee, so designated in a recorded will & testament, trust, or other legal document, must proceed as follows:

1. Contact the appropriate Ranger District Office and advise them of the situation; this action should also be verified in a letter to the District Ranger. Submit a copy of the death certificate or a certified letter by an attending physician, and the recorded legal document(s) granting new possession of the cabin. If not specifically stated in the document who shall receive the cabin, a document designating the one person to be responsible for the cabin, must be submitted. All heirs of the deceased or incapacitated permit holder must sign and have their signature notarized.

   If possible, a forest officer will make a transfer inspection, noting substandard items (if any) which need correction. A copy of the inspection form will be sent to the prospective permit holder; any deficient items must be corrected prior to issuance of the new permit.

XI. MISCELLANEOUS PROVISIONS

A. Wildlife. The permit holder is responsible for taking action on their lot to minimize conflicts with wildlife.

1. Feeding wildlife is strictly prohibited, including, but not limited to, bears, birds & squirrels. Treat all wild animals as dangerous.
2. All food must be stored indoors and shall not be left unattended where animals could have access to it.
3. Food preparation, cooking and eating areas shall be cleaned immediately after use and kept clean. Dishes and other food preparation materials shall be cleaned and stored indoors immediately after food service has been completed. Thoroughly clean barbecue grills after use; remove and dispose of grease and food particles in garbage cans.
4. Do not bury garbage, scatter organic waste, or leave foil or other food packaging on or near grills.
5. Garbage storage shall not be allowed to overflow and will be brought indoors each night. They shall be cleaned weekly and prior to leaving with hot water, soap, and disinfectant in order to minimize odors.
6. All garbage shall be transported to an approved sanitary landfill at frequent intervals, but at a minimum of once per week.

Bears. Black bears are forest residents. They are wild and unpredictable. They normally do not attack or threaten people unless provoked, but food will attract their interest. Bears recognize food and food containers by sight and smell, including ice chests, grocery sacks, cardboard boxes, canned goods, freeze-dried foods and pet foods. Bears consider odorous products to be potential food. Odorous items include things such as food, garbage, toothpaste, insect repellent, suntan lotion, etc. It is important to prevent bears from detecting the presence of stored garbage, but if discovered by bears, it must be stored in a manner that will prevent them from getting to it. Bears are active at all hours, both day and night. They are clever and resourceful. If a bear is encountered, throw objects, bang pots, yell or clap hands to frighten them away. Do this before the bear gets close to you. Do not try to approach a bear and do not tease or crowd them. Avoid getting between a sow and her cubs. Frighten bears away before they reach food, otherwise they will be difficult to remove. All employees, guests, and visitors must be informed that they are to abide by the following requirements.

In additional to bears, other wildlife such as skunks, raccoons, and coatis, are also attracted to available foodstuffs. Therefore, the following requirements will be enforced at all times.

Further information and assistance to prevent conflicts with wildlife is available from the local Arizona Game and Fish Department, North American Bear Society, and your Forest Service office.

B. Heritage Resources
   1. If permit renewal or amendment authorizes ground-disturbing activities, removal or alteration of buildings or structures, or other potential impacts to significant heritage resources, the forest heritage staff will be contacted to initiate National Historic Preservation Act (NHPA) compliance.
   2. If any external modifications, additions, or removals are approved for a National Register of Historic Places– eligible building during the life of the permit, the forest heritage staff must be contacted to initiate NHPA compliance.

C. Other Miscellaneous
   1. Domestic animals must be under physical control when outdoors. Leashes are limited to a maximum of 6 feet in length.
   2. Building of impoundments to divert or hold surface water without water rights from the State is prohibited.

XII. CONCLUSION

As a part of this Operation and Maintenance Plan, you agree to conduct, if necessary, an annual Self-Inspection of your cabin and permit area. A self-inspection form will be mailed to you in the Spring prior to the main use season. This self-inspection form certifies your compliance with this Operation and Maintenance Plan.

This Operation and Maintenance Plan is not intended to unduly restrict the enjoyment of the National Forest, or the Recreation Residence within it. It is meant to protect the cabin and lot, the National Forest System lands and resources upon which the cabin lies, and the people utilizing them. After appropriate consultation, it will be amended and up-dated as often as

needed. It can not, however, cover every possible operation and maintenance situation that could be encountered. Common sense and safety awareness must be the foundation for all activities.

As the permit holder, I have read this plan, and understand that it is a part of my Term Special-Use Permit.

_____ _____

Permit Holder Date

_____ _____

Permit Holder Date

B. Heritage Resources

Copy of Scoping Letter Sent to Native American Tribes and Nations March 24, 2006

««GreetingLine»»;

In the next few months, the Forest Service will be considering whether to renew recreation residence permits on Forest lands across the country. On the Coronado National Forest, we have 254 recreation residence permits, located in the Santa Catalina, Chiricahua, and Pinaleño Mountains. The "proposed action" is to renew the permits when they expire on December 31, 2008. The renewal period would extend for 20 years, from January 1, 2009 through December 31, 2028. The proposed action would not authorize new cabins, but rather would allow existing cabins to continue. Permit holders would be required to abide by all terms and conditions of their individual special-use permits. I am writing to ask you if renewing the permits would affect sites of religious or cultural significance to your tribe.

The enclosed documents and maps provide some background and more information about the proposed action. To summarize, the recreation residence permit program was initiated in the 1920s to encourage city-dwellers to enjoy the recently established national forests by permitting them to construct vacation homes on specified plots. Some of the permits on the Coronado were issued for vacation homes that had been constructed before the forest was established. The program was discontinued in the 1960s, but there are still about 15,000 cabins nationwide, each of which is maintained under the terms and conditions of special-use permits issued by the managing Forest.

On the Santa Catalina Ranger District, there are 131 recreational residences located in five tracts near the Catalina Highway. Five full-time residences are located on the Coronado National Forest south and east of the town of Oracle. On the Douglas Ranger District, there are 30 recreation residences in the Chiricahua Mountains, located at Cave Creek, Rustler Park, South Fork Cave Creek, and West Turkey Creek. On the Safford Ranger District, there are 88 recreational residences in the Pinaleño Mountains, 74 of them located near the Swift Trail at Turkey Flat, and 14 higher up the mountain, at Columbine.

No changes to the permits are proposed. Current restrictions, such as a prohibition on year-round residency and constraints on any remodeling that would change a home's footprint, would stay in place.

So that I can best consider your concerns in making my decision, I would appreciate your comments by April 28, 2006. If you have any questions about the permits or proposal, please contact me, or Forest Archaeologist Mary Farrell, at the above address, (520) 388-8391, or email mfarrell@fs.fed.us.

Sincerely,

JEANINE A. DERBY
Forest Supervisor

Enclosures:

cc: «Chairperson», «Tribe»

Recipients:

Ak-Chin Indian Community

Ft. Sill Apache Tribe

Gila River Indian Community

Hopi Cultural Preservation Office

Mescalero Apache Tribe

Pascua Yaqui Tribe

Pueblo of Zuni

Salt River Pima-Maricopa Indian Community

San Carlos Apache Tribe

Tohono O'odham Nation

White Mountain Apache Tribe

Yavapai-Apache Nation

SHPO Concurrence Letter 2006-1640-30130

R3-FS-2300-4 (10/86)

USDA Forest Service

Forest: Coronado 07 2006

INVENTORY STANDARDS AND ACCOUNTING
(Reference: FSM 2361)

1. REPORT NUMBER				2. REPORT DATE			3. ROUTING: copies to
YEAR	FOREST	NUMBER	SERIES	MONTH	DAY	YEAR	[ ] SHPO [2] DISTRICT
2006	05	042		07	31	2006	[1] S.O. Heritage: C. LeBlanc
							[ ] Other:

4. AUTHOR: A. Farrell, Mary B.

5. PROJECT NAME/REPORT TITLE (Abbreviate if necessary; Do Not Exceed 50 Characters)
Determination of Effect - Safford Ranger District Recreation Residences Permits

6. ABSTRACT/SUMMARY of report and findings: The Coronado National Forest proposes to issue permits for 88 existing recreation residences located in the Pinaleño Mountains, on the Safford Ranger District, Graham County, Arizona. This report discusses the effects the proposal (issuing the permits) and the "no action" alternatives (requiring removal of some or all of the cabins) would have on historic properties eligible for listing on the National Register of Historic Places, per 36 CFR 800. In the current proposal, no changes or additions to cabins would be authorized. Two heritage resource issues are considered: (1) the effect that allowing the cabins to continue in existence would have on the Mt Graham (*Dził Nchaa si an*) traditional cultural property; and (2) the effect that requiring the removal of the cabins would have on the 21 cabins that have been determined eligible for the National Register (report 2006-05-051).

[xx] cont. p. 2

7. CONSULTATION/CLEARANCE

A. CONDITIONS OF CLEARANCE:
[] AVOID sites specified below
[] REPORT new sites to Forest Archeologist
[] NONE (No poten. eligible sites in project area)
[] MONITOR sites specified below
[] OTHER/ADDITIONAL COMMENTS:

B. ADDITIONAL FIELDWORK REQUIRED: [ ] EVALUATE sites specified below [ ] OTHER:

C. REPORT ACCEPTED: [X] YES [ ] NO
D. CLEARANCE RECOMMENDED: [ ] YES [ ] NO [ ] N/A
Mary M Farrell 8/1/06
FOREST ARCHAEOLOGIST DATE

E. EFFECT ON CULTURAL RESOURCES:
[] No Historic Properties Affected [X] No Adverse Effect [X] Adverse Effect [ ] N/A
[ ] No potential to affect historic properties, per 36 CFR 800 (a)(1)

F. TRANSMITTAL TO SHPO: Consultation on:
[X] Effect [ ] Eligibility [ ] Info Only [] SHPO consultation not required
Jeanine M. Derby 8/1/06
FOREST SUPERVISOR DATE

G. SHPO CONCURRENCE: [ ] YES [X] YES, per comment below [ ] NO
Comments: ([ ] Additional comments attached)
We concur with a "No Adverse Effect" finding.
Arizona SHPO 8-9-06
SHPO DATE

H. CLEARANCE APPROVED: [X] YES [ ] NO
Jeanine M. Derby 9/3/06
FOREST SUPERVISOR DATE

8. RANGER DISTRICT: 04

9. PROJECT FUNCTION: 23

10. PRIMARY ACTIVITY TYPE:

11. SECONDARY ACTIVITY TYPE:

12. PROGRAMMING: P

13. TOTAL PROJECT ACREAGE: ____

14. ACREAGE COMPLETELY SURVEYED: ____ 15. SAMPLE: ____

16. ACREAGE RESURVEYED: 0

17. TOTAL NO. SITES IN PROJ. AREA: N/A . NEW SITES: N/A

19. SITES EVALUATED ELIGIBLE ____ 20. SITES EVALUATED AS NOT ELIG.: ____

(By Professional CRM Specialist, Request SHPO Concurrence)

21. SITES INSPECTED, MONITORED, ENHANCED, ETC.: ____
(Projects other than survey, evaluation)

22. RECOMMENDED DETERMINATION OF EFFECT: 2 & 3 (Initial: ____)

(By USFS Professional CRM Specialist)

1. No Historic Properties Affected
2. No Adverse Effect
3. Adverse Effect
4. Not Applicable: not an undertaking
6. No potential to affect historic properties

23. PROJECT LOCATION (Surveys only):

24. INSTITUTION CONDUCT. PROJ./SURVEY: FA

Name of Institution Forest Service Archaeologist

25. AVERAGE NUMBER OF INDIVIDUALS USED: 1

26. AVERAGE INDIVIDUAL/ TRANSECT SPACING: N/A (Feet)

27. FIELD HOURS: ____

28. LAB/LIB HOURS: 20

29. TRAVEL HOURS: ____

30. ADMIN. HOURS: 40
(RD: ____ SO 40)

31. MILEAGE: ____

32. PER DIEM RATE: ____

33. DAYS OF PER DIEM: ____

34. COST WEIGHT FACTOR: 9

35. COST (CODE): A

or

36. ACTUAL COST: 5

37. REMARKS/CONTINUATION from page 1. As discussed below, the cabins were present when Mt Graham was determined eligible for the National Register. Their existence was considered irrelevant to the property's integrity and eligibility. The cabins' continued existence in their current form and location would not alter, directly or indirectly, any of the characteristics of the traditional cultural property that qualified it for inclusion in the National Register. Therefore, the proposed permit issuance is found to have **No Adverse Effect** on the traditional cultural property, and **No Potential to Affect** the cabins. The "no action" alternatives, requiring removal of some or all of the cabins, would have an **Adverse Effect** on cabins eligible for listing on the National Register, and a **No Adverse Effect** on the traditional cultural property.

SHPO Concurrence Letter 2006-1640-30677

R3-FS-2300-4 (10/86)

USDA Forest Service

INVENTORY STANDARDS AND ACCOUNTING
(Reference: FSM 2361)

Forest: Coronado SEP 14 2006

ARIZONA STATE PARKS/S.H.P.O.

1. REPORT NUMBER				2. REPORT DATE			3. ROUTING: copies to
YEAR	FOREST	NUMBER	SERIES	MONTH	DAY	YEAR	[ ] SHPO [2] DISTRICT
2006	05	060		09	8	2006	[1] S.O. Heritage: C. LeBlanc
							[ ] Other:

4. AUTHOR: A. Farrell, Mary B

5. PROJECT NAME/REPORT TITLE (Abbreviate if necessary; Do Not Exceed 50 Characters)
Determination of Eligibility - Safford Ranger District Recreation Residences SUPPLEMENT

6. ABSTRACT/SUMMARY of report and findings. The Coronado N.F. proposes to issue special use permits for 88 existing recreation residences located in two tracts in the Pinaleño Mountains (Mt. Graham). The proposed action would authorize the existing cabins for 20 additional years after the current permits expire December 31, 2008. Three "no action" alternatives are also being considered, which would require the removal of some or all of the cabins within 10 years. In order to determine the effect of the "no action" alternatives, this report evaluates the 88 cabins for their eligibility for listing on the National Register of Historic Places. Twenty-one of the cabins are at least 50 years old and have been minimally modified. In a preliminary report (2006-05-051), these 21 cabins were considered potentially eligible for listing on the National Register of Historic Places. However, consultation with the Arizona State Historic Preservation Officer has clarified the applicability of the National Register criteria in this case.

[xx] cont. p. 2

7. CONSULTATION/CLEARANCE

A. CONDITIONS OF CLEARANCE:
[] AVOID sites specified below
[] REPORT new sites to Forest Archeologist
[] NONE (No poten. eligible sites in project area)
[] MONITOR sites specified below
[] OTHER/ADDITIONAL COMMENTS:

B. ADDITIONAL FIELDWORK REQUIRED: [x] EVALUATE sites specified below [ ] OTHER:

C. REPORT ACCEPTED: [X] YES [ ] NO

D. CLEARANCE RECOMMENDED: [ ] YES [ ] NO [ ] N/A — Mary M Farrell 9/11/06 FOREST ARCHAEOLOGIST DATE

E. EFFECT ON CULTURAL RESOURCES:
[ ] No Historic Properties Affected [ ] No Adverse Effect [ ] Adverse Effect [ ] N/A
[ ] No potential to affect historic properties, per 36 CFR 800 (a)(1)

F. TRANSMITTAL TO SHPO: Consultation on: [ ] Effect [xx] Eligibility [ ] Info Only [] SHPO consultation not required — Jeanine A. Derby 9/11/06 FOREST SUPERVISOR DATE

G. SHPO CONCURRENCE: [X] YES [ ] YES, per comment below [ ] NO
Comments: ([ ] Additional comments attached)
William Collins 9/21/06 SHPO DATE

H. CLEARANCE APPROVED: [X] YES [ ] NO
Jeanine A. Derby 10/2/06 FOREST SUPERVISOR DATE

8. RANGER DISTRICT: 04

9. PROJECT FUNCTION: 23

10. PRIMARY ACTIVITY TYPE:

11. SECONDARY ACTIVITY TYPE:

12. PROGRAMMING: P

23. PROJECT LOCATION (Surveys only):

13. TOTAL PROJECT ACREAGE: --

14. ACREAGE COMPLETELY SURVEYED: ___

15. SAMPLE: ___

16. ACREAGE RESURVEYED: 0

17. TOTAL NO. SITES IN PROJ. AREA: 89

NEW SITES: 88

24. INSTITUTION CONDUCT. PROJ./SURVEY: FA

Name of Institution Forest Service Archaeologist

25. AVERAGE NUMBER OF INDIVIDUALS USED: 1

26. AVERAGE INDIVIDUAL/ TRANSECT SPACING: N/A (Feet)

19. SITES EVALUATED ELIGIBLE ___

20. SITES EVALUATED AS NOT ELIG.: 88

(By Professional CRM Specialist, Request SHPO Concurrence)

27. FIELD HOURS: 0

28. LAB/LIB HOURS: 4

29. TRAVEL HOURS: 0

21. SITES INSPECTED, MONITORED, ENHANCED, ETC.: ___

(Projects other than survey, evaluation)

30. ADMIN. HOURS: 4

(RD: ___ SO: 4)

31. MILEAGE: 0

22. RECOMMENDED DETERMINATION OF EFFECT: ___ (Initial: ___)

(By USFS Professional CRM Specialist)

1. No Historic Properties Affected
2. No Adverse Effect
3. Adverse Effect
4. Not Applicable: not an undertaking
6. No potential to affect historic properties

32. PER DIEM RATE: N

33. DAYS OF PER DIEM: 0

34. COST WEIGHT FACTOR: 9

35. COST (CODE): A

or

36. ACTUAL COST: $ ___

37. REMARKS/CONTINUATION from page 1.

Individually the cabins lack sufficient association with historic events or trends, or persons significant in our past. None represents the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values. Because the majority of cabins in each tract are less than 50 years old or have been modified substantially within the last 40 years, neither tract forms a distinguishable historic entity. The 88 cabins are considered Not Eligible for the National Register of Historic Places.

C. Endangered Species Act Consultation

Copy of Letter Initiating Formal Consultation with FWS, January 17, 2007

Steve Spangle
Field Supervisor
Arizona Ecological Services
U. S. Fish and Wildlife
1321 W. Royal Palm Road, Suite 103
Phoenix, AZ 85021-4951

Dear Steve:

I am writing to request formal consultation between the U.S. Forest Service and the U.S. Fish and Wildlife Service regarding a project in the Pinaleño Mountains. The proposed action is to re-issue the permits for the cabins at Turkey Flat and Old Columbine Summerhome Areas. Consultation will involve the effects of this project to Mount Graham red squirrels (*Tamiasciurus hudsonicus grahamensis*), Mexican spotted owls (*Strix occidentalis lucida*), and their critical habitat, and the Apache trout (*Oncorhyncus apache*).

The enclosed assessment determined that cabin permit renewals may affect, and are likely to adversely affect, the Mount Graham Red Squirrel, will not affect its designated critical habitat, may affect, but are not likely to adversely affect the Mexican Spotted Owl, its critical habitat, and the Apache Trout.

If you have any questions concerning this assessment, please contact Anne Casey, Safford Ranger District Biologist (928-348-1962), or Tom Skinner, Forest Wildlife Program Manager, here in my office (520-388-8371).

Sincerely,

JEANINE A. DERBY
Forest Supervisor
cc: Safford District Ranger

Copy of Letter to U.S. Fish and Wildlife Service -Re: Newly Discovered Midden at Turkey Flat

Subject: Turkey Flat Midden Update
Re: Summerhome Permit Renewal, Baseline Change

To: Jim Rorabaugh, Marit Alanen, Toni Strauss, Tim Snow

Hello, all—

During tree-marking activities for the Special Use Area Thinning, the Safford Ranger District Forester (Lisa Angle) found a new Mount Graham red squirrel midden within the Upper Turkey Flat summerhome area. This midden is located along the road into the summerhome area (UTM 12 S 610887, 3610668; see attached map). On June 23, 2008, the District Biologist (Anne Casey) accompanied Ms. Angle to the area. The summerhome area was then swept to search for additional middens, but none were found. In regards to the thinning project, a 92-foot buffer will be protected around the midden site; no thinning activities will occur within the buffered area.

Because this squirrel midden represents a change in the baseline for the Summerhome Permit Renewal (Consultation # AESO/SE 22410-2007-F-0163), additional information regarding the condition of the middens and potential effects from the continued existence of the summerhomes is provided below.

The midden is set at the base and inside an opening in a mature Gambel oak, which is approximately 3 feet from this dirt access road. The midden is currently active and fluffy in texture; there is fresh sign of feeding, with cone scales, cone cobs, and partially-eaten cones in and around the midden site. There is a high amount of sign of Abert's squirrels in the area around the summerhomes themselves.

The midden site is located approximately 20 m from the nearest cabin, 30 m from Swift Trail (Hwy 366), and 1 m from the entrance road. Because it is so near the turn-off point from Swift Trail, traffic is likely to be traveling slowly in this location. However, the area will also receive both incoming and outgoing traffic. Because this squirrel is likely to forage on both sides of the entrance road, there is potential for lethal take due to roadkill.

Ongoing management for this area will include a yearly monitoring session. This monitoring will occur on a weekend when the summerhome area is expected to be busy (i.e., a holiday weekend, weekends of large gatherings, etc.). Monitoring will allow Forest Service personnel to assess midden activity and whether activities occurring in the area may have harmful effects on the midden or squirrel.

If further information is needed, please contact me at the office (928-348-1962) or by cellphone (XXX-XXX-XXXX).

Sincerely,

Anne L. Casey
District Biologist

Biological Opinion, U.S. Fish and Wildlife Service

United States Department of the Interior
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 FAX: (602) 242-2513

In Reply Refer To:
AESO/SE
22410-2007-F-0163 August 18, 2008

Ms. Jeanine Derby
Forest Supervisor, Coronado National Forest
300 West Congress, 6th Floor
Tucson, Arizona 85701

RE: Mount (Mt.) Graham Summerhome Special Use Permit Residence Renewals

Dear Ms. Derby:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated January 17, 2007, and received by us on January 18, 2007. At issue are impacts that may result from the proposed Mt. Graham Summerhome Special Use Permit Renewals located in the Pinaleño Mountains in Graham County, Arizona. The proposed action is likely to adversely affect the Mt. Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) (MGRS).

In your letter you requested our concurrence that the proposed action may affect, but is not likely to adversely affect, the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat (CH), and the Apache trout (*Oncorhyncus apache*). Our concurrences are contained in Appendix A.

This biological opinion is based on information provided in the January 17, 2007, biological assessment and evaluation, the project proposal, telephone conversations, meetings among our staffs, field investigations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, special use permits and effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at our Phoenix Field Office.

Re: Issue Special-Use Permits for Safford Ranger District Recreation Residences

United States Department of the Interior
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 FAX: (602) 242-2513

In Reply Refer To:
AESO/SE
22410-2007-F-0163 August 18, 2008

Ms. Jeanine Derby
Forest Supervisor, Coronado National Forest
300 West Congress, 6th Floor
Tucson, Arizona 85701

RE: Mount (Mt.) Graham Summerhome Special Use Permit Residence Renewals

Dear Ms. Derby:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated January 17, 2007, and received by us on January 18, 2007. At issue are impacts that may result from the proposed Mt. Graham Summerhome Special Use Permit Renewals located in the Pinaleño Mountains in Graham County, Arizona. The proposed action is likely to adversely affect the Mt. Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) (MGRS).

In your letter you requested our concurrence that the proposed action may affect, but is not likely to adversely affect, the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat (CH), and the Apache trout (*Oncorhyncus apache*). Our concurrences are contained in Appendix A.

This biological opinion is based on information provided in the January 17, 2007, biological assessment and evaluation, the project proposal, telephone conversations, meetings among our staffs, field investigations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, special use permits and effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at our Phoenix Field Office.

CONSULTATION HISTORY

- March 10, 2006: Received letter from Coronado National Forest (Forest) asking for comments on the environmental analysis for re-issuance of special use permits for the summerhomes on Mt. Graham.
- November 28, 2006: Received draft biological assessment and evaluation (BAE) from Safford Ranger District. Returned with staff comments. Verbal discussion between our respective staff clarified concerns and ideas.
- January 24, 2007: Received final BAE from Safford Ranger District (dated January 17, 2007).
- March to June 2007: Updated the draft biological opinion after review of the final Nuttall-Gibson Complex biological opinion (#02-21-04-M-0299).
- July 11, 2007: Mutually agreed on a 90-day extension.
- July 24, 2007: Our respective staff met at your Safford office to update and clarify additional information for this consultation and discussed possible meetings with respective legal representatives regarding actions that could be taken under the Arizona-Idaho Conservation Act.
- July 31, 2007: Received an e-mail from Anne Casey of your staff clarifying elements of the proposed action and environmental baseline.
- September 4, 2007: Our respective staff met at your Safford office to discuss conservation measures and future Forest minimization plans for MGRS.
- August 17, 2007: Received maps of cabin locations in each summerhome area.
- December 13, 2007: Our Draft Biological Opinion was sent.
- June 5, 2008: We received your comments on the Draft Biological Opinion and a request to extend the consultation period to August 15, 2008.
- June 24, 2008: We received an electronic mail from Anne Casey of your staff that a new MGRS midden had been found in the upper Turkey Flat Summerhome area.
- August 4, 2008: Additional discussions were held and we received an electronic mail from Anne Casey of your staff that remaining issues had been resolved.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

You propose to re-issue the special use permits for two summerhome areas (Old Columbine and Turkey Flat) located in the Pinaleño Mountains (the Grahams, or Mt. Graham) for the next 20 years (January 1, 2009 through December 31, 2028). The proposed action would permit the continuance of human-use patterns currently in effect in these areas by allowing the current cabins/structures to remain on the landscape and continue to be occupied.

The project area consists of two parts: the approximately 25 acres of mixed-conifer in the Old Columbine area and about 52 acres in the predominately ponderosa pine and pine-oak types in the Turkey Flat area. Both summerhome areas consist of cabins and associated structures scattered through a forested landscape. A total of 14 and 74 summerhomes will be re-permitted in the Old Columbine and Turkey Flat areas, respectively. Associated existing structures (outhouses, water tanks, a community-use building) occur within the Old Columbine and Turkey Flat summerhome areas, with the water tank for Turkey Flats located on the farthest, southwestern edge of the summerhome area boundary. Both summerhome areas are reached by use of State Highway 366 (Swift Trail). Old Columbine is reached via a short access road, and Turkey Flat sits on both sides of the Swift Trail on a relatively gentle slope. The Old Columbine summerhomes are clustered closely together due to the small, level site and the steep surrounding terrain; summerhomes in Turkey Flat occur over a larger area. Four maps of the summerhome areas are provided in Appendix D.

In the Old Columbine summerhome area, resident presence involves light to moderate use in spring and fall and heavier use in the summer, with many people and vehicles present. Winter residential use is not permitted between November 15 and April 15, annually. An occasional, foot-traffic only maintenance visit is allowed for owners to check for leaks at their cabins. This has typically been one daytime visit by a few cabin owners, annually. In the Turkey Flat area, heavy (summer) to moderate and lighter (spring, fall, and winter), year-round use is typical.

Your permitting process ensures that all permittees are in compliance with their permits and that no unauthorized uses are occurring. Prior to a new special use permit being issued, each recreational residence will be inspected by the Forest Service to confirm that occupancy is in compliance with the terms and conditions of the expiring permit. All summerhome residents (and visitors) are made aware of all Forest restrictions and rules, particularly those involving fire activity levels and warnings. Permit terms include, but are not limited to: use of bear-proof garbage containers; pets must be leashed while within Forest boundaries (including summerhome areas); all motorized vehicle travel must occur only on designated roads; no damage (hangings, nails, wires, etc.) will occur to live trees; no birdfeeders of any type will be permitted; and no additional buildings or additions will be built. Permittees are required to remain in compliance with these permits. A process is in place to resolve instances of non-compliance. You note that the primary use observed by summerhome residents is generally contained within the immediate area of the two summerhome sites, Riggs Lake, and travel on Swift Trail between the two, primarily during the summer months (Anne Casey, personal communication 2007).

CONSERVATION MEASURES

The following conservation measures are included in the proposed action and act to reduce or offset adverse effects of the summerhomes on the MGRS and its CH, or to monitor those effects:

1. You will begin planning for conifer seedling plantings in addition to the ones already underway in burned areas of the MGRS Refugium. Additional seedlings within the high-severity areas will remain top priority, as these areas are most in need of revegetation. Future planting efforts may include areas that were burned at moderate severity.

2. Middens found within the two summerhome areas will be assessed twice each year for activity levels and summarized in a yearly report to the FWS.

3. You will meet with your legal representatives regarding the terms of the Arizona-Idaho Conservation Act of 1988 (AICA), particularly regarding your legal obligations and authorities under this congressional act. We agree to meet and discuss our understandings of the AICA at a future time. We believe this to be a conservation measure, as it will assist both agencies in planning future Forest projects that will assist with recovery and continuance of the species with a minimum of adverse effects.

STATUS OF THE SPECIES AND CRITICAL HABITAT

In 1987, we listed the MGRS as endangered (52 FR 20994). The final rule concluded that MGRS was endangered because its range and habitat were reduced, and its habitat was threatened by a number of factors, including the (then) proposed construction of an astrophysical observatory, occurrences of catastrophic wildfires, proposed road construction and improvements, and recreational developments at high elevations on the mountain. The rule noted that MGRS might also suffer due to resource competition with the introduced Abert's (tassel-eared) squirrel (*Sciurus aberti*). In 1990, we designated critical habitat for the MGRS (55 FR 425) (MGRS CH). We finalized the first MGRS Recovery Plan in 1993; it is currently undergoing revision.

On January 5, 1990, we designated MGRS CH (55 FR 425-429). MGRS CH includes three areas: the area above 10,000 feet in elevation surrounding Hawk and Plain View peaks and a portion of the area above 9,800 feet; the north-facing slopes of Heliograph Peak above 9,200 feet; and the east-facing slope of Webb Peak above 9,700 feet. The main attribute of these areas at that time was the existing dense stands of mature (about 300 years) spruce-fir forest. The MGRS Refuguim established by the AICA is considered to have the same boundary as the designated MGRS CH boundary (about 2,000 acres). Unfortunately, most of the habitat in the refugium and in CH has been devastated by wildfire and insect damage. There remains a small, unknown amount of habitat in the Refugium (A. Casey, personal communication).

Our biological opinion (BO) pursuant to section 7 of the Act for the proposed astrophysical development and Forest Management Plan was completed on July 14, 1988. The Forest

Management Plan was found not to jeopardize the continued existence of MGRS; but the proposed seven-telescope astrophysical development was found to jeopardize the continued existence of MGRS. Three reasonable and prudent alternatives were described, but before the Forest Service (FS) agreed to any, the AICA was passed by Congress. It mandated the third reasonable and prudent alternative with some modifications. It authorized the construction of three telescopes on Emerald Peak, necessary support facilities, and an access road to the site. The law further required the University of Arizona (UA), with the concurrence of the Secretary of the Interior, to develop a management plan for the MGRS. Construction of additional telescopes will require a new section 7 consultation. The 1988 BO established the MGRS Refuguim; the boundary of which became the boundary for MGRS critical habitat.

Reasonable and prudent alternative 3 in the 1988 BO included removal of the summerhomes at Columbine; however, section 605(a) of the AICA allowed continued special use authorizations for the Columbine summerhomes and the Arizona Bible Camp for the duration of the term of the permits in place at that time. The AICA also mandated that prior to the "termination, nonrenewal, or modification" of those authorizations, the Secretary of Agriculture shall, with assistance from the FWS, conduct a biological study to determine the effects of such authorizations upon the MGRS and other threatened or endangered species. The current proposed action does not include termination, nonrenewal, or modification of those special use permits, hence that study is not required prior to implementation. Section 605(a) of the AICA goes on to require the Secretary of Agriculture to initiate consultation with the FWS regarding the "termination, nonrenewal, extension, or modification" of the special use authorizations.

MGRS are small, grayish-brown arboreal rodents with a rusty to yellowish tinge along the back (Spicer *et al.* 1985). Their tails are fluffy and the ears are slightly tufted in winter (Spicer *et al.* 1985). In summer, a thin, black lateral line separates the upper parts from the whitish underparts. The cheek teeth number 16 (P1/1, M3/3), are low-crowned and tuberculate (with small knob-like processes), and the skull is rounded, with the postorbital process present (Hoffmeister 1986). The species ranges from 10.8 – 15.4 inches in total length and from 3.7 – 6.3 inches in tail length (Gurnell 1987).

First described in 1894 by J. A. Allen, the MGRS type specimen is from the Pinaleño Mountains, Graham County, Arizona. Allen (1894) designated it as a separate subspecies based on pelage (fur) differences and its isolation for at least 10,000 years from other red squirrel populations. The MGRS is slightly smaller than the Mogollon red squirrel (*T. h. mogollonensis*) of northern Arizona in body measurements including total body, hind foot, and skull length (Hoffmeister 1986). The skull is also narrower postorbitally than that of *T. h. mogollonensis*. Hoffmeister (1986) found no sexual dimorphism in measurements of adult MGRS. Based on measurements from 10 specimens, Hoffmeister (1986) calculated an average total length of 13.3 inches, body length of 7.8 inches, and tail length of 5.4 inches. Average adult weight from nine specimens was 236.4 grams (Froehlich 1990).

Although Hoffmeister (1986) thought the subspecies was not strongly differentiated from the Mogollon red squirrel, he (1986) and Hall (1981) retained the subspecies designation. Research with both protein electrophoresis (Sullivan and Yates 1995) and mitochondrial DNA (Riddle *et*

al. 1992) has provided data that, in conjunction with morphological and ecological considerations, demonstrate that MGRS is a distinct population that deserves subspecific status.

Found in the southernmost portion of the range of the red squirrel, MGRS is found only in the Pinaleño Mountains. MGRS inhabit a narrow selection of habitats in the high-elevation areas that support primarily Engelmann spruce (*Picea engelmanii*) and corkbark fir (*Abies lasiocarpa* var. *arizonica*); in the mixed-conifer stands dominated by Douglas fir (*Pseudotsuga menziesii*), with white fir (*Abies concolor*) and Mexican white pine (*Pinus strobiformis*) sub-dominants; and in the ecotone life zone between these areas. MGRS apparently do not inhabit pure stands of ponderosa pine (*Pinus ponderosa*) (U.S. Fish and Wildlife Service 1992). With the relatively recent loss of almost all the higher-elevation habitat in the spruce-fir zone due to wildfire and insect damage, MGRS now occur primarily in the mixed-conifer zone on the mountain but also in remaining patches of spruce-fir.

MGRS create middens, which are areas that consist of piles of cone scales in which squirrels cache additional live, unopened cones as an over-wintering food source. Placement of these middens tends to be in areas with high canopy closure near food sources (e.g. Douglas fir, corkbark fir, and Engelmann spruce). This type of placement allows specific moisture levels to be maintained within the midden, thereby creating prime storage conditions for cones and other food items, such as mushrooms, acorns, and bones. They also seem to prefer areas with large snags or downed logs that provide cover and safe travel routes, especially in winter, when open travel across snow exposes them to increased predation.

Threats facing MGRS include predation, loss of habitat due to native and exotic insect infestations (Koprowski *et al.* 2005), direct mortality and loss of habitat and middens due to large-scale wildfires (Koprowski *et al.* 2006), loss of habitat due to human factors (e.g., disturbance, conversion to roads, trails, and/or recreation sites, permitted special uses, etc.; U. S. Fish and Wildlife Service 1992), loss or reduction of food sources due to drought, and apparent dietary and territory competition with Abert's squirrel, which were introduced in the 1940s by the Arizona Game and Fish Department (AGFD) (Edelman *et al.* 2005).

MGRS historically resided predominantly in the upper elevation and the ecotone life zones, with some middens located in the mixed-conifer life zone. Most of the habitat was above about 8,000 feet in elevation. That spruce-fir vegetation life zone is now greatly reduced in distribution due to two large, catastrophic wildfires (Clark Peak in 1996 and Nuttall-Gibson Complex in 2004) and a four-insect epidemic that devastated the spruce-fir ecosystem (1996 to present). MGRS are now primarily found at lower elevations, and more middens are found in the mixed-conifer life zone than before. Some drainage bottoms reach well down the mountain into mixed-conifer and ponderosa stands, which is believed to have resulted in closer association and likely more resource competition between MGRS and introduced Abert's squirrel (T. Snow personal communication 2007). As recently as the 1960s, MGRS possibly ranged as far east as the Turkey Flat area and as far west as West Peak, but are now located only as far west as Clark Peak. A local extirpation occurred on West Peak, possibly due to a wildfire in the mid-1970s that isolated the West Peak subpopulation from the rest of the range and destroyed existing red squirrel habitat that has not recovered to date (U.S. Fish and Wildlife Service 1992).

Observations indicate that MGRS eat: (1) conifer seeds from closed cones, (2) above-ground and below-ground macro-fungi and rusts, (3) pollen (pistillate) cones and cone buds, (4) cambium of conifer twigs, (5) bones, and (6) berries and seeds from broadleaf trees and shrubs. Each food is used seasonally; pollen and buds in the spring, bones by females during lactation, fungi in the spring and late summer, and closed cones low in lipids in the early summer. Closed, live-cut cones high in lipids are stored for winter-time use (Smith 1968).

MGRS eat seeds and store live cones from Englemann spruce, white fir, Douglas-fir, corkbark fir, and white pine. Midden surveys indicate that Engelmann spruce and Douglas-fir are the most common tree species supplying food to MGRS. Douglas-fir, generally a consistent cone producer (Finely 1969), is important in the Pinaleños, especially in areas where it co-exists with Engelmann spruce, which is more prone to cone crop failure. Use of ponderosa pine seeds or caching ponderosa pine cones by MGRS is extremely limited, probably due to microclimate considerations. Cone caching and consumption of cone seeds by red squirrels have been reported in more northerly latitudes (Hatt 1943, Finley 1969, Ferner 1974). The number of mature seed trees per territory needed to supply MGRS food requirements in the Pinaleño Mountains has not been determined. Miller (1991) found that nutritional values of seeds from several conifer species in the Pinaleños vary seasonally and by tree species.

MGRS also frequently eat fungi (Froehlich 1990). Miller (1991) analyzed the nutritional content of the three above-ground species of mushrooms eaten by MGRS. Percent crude protein and percent digestible protein were higher than all conifer seeds except Engelmann spruce in summer (Miller 1991). Truffle protein content also was as high as some conifer seeds per unit weight (Smith 1968). Mushrooms and truffles may take less effort to eat than extracting seeds from cones. Combined with information on nutritional values, this may explain in part the relative importance of fungi in the diet.

In other populations studied, red squirrels generally breed from February through early April. Nests can be in a tree hollow, a hollow snag, a downed log, or among understory branches of a sheltered canopy. Nests may be built in natural hollows or abandoned cavities made by other animals, such as woodpeckers, and enlarged by squirrels (U.S. Fish and Wildlife Service 1992). In the Pinaleños, snags are important for cone storage as well as nest location. Both nests and stored cones have been found in the same log or snag. Froehlich (1990) found that MGRS built 60 percent of their nests in snags, 18 percent in hollows or cavities in live trees, and 18 percent in logs or underground. Only four percent of nests were bolus grasses built among branches of trees.

In red squirrel populations studied, trends in age-specific red squirrel survivorship demonstrate a classic mammalian Type III survivorship curve (Steele 1998) in which mortality is greater than 60 percent during the first year of life, about half that rate during the second year of life, followed by relatively high survivorship and constant mortality through the adult years (Kemp and Keith 1970, Davis and Sealander 1971, Rusch and Reeder 1978, Halvorson and Engeman 1983, Erlien and Tester 1984). Juvenile survival during the first three months of age is markedly lower than survival is for adults (Boutin and Larsen 1993, Stuart-Smith and Boutin 1995a), but often approaches adult survival levels by the first winter of life (Stuart-Smith and Boutin 1995a). Survivorship is often higher for females than males (Boutin and Larsen 1993, Halvorson and

Engeman 1983, Erlien and Tester 1984). Recent studies indicate that MGRS differ in survivorship from red squirrels in other parts of their range and that mortality is relatively high during the winter. Koprowski (March 2006 recovery team meeting minutes) determined that up to 50 percent of adults and yearlings perish from December to June. Additional studies by Koprowski (2005a) further indicate that MGRS typically survive less than one year in the Pinaleño Mountains, with no difference in survivorship between males and females. The mean survivorship of MGRS is 251 days, and only 20 percent of them survive to the second year of reproduction. Maximum longevity for the species in the wild is reported to be 10 years (Walton 1903). Studies of radio-collared animals suggest that predation accounts for a large majority of mortality in red squirrels (Kemp and Keith 1970, Rusch and Reeder 1978, Stuart-Smith and Boutin 1995a&b, Kreighbaum and Van Pelt 1996, Wirsing *et al.* 2002); however, the availability of alternative prey for predators (Stuart-Smith 1995a), availability of food for red squirrels (Halvorson and Engeman 1983, Wirsing *et al.* 2002), and variation in vigilance and use of open areas by individual squirrels (Boutin 1995b) has been suggested to predispose some animals to higher susceptibility to predation.

Results from research conducted since 1993 indicate that female MGRS go into estrus for about six hours on one day each year. MGRS live a shorter life (about 251 days) than other subspecies of red squirrels (four years) and most MGRS only reproduce once in their life. Female MGRS give birth to fewer young (two) compared to other red squirrels (three or more) (Koprowski, unpublished data).

Mammalian predators of MGRS include mountain lions, black bear, bobcat, coyote and gray fox (Hoffmeister 1956, Coronado National Forest 1988). On Mt. Graham, a bobcat was observed stalking a MGRS (Schauffert *et al.* 2002) and a gray fox captured an adult female MGRS (24 Feb 2003, Koprowski, unpublished data). Avian predators of MGRS are likely goshawks, red-tailed hawks, MSOs, great horned owls, and Cooper's hawks (Coronado National Forest 1988, Schauffert *et al.* 2002). On Mt. Graham, Kreighbaum and Van Pelt (1996) reported that four juvenile MGRS were killed by raptors during natal dispersal. Additionally, a MSO was documented killing one juvenile MGRS near the natal nest (Schauffert *et al.* 2002). During Fall-Winter 2002-2003, raptors accounted for more than 75 percent of over 30 mortalities of MGRS. It has been estimated that MGRS mortality is higher (80 percent to predation) than other red squirrels (Koprowski, unpublished data).

The red squirrel is highly territorial (C. Smith 1968), and the concept of one squirrel per midden is widely accepted and used for MGRS management (Vahle 1978). Occasionally, conditions arise where more than one squirrel occupies a midden or a MGRS uses more than one midden (Froehlich 1990), but these are likely exceptional cases and usually seem to occur when food is either extremely abundant or rare.

Rangewide, multi-agency MGRS surveys, based on a sample of middens throughout the range of the MGRS, have been conducted since 1986. In 1998, the surveys were expanded from a single survey per year to two surveys per year, one in fall and one in spring. The numbers in Appendices B and C represent two different estimates (conservative and optimistic). These are derived by simple formulas used by AGFD that use the percent of active middens in each vegetation type found in the random sample and the number of known middens in each

vegetation type. The conservative estimate uses only those middens where activity is certain; the optimistic estimates include uncertain classifications as if they were considered to be active middens. Midden surveys show increasing numbers of MGRS into 1998-2000, with peaks over 500, after which the population declined. Population estimates dropped 42 percent in 2001 as compared to 1998-2000; since that time, population estimates have shown no apparent trend, but have varied from 199 to 346 (Appendices B and C).

The MGRS Monitoring Program at the University of Arizona (UA) was established by the AICA to monitor effects of the Mount Graham International Observatory (MGIO) on the MGRS. As part of that program, Koprowski *et al.* (2005) monitored all middens in 624 acres surrounding the MGIO from 1989-2002. Middens were visited monthly from 1989-1996 and quarterly thereafter. Their study area contained 17.8 percent of all middens known in the mixed conifer forest and 66.9 percent of all middens known in the spruce-fir forest. From 1994-2002, the mixed conifer forest supported 54-83 middens, while the spruce-fir forest contained 120-224 middens. The population trend in the mixed conifer forest was found to be relatively stable from 1994-2002; however, by 2002, only two occupied middens were found in the spruce-fir forest. Population declines in the spruce-fir forest corresponded with a period of insect damage and wildfires that began in 1996 and had devastated that forest type by 2002. Census data collected by the MGRS Monitoring Program indicate a more dramatic decline than do the data of the multi-agency surveys (which have shown no apparent trends since Fall 2001 after a steep decline from 1998-2000). The differences in the results are likely due to differences of scale. The MGRS Monitoring Program has focused on a subset of the mountain in which impacts of fire and insect damage have been pronounced in the spruce-fire forest, whereas the multi-agency surveys sample the population rangewide.

Koprowski *et al.* (2005b) characterized the decline of the MGRS in their study area as catastrophic. They note that in areas of high tree mortality in Alaska and Colorado, red squirrels did not completely disappear but rather persisted in residual stands of trees where conditions remained suitable. The ability of the MGRS to survive the current catastrophic decline is unknown; however, it apparently survived a similar situation in the late 1600s. Grissino-Mayer *et al.* (1995) sampled fire-scarred trees in four areas of the Pinaleño Mountains from Peter's Flat east to Mt. Graham. The oldest trees in the spruce-fir forest were about 300 years old. They found evidence for a widespread, stand-replacing fire in 1685 that probably eliminated much of the forest atop the Pinaleños. Although the MGRS population persisted through that event and may persist through the current catastrophic event, small populations can exhibit genetic or demographic problems that further compromise the ability of the subspecies to survive. Low genetic variability in small populations is a concern because deleterious alleles are expressed more frequently, disease resistance might be compromised, and there is little capacity for evolutionary change in response to environmental change. Koprowski *et al.* (2005b) recommended management actions to increase available habitat and population size in the near and distant future. A captive breeding program was also recommended, the concept of which has been endorsed by the MGRS Recovery Team. Options for initiating that captive program are currently being explored.

In 2003, the Forest began developing the Pinaleño Ecosystem Restoration Project. This project is being designed to restore the higher elevations of the Pinaleño Mountains to conditions prior

to the Federal policy of suppressing all fires; further the needs of native species of plants and wildlife (including threatened and endangered species); and reduce the risk of catastrophic wildfire and its devastating effects on the heavily fuel-loaded mountain range. The project, which targets primarily mixed-conifer communities, will reduce stand stocking and fuel loading and promote the more open and healthy conditions that existed before widespread, long-term (50 years or more) fire-suppression actions lead to unnatural and unhealthy forest conditions. The Pinaleño Ecosystem Restoration Project is designed in such a way as to be sensitive to the needs of MGRS; when complete, it is anticipated to strongly reduce the risk of catastrophic wildfire severely affecting the Forest and the MGRS.

The MGRS and its critical habitat have been the subject of numerous section 7 consultations since its listing in 1987. The July 14, 1988, BO on the astrophysical development and Coronado National Forest Forest Management Plan, described above, is the only jeopardy opinion issued for the species. That BO also anticipated incidental take of five MGRS per year. In a June 8, 2007, BO, we anticipated that incidental take occurred during suppression activities in the Nuttall-Gibson Complex Wildfires.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions that are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Description of the Action Area

The action area is defined as the area within which effects to the listed species and its critical habitat (if any is designated) are likely to occur and is not limited to the actual footprint of the proposed action. We define the action area to be:

1. The Swift Trail from the Turkey Flat summerhome area to Riggs Lake and Forest-established recreation sites (including the Visitor Center) that occur in the mixed-conifer vegetation association;

2. the two summerhome areas (Old Columbine and Turkey Flat) and a surrounding "ring" of human use around the summerhome footprints out to 200 feet;

3. Forest roads open to the public;

4. short, level portions of hiking trails within and immediately adjacent to the summerhome areas; and

5. Riggs Lake, the picnic area, and the immediate shoreline around the lake.

Most of the action area is within mixed-conifer forest occurring at differing aspects and elevations from above 7,750 feet to over 10,000 feet. The forest in and around Old Columbine summerhome area consists of Douglas-fir, southwestern white pine, and some ponderosa pine (mixed conifer), along with species characteristic of higher elevations (corkbark fir and Engelmann spruce). The Turkey Flat summerhome area is within the edge of the drier, lower elevation conifer and brush association, leading downhill into the pine-oak vegetation type.

The current state of the Old Columbine summerhome area has been influenced by many factors. The understory within the immediate Old Columbine summerhome area is thinned out; large areas (roadways and parking) in front of these summerhomes are bare or covered in short, mowed grass. Fuel reduction efforts continue in the Turkey Flat summerhome area. Hazard trees are removed when they pose a danger to humans; insect infestations throughout the mountain have left many dead and dying trees in this area; and drought and winds have caused additional damage and loss of trees. In addition, the eastern and southern sides of the area have been treated under the Pinaleño Ecosystem Management project (PEM), and the west end received some fire damage during the 2004 Nuttall-Gibson Complex wildfire. This area of forest has been struggling against many factors, and an overall loss of live trees is prevalent. The area in the center of Old Columbine is a meadow, likely pre-existing but broadened during the cabin-building phase. The meadow does not serve as functional squirrel habitat, and the surrounding area is not currently supporting high densities of squirrels due to many natural stresses on the trees. Outside the footprint of the Old Columbine summerhome area is the surrounding, relatively intact mixed-conifer forest. Current fuelwood thinning operations (file #02-12-05-I-0818) in a buffer zone surrounding this summerhome area are designed to reduce fire risk while not causing adverse effects to wildlife.

Large trees are scattered among the cabins and in the forest surrounding the Turkey Flat summerhome area. They provide a shady ponderosa pine and pine-oak canopy over most of the cabins. Some understory brushy growth remains between cabins and groupings of cabins on both sides of the Swift Trail. The Turkey Flat summerhome area is also located in pine-oak vegetation, with the resulting loss of canopy and increased aridity. Designated Forest roads and trails are bounded by generally intact forested stands, with the exception of those passing through any areas severely burned by the 2004 Nuttall-Gibson Complex wildfire. The forest surrounding Riggs Lake is large and intact, with a denser, more interlocked canopy, several large-sized downed logs per acre, a more diverse and full understory, and the retention of a generally cooler, moister understory regime that favors MGRS reproductive needs.

A. Status of the Species and Critical Habitat Within the Action Area

Based on all known (historical and present) midden locations, only two middens have been found in the vicinity of the Turkey Flat summerhome area. One midden, which is currently active, is about 450 feet away from the nearest structure (a water tank) and more than 700 feet away from any of the summerhomes (see Appendix D). It is over the top of a steep, rugged, northern-aspect slope and in a stand of mixed-conifer, a spot of vegetation cooler and moister than the summerhome area vegetation. This hill is not easily climbed and has no trail, discouraging casual access by people. Because of its specific location and isolation from people, we believe project effects to this midden and its associated MGRS are unlikely to occur (discountable). The second midden, which was discovered in June 2008, is set at the base and

inside an opening in a mature Gambel oak. The midden is currently active and fluffy in texture; there is fresh sign of feeding, with cone scales, cone cobs, and partially-eaten cones in and around the midden site. It is approximately 65 feet from the nearest cabin, 100 feet from Swift Trail (Hwy 366), and three feet from the dirt entrance road into the upper Turkey Flat summerhome area (not illustrated in Appendix D). The midden is located in pine-oak woodland, which is atypical for this species. After the midden was found, a Forest Service biologist surveyed the remainder of the summerhome area for MGRS middens. No additional middens were found.

The mixed-conifer forest surrounding and extending beyond the Old Columbine summerhome area westward across the mountain tops to Riggs Lake is predominately suitable MGRS habitat (with the exception of those portions of the mountain that burned severely in the 2004 Nuttall-Gibson Complex wildfire). Within the Old Columbine summerhome area, two midden locations are known; one located just at the entry point of the road that turns into the summerhome parking area and another located about 15 feet from an outhouse that receives occasional summertime use by people (see Appendix D). A third midden is located outside the summerhome area, on a bench that lies about 100 feet below the steep, rocky hillside just off the edge of the community building that receives occasional summertime use. This midden is not easily seen from the community building; there is no easy or desirable way down to it. The steep and rocky hillside right off the edge of the building has no trail and is discouraging to recreational hikers.

Because these three middens had not been surveyed for at least three or more survey periods, Coronado National Forest district wildlife staff conducted site visits to them in June 2006 and again in September 2007. They determined that one midden had disappeared (there was no cone scale mound, no scales indicating recent feeding, and no signs that the site had been used by a MGRS for more than three survey periods) (T. Snow, personal communication) due to the small island of conifer trees around it that naturally died and fell, exposing the midden site to more intensity and duration of sunlight and heat than when the trees were alive. The dryness and heat on this site (there are no surrounding trees; it was an "island" surrounded by bare, dry soil) will likely preclude its future use by MGRS. This "island" is right next to the dirt road and the parking area is nearby; these open areas will be maintained at current levels of openness, likely preventing the future return of conifers in this small, specific location. FWS staff visited the other two middens in October 2007 and determined them to be active.

In other parts of the action area, data from the fall midden surveys of September 2007 roughly indicate that, where habitat conditions are suitable for MGRS middens in mixed-conifer vegetation types and other cooler areas on the mountain, MGRS continue to survive and use these midden sites located near trails, some Forest roads, and in the forest surrounding Riggs Lake and other public facilities. Midden activity in other suitable portions of the action area appears to typically cycle between active and inactive states, as do middens elsewhere on the mountain as indicated by midden surveys formally conducted since 1986.

Designated MGRS CH does not occur in the two summerhome areas but is included within the action area because it is possible (but not likely) that a summerhome permittee or their visitor(s) may hike up into the Refugium area (which is also MGRS CH).

B. Factors Affecting Species Environment And Critical Habitat Within the Action Area

Both summerhome areas (the key portions of the action area) support significant levels of human presence, accompanied by varying levels and duration of human and mechanical noise disturbance. The 14 Old Columbine summerhomes receive three-season use; residents inhabit the action area from about late May to the first snow in October or November, annually. Residents do not occupy their cabins at any time, per permit, during the winter months (November 15th through April 15th), although an occasional maintenance visit from concerned cabin owners to check for leaks or damage is allowed during winter. Typical use here peaks during the late spring and summer months, tapering off to light use in the fall. Typically two or three of the Old Columbine cabins are occupied on the weekends during MGRS breeding and foraging seasons (Spring and Fall), particularly in good weather. On weekdays, there may be none to four or five people in residence. During a typical Fourth of July holiday (summer), there have been as many as 25 people in the immediate summerhome area. At Turkey Flat, due to year-round access, about 95 percent of the 74 cabins are used at some point in the year. Most cabin owners use their cabins for a week or two during the summer (two to six family members) and for a couple of fall weekends, and occasionally in winter. About 10 cabins are used all summer long by retired cabin owners (two family members) with occasional visits from other family members over one summer weekend. As many as 50 people were noted in the immediate Turkey Flat summerhome area on a typical Fourth of July holiday weekend (D. Bennett, personal communication, 2007).

The forested lands immediately encircling the small sites of relatively flat ground where each summerhome area occurs are very steep and rough terrain. Current information indicates that most residents remain close to their respective summerhome area (S. Wallace, personal communication 2007). Some residents (and likely a few of their visitors) may hike a short distance uphill on designated trails, but the elevation, the steep and rugged terrain, and the general age and abilities of the resident population make it unlikely these people use the trails very much (if at all) or leave the trail for the forest (A. Casey, personal communication 2007). Because no new summerhomes or additions will be permitted, the number of people using these portions of the action area is expected to remain at current levels (S. Wallace, personal communication 2007).

Other portions of the action area, as defined in the Environmental Baseline section above, are posted for speed limits on the roads and types of permitted activities at the sites. Bear-proof garbage containers are provided at public sites (especially picnic areas, camp sites, and Riggs Lake) and are serviced regularly by Forest Service personnel. Surveys for MGRS middens have documented many active (and some inactive) middens in the surrounding forest that supports denser, interlocking canopy and a cooler, moister climate regime deeper into the forest than that found on the edge of roads and trails mountain-wide. A few middens are known to be visible from some portions of some hiking trails, and some are very close to the edges of Forest roads, but we believe they remain relatively inconspicuous to the typical permittee. While roads and trails have a drying effect on the immediate forest edge, middens tend to be far enough away from these edges to remain active over time. No formal study has been conducted on edge effects of trails and roads on midden persistence.

As noted in the Nuttall-Gibson Complex BO conservation measures, you are hand-planting about 9,000 conifer seedlings at appropriate elevations and densities in selected, small areas (burned by the 2004 Nuttall-Gibson Complex wildfire) in former MGRS habitat and MGRS CH deemed best suited for such plantings. This project was consulted on, and we issued our BO (#02-21-04-M-02999) on June 8, 2007. The extent of the project is uncertain but is estimated at 10 acres in 2007. Planting began in July 2007 and will continue for five to seven years (2007-2014). These seedlings are grown from seeds taken from cones collected on Mt. Graham. They remain growing in a tree nursery facility until ready for planting. Tree survival is anticipated to be at least 60 percent and likely higher, but we are aware this will depend on variable and unmanageable factors such as climate, local weather, insects, rainfall, and wildfires (L. Angle, personal communication).

As noted in the Status of the Species section above, insect destruction and catastrophic wildfire remain the biggest factors affecting MGRS CH. As noted in section B of the Environmental Baseline above, you are planting trees in MGRS CH (MGRS Refugium) and other select areas on the mountain. Planting seedlings in these areas will not realize a great short-term habitat gain, but conifer survivors will contribute to long-term cone crop and MGRS habitat formation over time.

EFFECTS OF THE ACTION

Anticipated effects resulting from the re-issuance of these permits for the next 20 years will be continued vehicle and human presence and disturbance occurring at both summerhome areas and on designated Forest roads, some light intermittent human voice noise on relatively gentle trails, and human presence and use of designated recreation sites at current, typical levels and times. This is determined by you to be light to moderate spring and fall use, heavier summer use, and no winter use at Old Columbine and areas at higher elevations due to snow loads and road closure. The Turkey Flat summerhome area will experience similar use levels, but will also experience some light winter use due to its lower elevation and greater accessibility during winter.

The active MGRS midden located about 450 feet from the Turkey Flat water tank, is located over the top of a hill, in a stand of mixed-conifer, and on the northern aspect of a slope that is not conducive to hiking or exploring. As a result, this midden and the MGRS that uses it are unlikely to be affected by activities associated with the Turkey Flat summerhomes. The second midden in the Turkey Flat area, which is also active, is about three feet from the dirt access road into the upper Turkey Flat area and about 100 feet from the nearest cabin. Because the access road at this location is close to the turnoff from Swift Trail, vehicles traveling past the midden are likely to be going fairly slowly. Nonetheless, there is some possibility of the MGRS using this midden to dart into the road and be killed or injured by a passing vehicle associated with summerhome use. The ponderosa pine and pine-oak forests at and in the immediate vicinity of the Turkey Flat summerhome area are generally thought to be unsuitable for MGRS needs. The midden in this area is highly atypical. This MGRS may not be successful at this site because of the habitat, and it is unlikely that additional MGRS will take up residence in the Turkey Flat summerhome area.

There are two MGRS middens within the Old Columbine summerhome area; one at the entry point of the road that turns into the summerhome parking area and another located 15 feet from an outhouse. We believe there have been, and will continue to be, occasional visual observations and/or non-fatal-to-MGRS interactions between individual MGRS and summerhome residents, their visitors, and (leashed) pets that may temporarily disturb or harass a MGRS that might be inhabiting or foraging within the summerhome area. One exception is the single MGRS that actively maintains and defends its midden about 15 feet away from an outhouse that receives occasional summertime (human) use. This squirrel may have become habituated to a certain level of human presence during a certain timeframe. The midden has been active for many years and was again confirmed active in both survey periods of 2007 (spring and fall) (T. Gamberg, personal observation, 2007). As a result, it has likely been occupied by a number of different MGRS, and will likely be occupied by a succession of MGRS into the future. Because of the proximity to the outhouse, MGRS using this midden are especially susceptible to harm or harassment.

Vehicle and human noise, depending on levels and proximity to a midden site, may be disruptive to MGRS, particularly during their breeding season. If noise arouses an animal, it has the potential to affect its metabolic rate by making it more active. Increased activity can, in turn, deplete energy reserves (Bowles 1995). This may be a temporary or occasional disruption. Species that are sensitive to the presence of people may be displaced permanently, which may be more detrimental to wildlife than recreation-induced habitat changes (Hammit and Cole 1987, Gutzwiller 1995, Knight and Cole 1995). If animals are denied access to areas that are essential for reproduction and survival, that population will most likely decline. Likewise, if animals are disturbed while performing behaviors such as foraging or breeding, that population will also likely decline (Knight and Cole 1995).

At least some MGRS in and very near portions of the action area appear to have become relatively habituated to the presence and noise levels of people and machinery that typically occur seasonally on the mountain (A. Casey, T. Gamberg, personal observation, 2007). Mountain-wide, active middens are known to be visible from trails; others are just beyond visual range from Forest roads (depending on cover, from 3 yards out). Other individual MGRS may respond differently and could be adversely affected or excluded from areas of intense human activities such as would occur during the summer months of high use at the Old Columbine summerhome area.

We believe that most of the active MGRS middens, as indicated by more than 20 years of midden surveys, appear to be far enough away from Forest roads, trails, and designated recreational sites (picnic and camp sites and Riggs Lake) to remain active in and around these sites. We note new middens are created in and around these recreational sites and that other middens in these same areas become inactive. Exact causes are unknown at this time, but continued creation of new middens suggests MGRS are continuing to inhabit these areas. Summerhome residents (and their visitors) will travel higher up the mountain on Forest roads and use designated trails and recreational sites, such as Riggs Lake, where MGRS are more common, and where interactions with MGRS are more likely to occur. This activity level has been ongoing since the cabins were built and occupied (in the 1940s) and is believed to be stable in noise levels and times for the last 20 years, at least (A. Casey, personal communication 2007).

Another effect of renewing these permits will be some level of continued difficulty for the Forest to implement the Coronado National Forest Wildfire Use Amendment, which involves using natural-ignition fires (i.e., lightning-caused fires) to burn areas that are typically adapted to certain (non-catastrophic) fire regimes. This difficulty in fuel reduction efforts may indirectly affect MGRS when catastrophic wildfires burn in suitable MGRS habitat surrounding the summerhome areas. In the Old Columbine summerhome area, fuel-reduction thinning operations have recently involved dropping only designated hazard trees near the cabins; the greater thinning/clearing was conducted years ago.

The Turkey Flat summerhomes are located at the high end of a canyon, leaving them very vulnerable to wildfire. Typical fire behavior in this vegetation type, exposure, and dryness suggest that fires that start downhill of the summerhomes will burn up the canyon (especially in the dense fuels that exist now) into the cabins. The Forest is currently conducting fuel-reduction work in this summerhome area and is taking measures to ensure homeowner safety, as far as can be done in this particular circumstance.

The reissuance of these permits for the next 20 years may exclude an unknown but likely small number of individual MGRS from creating new middens in the Old Columbine summerhome area due to human disturbance and the continued need to reduce fuel levels around the cabins. We believe the drier vegetation association and warmer aspect of the Turkey Flat summerhome area is why MGRS rarely create middens or reside in this area. As stated previously, the midden located about 450 feet from the Turkey Flat water tank is in a highly specific site; over a hilltop, on a northern-aspect slope, and the vegetation association is a stand of mixed-conifer and is cooler and moister than the summerhome area of Turkey Flat. The other midden near the access road is in habitat highly atypical for MGRS.

There is an unknown increment of increased likelihood of wildfire and road mortality of MGRS on Forest roads due to the presence of summerhome residents (and their visitors) that might not be there but for the summerhomes. The Arizona Department of Transportation has conducted preliminary traffic counts on the Swift Trail, but no data are available at this time.

Effects to critical habitat would occur primarily from incidental use of trails by summerhome residents and visitors. Such incidental use is unlikely to have adverse effects to constituent elements of MGRS critical habitat. Those constituent elements have largely been lost due to recent fire and insect damage. Neither would incidental trail use likely affect the restoration of constituent elements.

In summary, the proposed action to re-issue the summerhome special use permits for another 20 years will directly affect one MGRS and its midden at Old Columbine, one MGRS and its midden at upper Turkey Flat, and will have indirect effects at both localities and elsewhere in the action area. However, the distribution, reproduction rate, and other demographics of MGRS in the action area are not expected to be significantly affected.

Effects of Conservation Measures

The proposed conservation measures will aid in offsetting the effects of the presence of the two summerhome areas by beginning reforestation of MGRS CH; controlling the number of

summerhomes (and to some extent, the number of people); enforcing permitted occupancy limits and activities; and monitoring middens in the summerhome areas. In accordance with 50 CFR 402.16(b), if the monitoring of the middens in the summerhome areas reveals effects of the action in a manner or to an extent not considered in this opinion, we expect you to reinitiate consultation, at which time the conclusions herein would be reevaluated.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The Forest manages lands (except private) of the Pinaleño Mountains and administer projects and permits on those lands; thus, almost all activities that could potentially affect MGRS in the action area are Federal activities subject to section 7 consultation under the Act.

CONCLUSION

After reviewing the current status of the MGRS, the environmental baseline for the action area, the effects of the proposed re-issuance of Special Use Permits for the Mt. Graham summerhomes at Old Columbine and Turkey Flat, and the cumulative effects, it is our biological opinion that the actions, as described, are neither likely to jeopardize the continued existence of MGRS, nor result in destruction or adverse modification of critical habitat. This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete our analysis with respect to critical habitat.

Our findings are based on the following:

- MGRS remains a highly endangered species, although MGRS middens (and by extension, MGRS population numbers) in the action area appear to be relatively stable. Declines in MGRS population numbers across the Pinaleño Mountains reflect recent large-scale habitat losses due to wildfires and insect damage (T. Snow personal communication Appendix B).

- MGRS distribution in the action area appears to be stable; surveys note that the same areas support new middens even as old middens are abandoned.

- Human occupancy in the Old Columbine summerhome area is restricted during the winter (November 15th through April 15th) to an occasional maintenance-type visit from concerned cabin owners to check for leaks or damage.

- Although two active middens currently occur in the Turkey Flat summerhome area, one is in an area not expected to be affected by summerhome activites, and the other is in habitat not typical for the species. In general, the forested area in the Turkey Flat

summerhome area is hotter and drier than mixed-conifer sites mountain-wide that support MGRS. The ponderosa pine and pine-oak vegetation types in the Turkey Flat area are not the preferred MGRS habitat.

- All permittees are required to be in compliance with their permits.
- A process is in place and will be followed to correct instances of non-compliance.
- The only anticipated effects to critical habitat would occur through occasional trail use of the Refugium by summerhome residents and visitors. Such use is unlikely to have adverse effects.
- The proposed action includes conservation measures that are intended to minimize or offset adverse effects of reissuing permits for the summerhomes.

In conclusion, we believe the MGRS is critically endangered, and recent insect outbreaks, drought, and catastrophic wildfires have been the major factors that, over time, have pushed this species nearer to extinction. The primary reason why we believe the re-issuance of the special use permits for the Mt. Graham summerhomes does not jeopardize the continued existence of MGRS or result in adverse modification or destruction of critical habitat is that these permitted structures have been occupied, and roads and trails have been used in the action area since at least the 1940s. Despite this use, MGRS have continued to breed, nest, forage, create middens, and rear young apparently in coexistence with these levels and times of summerhome permittee effects. We conclude that continued use of the summerhomes will not appreciably reduce the likelihood of the survival and recovery of the MGRS because MGRS continue to breed and maintain populations in the action area. The continued use will not be expanded; thus, it will not further reduce the distribution of the MGRS, and we are unaware of the proposed action having adverse effects on reproduction of MGRS.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not

intended as part of the agency action is not considered to be prohibited taking under the Act, provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by the FS so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The FS has a continuing duty to regulate the activity covered by this incidental take statement. If the FS (1) fails to assume and implement the terms and conditions or (2) fails to require the (applicant) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FS must report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

We anticipate that in the action area, one MGRS (associated with the one currently active midden 15 feet from an outhouse in the Old Columbine summerhome area) will be taken as a result of this proposed action. The incidental take is expected to be in the form of harassment due to human presence and vehicle and human noise at a level and duration that currently occurs in the action area. We also anticipate that one MGRS will be taken in the upper Turkey Flat summerhome area (the MGRS associated with the midden next to the access road). This MGRS is likely to be incidentally taken due to road mortality or injury. Once abandoned, this midden is unlikely to be reoccupied due to the marginal suitability of the surrounding habitat.

We believe the one midden and associated MGRS located about 450 feet from the water tank at the Turkey Flat summerhome area will not be affected by the proposed action. Although presence and activities of summerhome residents in recreational areas and on roads elsewhere in MGRS habitat outside of the summerhome areas continues to pose a low level of threat to MGRS, we do not anticipate that incidental take will occur from such activities.

EFFECT OF THE TAKE

In this biological opinion, we determine that this level of anticipated take is not likely to result in jeopardy to the species.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, you must comply with the following terms and conditions, which implement the reasonable and prudent measure described below and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following reasonable and prudent measure, with its accompanying terms and conditions, is necessary and appropriate to minimize incidental take of MGRS:

1. You will monitor human activities and MGRS presence and activities in the summerhome areas and work with us to eliminate or minimize any human activities that are likely to result in incidental take.

   A. You will conduct monitoring of summerhome user presence and general activity levels and types at both summerhome areas once a year, every year, through 2028. These visits will be during a busy summer weekend. The observer will note the total number of summerhomes apparently occupied in each summerhome area; an estimate of the total number of people in each summerhome area; and an estimate of existing noise or other disturbance levels and types likely to affect MGRS. A standardized form may be developed for recording these data.

   B. You will conduct monitoring of MGRS presence or activity(s) at both summerhome areas at least two times a year, every year through 2028. A monitoring visit for MGRS shall include a thorough ground search for nests, middens, or other obvious signs of MGRS activity. This includes searching a reasonable distance out from the perimeter (as safely as can be done) of the summerhome areas. A standardized form may be developed to record these data.

   C. If, based on the monitoring in parts A and B, incidental take appears likely to occur (or you know of a circumstance that incidental take has occurred), you shall contact us immediately and we will work together to develop alternatives that can be implemented to minimize incidental take. The results of the monitoring, including the completed survey forms and any interpretation of the data, shall be submitted as a part of the Coronado National Forest Annual Monitoring Report to this office.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action, but will also allow assessment of whether anticipated incidental take has been exceeded. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The FS must immediately provide an explanation of the causes of the taking and review with the Arizona Ecological Service Office the need for possible modification of the reasonable and prudent measures.

Upon locating a dead, injured, or sick listed species, initial notification must be made to the FWS's Law Enforcement Office, (2450 W. Broadway Rd, Suite 113, Mesa, Arizona, 85202, telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that you continue to assist us in the implementation of the MGRS recovery plan and its revisions, including providing funding for carrying out key recovery actions under your authorities.

2. We recommend that you pursue the completion of a Forest-wide consultation on wildland fire use for resource benefit and wildfire suppression activities.

3. The status of the MGRS is dire and its habitat has declined precipitously in recent years. We recommend you take immediate action to minimize or eliminate effects resulting from Forest-authorized activities (e.g. recreation, road use, etc.) in MGRS habitat and begin and continue rehabilitation and restoration of habitats destroyed by wildfire and insect damage.

4. We recommend that you plan the Pinaleño Ecosystem Restoration Project very conservatively, with the ultimate goal of recovering the MGRS while providing protection from catastrophic wildfire.

5. We recommend that you continue to participate with us and the AGFD in the bi-annual MGRS midden surveys, which provide crucial data on population trends and MGRS distribution in the Pinaleño Mountains, including the Old Columbine and Turkey Flat summerhome areas.

6. We recommend that you conduct a study to determine the effects the special-use-permitted summerhomes (and associated people, machinery, and activities) on the MGRS and other threatened or endangered species that may be affected. The study would include likely scenarios of plant and wildlife changes in response to the removal of the permitted summerhome areas, spatially and temporally. The scope of work for the study should be jointly developed by biologists from the FWS and Forest. The Arizona Game and Fish Department (AGFD) should be asked to assist with study design. The study should be consistent with section 605(a) of the Arizona-Idaho Conservation Act of 1988 (P.L. 100-696, November 18, 1988). That study, as prescribed in section 605(a), is necessary for the Forest to terminate, nonrenew, or modify the summerhome special use permits.

In order for us to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

Ms. Jeanine Derby 22

REINITIATION NOTICE

This concludes formal consultation on proposed re-issuance of special use permits in two summerhome areas (Old Columbine and Turkey Flat) located in the Pinaleño Mountains. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your efforts to identify and minimize effects to listed species from this project. For further information, please contact Jim Rorabaugh at (520) 670-6150 (x230) or Sherry Barrett (520) 670-6150 (x223) of my staff. Please refer to consultation number 22410-2007-F-0163 in future correspondence concerning this project.

Sincerely,

/s/Denise Baker for

Steven L. Spangle
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ (Attn: T. Snow)

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APPENDIX A
CONCURRENCES

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Mexican Spotted Owl (MSO), its critical habitat (CH), and the Apache trout. The rationale for these concurrences are as follows.

Mexican Spotted Owl

- Except for two acres located on the edge of the MSO Turkey Flat Protected Activity Center (PAC) where the Turkey Flat summerhome water tank exists, no summerhome facilities occur within designated MSO PACs. This PAC has been surveyed 12 times since 1990; it has been considered occupied all years but one. At least one MSO core (100 acre-area of highest-quality habitat surrounding a nest site) is known for each PAC. No MSO cores occur in proximity to the summerhome areas; they (inside designated MSO PACs) stretch out over the ridge tops of the mountain range. Based on years of survey information, habitat availability, and forest suitability for MSO, we believe it extremely unlikely that MSO would choose to roost or nest in or very close to either summerhome area. There is a slight possibility that MSO may forage in and near the summerhomes. Since MSO prefer crepuscular and nighttime foraging, we believe that human and mechanical noise disturbance will be at minimum levels during those times. We believe that any potential effects to MSO (such as porch lights left on during nighttime hours; a dog barking) are insignificant.

- We believe that distances between the summerhome areas and known MSO nest/roost sites (one or two are about two miles away; others are much farther away) are far enough and the dense vegetation and steep terrain is discouraging enough to preclude the summerhome residents "bushwhacking" through to, or even seeing, a nest/roost site. The ages and abilities of the summerhome residents (and visitors) is such that few hike any but the most gentle trails, and none is likely at all to leave the trail for the forest interior. The steep terrain and dense understory in these areas also make it unlikely that summerhome residents (and visitors) would leave the trail to walk in the direction of a nest/roost site. We believe that any potential disturbance effects to the species (an occasional hiker, off-trail, and/or passing through the area) will be insignificant.

- The likelihood of any direct or indirect effects of the proposed action on MSO CH primary constituent elements is extremely low; therefore, we believe that any effects to MSO CH will be discountable.

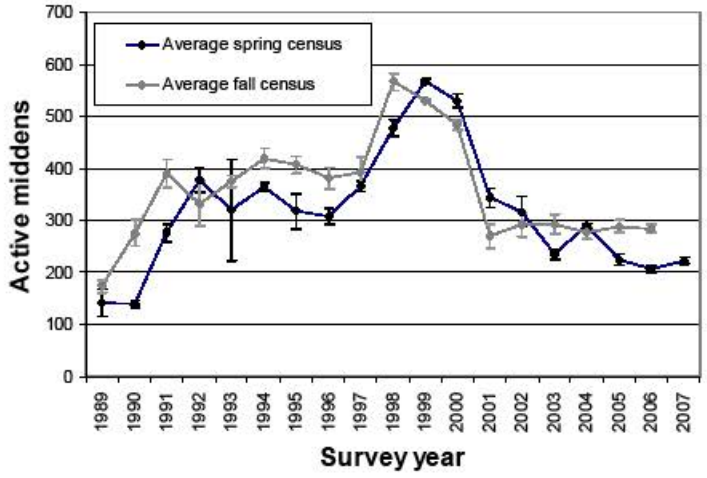
Apache Trout

- Apache trout populations appear unaffected by current permitted summerhome use and activities. The population occurs at least one mile from the Old Columbine summerhome area. There remains professional discussion as to whether or not the Mt. Graham Apache trout population is a hybrid; however, we include it in this consultation.

- Maintaining both summerhome areas at current permitted use and activity levels is not anticipated to create additional runoff or siltation issues for the downstream population of Apache trout in Ash Creek; therefore, we believe any potential effects to the species are insignificant and discountable.

APPENDIX B
MGRS MIDDEN SURVEY RESULTS

FIGURE 1: Spring and fall census results 1989-2007. Symbols indicate occurrence of major wildfires and forest insect outbreaks. Error bars represent the conservative and optimistic estimates for each census.



APPENDIX C
MGRS Population Estimates

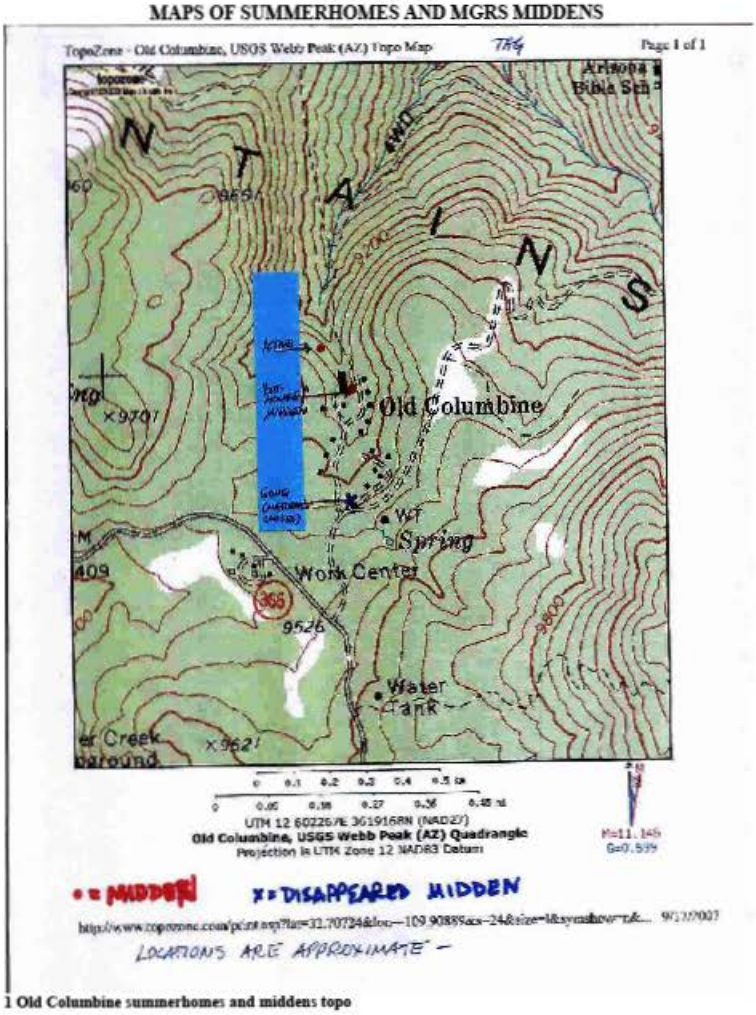
Month/Year	Population	Estimate
June 1986	323	
October 1987	242	
March 1988	207 (+/- 62)	
October 1988	conservative	178 (+/- 62)
	optimistic	226 (+/- 62)
	average	202
January 1989	197 (+/- 63)	
April 1989	conservative	99 (+/- 53)
	optimistic	148 (+/- 59)
	average	124
June 1989	conservative	116 (+/- 29)
	optimistic	167 (+/- 32)
	average	142
October 1989	conservative	162 (+/- 15)
	optimistic	185 (+/- 15)
	average	174
May 1990	conservative	132 (+/- 15)
	optimistic	146 (+/- 16)
	average	139
October 1990	conservative	250
	optimistic	300
June 1991	conservative	259
	optimistic	293
October 1991	conservative	364
	optimistic	417
June 1992	conservative	354
	optimistic	399
October 1992	conservative	290
	optimistic	374
June 1993	conservative	223 (+/- 31)
	optimistic	417 (+/- 31)
October 1993	conservative	365 (+/- 22)
	optimistic	385 (+/- 22)

May 1994	conservative	357 (+/- 18)
	optimistic	372 (+/- 18)
October 1994	conservative	398 (+/- 11)
	optimistic	439 (+/- 11)
June 1995	conservative	283 (+/- 12)
	optimistic	352 (+/- 12)
October 1995	conservative	391 (+/- 12)
	optimistic	423 (+/- 12)
Spring 1996	conservative	292 (+/- 10)
	optimistic	323 (+/- 12)
Fall 1996	conservative	360 (+/- 12)
	optimistic	402 (+/- 12)
Spring 1997	conservative	356 (+/- 12)
	optimistic	376 (+/- 12)
Fall 1997	conservative	364 (+/- 12)
	optimistic	420 (+/- 11)
Spring 1998	conservative	462 (+/- 11)
	optimistic	492 (+/- 11)
Fall 1998	conservative	549 (+/-11)
	optimistic	583 (+/-11)
Spring 1999	conservative	562 (+/-12)
	optimistic	571 (+/-11)
Fall 1999	conservative	528 (+/-11)
	optimistic	531 (+/-11)
Spring 2000	conservative	516 (+/-11)
	optimistic	544 (+/-11)
Fall 2000	conservative	474 (+/-11)
	optimistic	493 (+/-11)
Spring 2001	conservative	326 (+/- 12)
	optimistic	362 (+/- 12)
Fall 2001	conservative	247 (+/- 12)
	optimistic	292 (+/- 11)
Spring 2002	conservative	288 (+/- 12)
	optimistic	346 (+/- 12)
Fall 2002	conservative	269 (+/- 8)
	optimistic	315 (+/- 8)

Spring 2003	conservative	224 (+/- 11)
	optimistic	245 (+/- 11)
Fall 2003	conservative	274 (+/- 13)
	optimistic	311 (+/- 13)
Spring 2004	conservative	284 (+/- 13)
	optimistic	295 (+/- 12)
Fall 2004	conservative	264 (+/- 12)
	optimistic	288 (+/- 12)
Spring 2005	conservative	214 (+/- 12)
	optimistic	235 (+/- 12)
Fall 2005	conservative	276 (+/- 12)
	optimistic	301 (+/- 12)
Spring 2006	conservative	199 (+/- 15)
	optimistic	214 (+/- 15)
Fall 2006	conservative	276 (+/- 12)
	optimistic	293 (+/- 11)
Spring 2007	conservative	216 (+/- 12)
	optimistic	230 (+/- 12)
Fall 2007	conservative	299 (+/- 11)
	optimistic	310 (+/- 11)

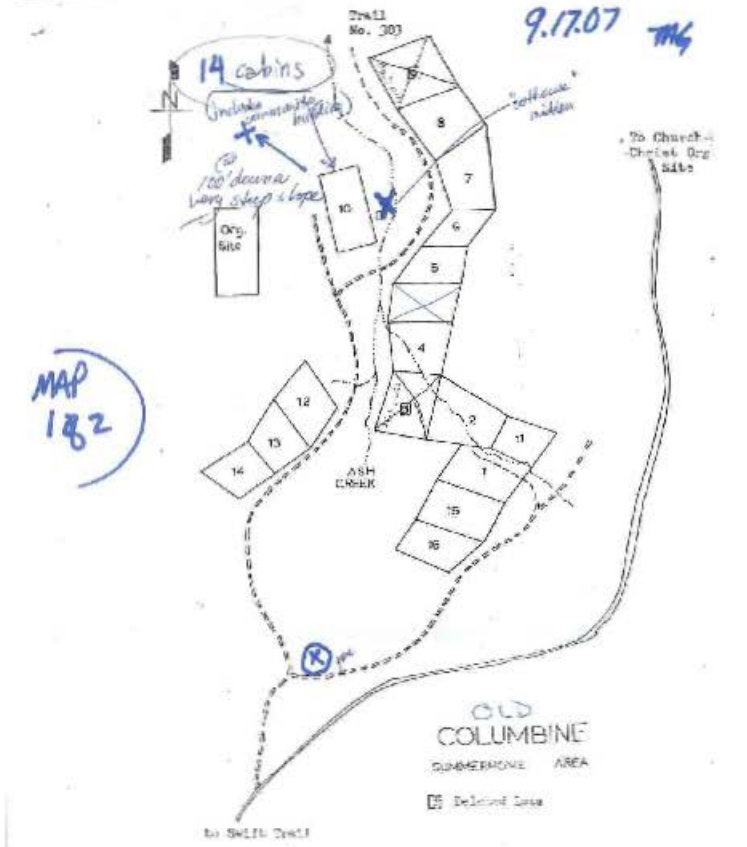
*Note -- as of this writing, the Spring 2008 surveys are complete, but population estimates have not yet been calculated.

APPENDIX D
MAPS OF SUMMERHOMES AND MGRS MIDDENS



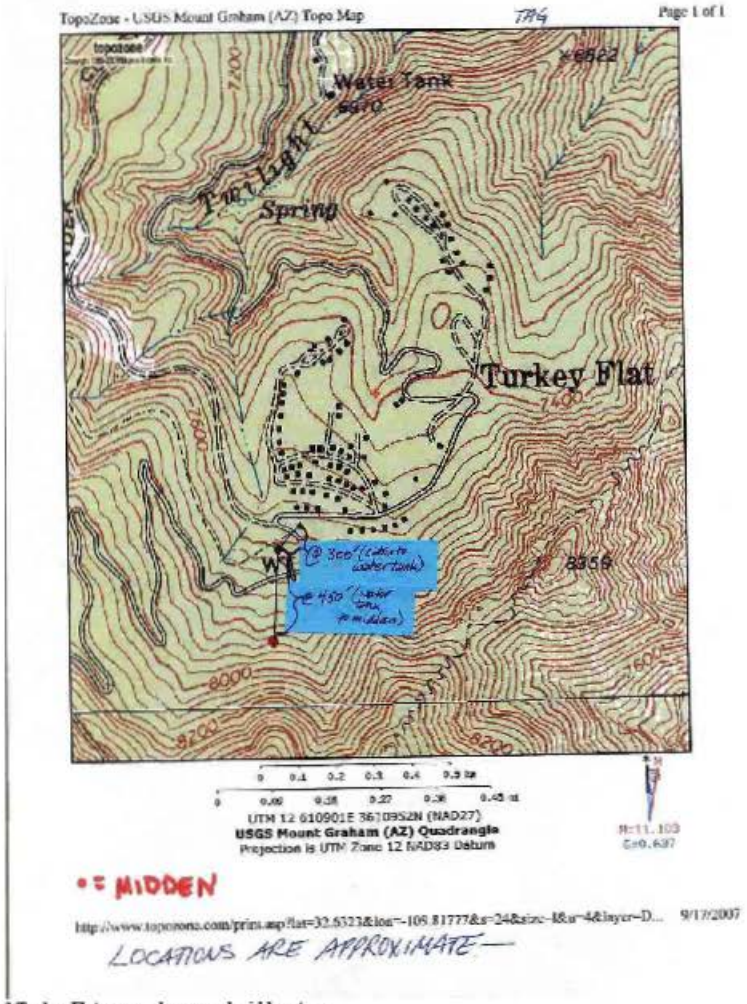
1 Old Columbine summerhomes and middens topo

Ms. Jeanine Derby 34



2 Old Columbine summerhomes and middens

Ms. Jeanine Derby 35



3 Turkey Flat summerhomes and middens topo

Ms. Jeanine Derby 36

4 Turkey Flat summerhomes and middens