

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Mount Graham Red Squirrel

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines endangered status for the Mount Graham red squirrel, *Tamiasciurus hudsonicus grahamensis*, a small mammal found only in the Pinaleno Mountains of southeastern Arizona. Its isolated habitat has declined over the last century and may face additional losses to logging, recreational development, and construction of an astrophysical observatory. The red squirrel may also be in jeopardy because of its reduced numbers and through competition with an introduced species of squirrel. This rule implements the protection of the Endangered Species Act of 1973, as amended, for the Mount Graham red squirrel. A final decision on the determination of critical habitat for the Mount Graham red squirrel will be published in a separate notice by May 1988.

DATES: The effective date of this rule is June 3, 1987.

ADDRESS: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Service's Regional Office of Endangered Species, 500 Gold Avenue, SW., Room 4000, Albuquerque, New Mexico.

FOR FURTHER INFORMATION CONTACT: Alisa M. Shull, Endangered Species Biologist, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103 (505/766-3972 or FTS 474-3972).

SUPPLEMENTARY INFORMATION:**Background**

The red squirrel (*Tamiasciurus hudsonicus*) is found in most of Canada and Alaska, and in much of the western and northern parts of the conterminous United States (Hall 1981). It is an arboreal species and, in the southern extremities of its range, is restricted mainly to montane forests. It is grayish brown, tinged with rusty or yellowish along the back. In summer, a dark lateral line separates the light colored underparts from the grayer or browner sides. The ears are slightly tufted in

winter, and the tail is bushy (Spicer *et al.* 1985).

The two most southerly subspecies of red squirrel are *T. h. mogollonensis*, which is found in much of the high country of Arizona and New Mexico, and *T. h. grahamensis*, the Mount Graham red squirrel, which is known only from the Pinaleno (Graham) Mountains of Graham County, southeastern Arizona. The latter is slightly smaller than *T. h. mogollonensis*, has a relatively shorter tail, and differs in various skeletal character. Ten adult specimens averaged 7¾ inches (196.0 millimeters) in head and body length, and 5¼ inches (135.5 millimeters) in tail length (Spicer *et al.* 1985).

The range of the Mount Graham red squirrel lies entirely within the Safford Ranger District of the Colorado National Forest. This squirrel is now found at highest densities in Engelmann spruce (*Picea engelmannii*) and/or fir, especially corkbark fir (*Abies lasiocarpa* var. *arizonica*). Its diet consists largely of conifer seeds, and during the winter it depends on seed-bearing cones that it has stored at sites known as middens. Forty-eight percent of the active middens are above 10,200 feet (3,109 meters) in mature Engelmann spruce/corkbark fir (Dr. Peter Warshall, Office of Arid Lands Studies, University of Arizona, pers. comm., December 18, 1986). Lower densities have been found in old growth Douglas fir (*Pseudotsuga menziesii*) and/or white fir (*Abies concolor*), often associated with Engelmann spruce. The condition of midden sites is important and the caches must remain cool and moist to preserve the cones and to prevent them from opening and losing their seeds. These caches, usually associated with logs, snags, stumps, or a large live tree, are the focal points of individual territories, and the number of midden complexes offers an approximation of the number of resident red squirrels in a particular area. In good spruce-fir habitat in the Pinaleno Mountains, the population density is about one red squirrel per 8 acres (3.2 hectares), which is lower than has been found in most other areas where the species has been studied (Spicer *et al.* 1985).

The Mount Graham red squirrel was described by Allen in 1894, based on three specimens taken that same year on Mount Graham in the Pinalenos. Subsequent reports indicate that the subspecies was common around the turn of the century, but was declining by the 1920's and rare by the 1950's (Hoffmeister 1956). This situation apparently was associated with loss and disruption of forest habitat, and perhaps

with competition from an introduced population of the tassel-eared, or Abert's, squirrel (*Sciurus aberti*). From 1963 to 1967, Minckley (1968) was unable to find the Mount Graham red squirrel and was concerned that the subspecies had become extinct. Later, however, the continued existence of the Mount Graham red squirrel was verified. A Service-funded status survey in 1984-1985 located this mammal or its fresh sign at 16 localities in the Pinalenos and estimated the number of squirrels as 300-500 animals (Spicer *et al.* 1985). More recent surveys and a midden census conducted by the U.S. Forest Service (USFS), the Arizona Game and Fish Department (AGFD), and the University of Arizona (U of A) indicate that this estimate was too high, and a more accurate estimate is 280 squirrels.

In both its original Review of Vertebrate Wildlife, published in the *Federal Register* of December 30, 1982 (47 FR 58454-58460), and the revised version, published on September 18, 1985 (50 FR 37948-37967), the Service included the Mount Graham red squirrel in category 2, meaning that information then available indicated that a proposal to determine endangered or threatened status was possibly appropriate, but was not yet sufficiently substantial to biologically support such a proposal. The 1984-1985 Service status survey and more recent surveys by the USFS, AGFD, and U of A have since provided a substantial basis for determination of endangered status. Although the squirrel does still survive, its range and numbers have been reduced, and its habitat is jeopardized by a number of factors, including proposed construction of an astrophysical observatory. In the *Federal Register* of May 21, 1986 (51 FR 18630-18634), the Service published a proposed rule to determine endangered status.

Summary of Comments and Recommendations

In the proposed rule of May 21, 1986 (51 FR 18630), and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. The original comment period closed on July 21, 1986, but was reopened on August 26, 1986 (51 FR 27429), to accommodate two public hearings, and remained open until November 21, 1986. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice, inviting general

public comment, was published in the *Eastern Arizona Courier* on June 18, 1986. Comment letters were received from 135 entities and are discussed below.

Requests for a public hearing were received from John Davis, Managing Editor, *Earth First!*, Tucson, Arizona; Ben Smith, Chairman, Graham County Board of Supervisors; Ned Powell, Tucson, Arizona; and Governor Aker, Mayor, City of Safford. Hearings were held in Tucson and Thatcher, Arizona, on August 26 and 27, 1986, respectively. Interested parties were contacted and notified of the hearings, and notices of the hearings were published in the *Federal Register* on July 31, 1986; the *Arizona Daily Star* on August 11, 1986; and the *Eastern Arizona Courier* on August 13, 1986. A total of about 320 persons attended the hearings. Transcripts of these hearings are available for inspection (see **ADDRESSES**). Comments received in the hearings are also summarized below.

Because of the need for a prompt determination of endangered status for the Mount Graham red squirrel, and because of the complexity of the economic analysis that must accompany the final rule designating critical habitat, the Service has decided for the present to make final only the listing portion of the proposed rule. Section 4(b)(6)(C) of the Act allows the Service to postpone the designation of critical habitat for up to one additional year from the date of publication of the proposed rule. Under this provision the final decision on the designation of critical habitat for the Mount Graham red squirrel will be made by May 21, 1988. Therefore, comments received regarding the proposed critical habitat designation will not be discussed here, but will be addressed in the final notice on critical habitat.

A total of 135 comments were received: 64 supported the proposal; 29 questioned or opposed the proposal; and 42 either commented on information in the proposal but expressed neither support nor opposition, were nonsubstantive or irrelevant to the proposal, or contained only economic or other comments related to critical habitat designation.

Oral or written statements were received from 94 parties at the hearings; 21 supported the proposal; 13 questioned or opposed the proposal; and 60 neither supported nor opposed, were nonsubstantive or irrelevant to the proposal, or contained only economic or other comments related to critical habitat designation.

All letters and written or oral statements received during the comment

period and public hearings are combined in the following discussion. All comments are available for public inspection (see **ADDRESSES**).

Comments of support were received from the U.S. Forest Service, Arizona Game and Fish Department, State of Arizona, Office of Arid Land Studies (University of Arizona), Defenders of Wildlife, Arizona Chapter of the Wildlife Society, Mount Graham Conservation Project, Coalition for the Preservation of Mount Graham, Earth First! Tucson Audubon Society, Grand Canyon Chapter of the Sierra Club, Flagstaff Archers, Cochise Conservation Council, Arizona Flycatcher's Club, Huachuca Audubon Society, Arizona Wildlife Federation, Arizona Nature Conservancy, Tucson Rod and Gun Club, Animal Defense Council, Southern Arizona Hiking Club, Southern Arizona Roadrunners Club, a member of the Pima County Board of Supervisors, and 54 private individuals.

Comments questioning or in opposition to the proposal were received from 2 State legislators, Picture Rocks Observatory, 2 employees of Steward Observatory, the Vice-president of Research and the President of the U of A, a member of Citizens for Science, a member of the Gila Valley Economic Development Foundation, the Mayor of Safford, and 24 private individuals.

Comments that expressed neither support nor opposition, were nonsubstantive, irrelevant to the proposal, economic, or related to critical habitat were received from the Arizona Board of Regents, 2 faculty members from the Department of Ecology and Evolutionary Biology at the U of A, 4 employees of Steward Observatory (including the Director), a research specialist with the U of A's College of Business, the Director of the Drachman Institute for Land and Regional Development Studies at the U of A, a member of the Physics Department at Arizona State University, the Chairman of Graham County's Board of Supervisors, a representative for Congressman Jim Colbe, a representative for Senator DeConcini, a State legislator, 3 members of Citizens for Science, a councilman for the City of Safford, Lowell Observatory, a member of the Gila Valley Economic Development Foundation, and 59 individuals.

Summaries of substantive comments addressing the listing of the Mount Graham red squirrel are covered in the following discussion. Comments of similar content are placed in a number of general groups. These comments and the Service's responses are given below:

Comment 1: The University of Arizona proposed the development of a Habitat Conservation Plan, under section 10 of the Act, as an alternative to listing. Other commenters expressed opposition to the University's proposal.

Service response: Section 10 of the Act is intended to be used to allow for a permit for taking of a listed species otherwise prohibited by section 9(a)(1)(B), if such taking is incidental to the carrying out of an otherwise lawful activity. Section 10 is not intended to be used in lieu of listing. It does not take the place of the protection provided by listing under the Endangered Species Act. The Mount Graham red squirrel appears, on the best evidence available at this time, to be endangered. Implementation of a habitat conservation plan in the future may, if sufficient, be grounds to reevaluate this finding, but it does not affect its current status. Development of such a plan may moreover operate to relieve the jeopardy which a project might otherwise pose to the squirrel, or permit even limited taking in connection with such a project.

Comment 2: Disagreement was expressed with the Service's statement in the proposed rule that any one of the potential threats could not by itself result in rapid extirpation of the Mount Graham red squirrel.

Service response: Based on additional information on Mount Graham red squirrel numbers and the precarious condition of this subspecies, the Service agrees with the commenter and the final rule reflects this change.

Comment 3: Are the radio repeaters on High Peak and Heliograph Peak a threat to the Mount Graham red squirrel?

Service response: High Peak has not been designated as an electronic site (Cecil Sims, USFS, letter to Eastern Arizona Amateur Radio Society, September 24, 1986). The current radio repeater use level on Heliograph Peak does not appear to be a threat to the squirrel.

Comment 4: Several commenters said that the Mount Graham red squirrel was proposed for listing as a means of stopping the proposed construction of an observatory on Mount Graham by Steward Observatory (University of Arizona), and without the proposed observatory, the squirrel does not meet the criteria for listing.

Service response: Although proposed observatory construction is considered a threat to the Mount Graham red squirrel, it is not the only threat (others discussed in Background section) nor the only reason for listing this subspecies.

Comment 5: Does the proposed observatory pose a threat to the Mount Graham red squirrel?

Service response: Preliminary evidence indicates that construction of an observatory in the Graham Mountains may adversely affect the Mount Graham red squirrel. This question is being evaluated as part of an informal consultation among the U.S. Fish and Wildlife Service, USFS, U of A, and AGFD.

Comment 6: Several commenters expressed opinions about what caused the decline of the Mount Graham red squirrel, including logging, competition with the tassel-eared squirrel, weather, and other factors.

Service response: The cause of the decline is uncertain. This information may be important in determining what factors may be limiting the subspecies and may aid in designing a recovery plan; however, regardless of the reasons for decline, the squirrel is endangered.

Comment 7: Is the tassel-eared squirrel competing with the Mount Graham red squirrel?

Service response: Evidence indicates that competition may be occurring between these two species. However, this evidence is not conclusive, and studies need to be conducted to address this question. Such studies will be included as part of the recovery plan that will be developed for the Mount Graham red squirrel.

Comment 8: Is the Mount Graham red squirrel a valid subspecies? And is the Endangered Species Act meant to cover taxonomic entities below the species level?

Service response: Although the difference between certain morphological characters of *T. h. grahamensis* and *T. h. mogollonensis* is small, these two squirrels are still considered to be separate subspecies and are maintained as such in Hoffmeister's *Mammals of Arizona* (1986). The term "species" as defined in the Endangered Species Act includes "any subspecies of fish or wildlife or plants."

Comment 9: Several commenters pointed out new census data that have been collected since the publication of the proposed rule.

Service response: The Service is aware of these data and has incorporated them into the final rule.

Comment 10: Additional threats to the squirrel that were not included in the proposed rule include hunting, collecting of dead and down wood in areas used by squirrels, Christmas tree cutting, cienega cutting, new parking lots, new campsites, and hybridization with the Arizona red squirrel (*T. h.*

mogollonensis) due to release by humans.

Service response: Hunting is covered under "B" in "Summary of Factors Affecting the Species." The Service does not consider hunting to currently be a major threat to this subspecies, nor does the Service consider hybridization with the Arizona red squirrel (*T. h. mogollonensis*) to be a major threat.

While accidental release of *T. h. mogollonensis* is remotely possible, the Service does not consider it likely. "New campsites" are included in "A" under the "Summary of Factors." Other additional threats cited by commenters are now discussed in the final rule, unless the Service has not yet determined whether they pose a threat to the subspecies.

Comment 11: Despite logging, road construction and improvement, recreational development, forest fires, disease, hunters, and predation, the Mount Graham red squirrel has survived and increased and is on its way to recovery and therefore does not need to be listed.

Service response: Although there may be more red squirrels in the Graham Mountains now than there were in the 1950's and 1960's, the Service considers the current estimate of 280 squirrels to be a dangerously low number. In addition, not enough data exist to determine whether the population is increasing or decreasing.

Comment 12: ". . . the 'red Squirrel' is also found in other mountain areas besides Mt. Graham. So, Mt. Graham is not the only habitat of the red squirrel."

Service response: The Mount Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) is a subspecies of red squirrel. Although the species (*Tamiasciurus hudsonicus*) is found in most of Canada and Alaska and in much of the western and northern parts of the conterminous U.S., the subspecies *T. h. grahamensis* is found only in the Pinaleno (Graham) mountains.

Comment 13: The estimate of 280-300 red squirrels is erroneous. Only the squirrels in the proposed observatory site at the very top of the mountain were counted.

Service response: The estimate refers to the entire squirrel population. Because middens are the focal points of individual squirrel territories, the number of middens offers an approximation of the number of resident squirrels. This characteristic also makes red squirrels one of the easiest small mammals to accurately census. The midden census conducted by the USFS, AGFD, and the U of A in the spring of 1986 was a very thorough census. The population estimate from that census "is

probably the best estimate ever made of an entire red squirrel population and one of the best made for any rodent" (Warshall 1986). While the area at the top of Mount Graham contains much of the best habitat for the squirrel, and has therefore been more thoroughly surveyed, areas have been surveyed both within and outside of the proposed astrophysical area.

Comment 14: Sometime in 1930 or 1931, "Pinky" Jones, from Oklahoma, brought two "red fox squirrels" in a cage to the Graham Mountain from Oklahoma. The squirrels were accidentally released and never found. Could this be where the "red squirrel" started?

Service response: The red squirrels that are found in the Graham Mountains were first collected in 1894 by W.W. Price and B.C. Condit. So, the species was already present when Pinky's two "red fox squirrels" were accidentally released. In addition, no species of red squirrel occurs in Oklahoma; but the eastern fox squirrel (which is reddish) does, and this may be what Pinky brought over. Fox squirrels are an entirely different kind of squirrel. They are a different species and genus. Fox squirrels do not now occur in the Graham Mountains. Because the Graham Mountains would not provide suitable habitat for fox squirrels, the two released animals probably died during their first winter in the Grahams.

Comment 15: Several commenters disagreed on the amount of spruce-fir forest given in the proposed rule.

Service response: Because of different systems for classifying vegetation, different estimates exist for the amount of spruce-fir forest in the Graham Mountains. Therefore, the Service has modified the rule and uses a figure of 680 acres of contiguous pure spruce/fir, which is a generally accepted figure.

Comment 16: Does the Mount Graham red squirrel occur in mixed-conifer forest on Mount Graham? One commenter said that the squirrel is not limited to spruce-fir habitat as the proposal states.

Service response: The proposed rule stated that the squirrel is found primarily in spruce/fir. While some red squirrel middens have been found in mixed conifer, most occur in association with spruce/fir. Recent surveys found Engelman spruce associated with 86 percent of all middens surveyed, and corkbark fir associated with 61 percent of all surveyed middens. The third most important tree species is old growth Douglas fir; 34 percent of all middens were associated with this species (Peter

Warshall, OALS, letter to USFWS 11/20/86).

Comment 17: Suitable middens in shady, moist sites where green cones can be cached are of critical importance. The potential adverse effects of timber harvest, recreational development, and construction projects should be addressed as they affect cone cache sites particularly, not just forest habitat in general.

Service response: This information has been incorporated into the final rule.

Comment 18: Various commenters elaborated on more detailed threats that they believed were due to the proposed observatory.

Service response: Most of this information has been incorporated into the final rule. In addition, the Service will be considering more detailed impacts, due to proposed observatory construction, during section 7 consultations on this matter.

Comment 19: Mount Graham red squirrels are not evenly distributed throughout their habitat. In relation to squirrel density, where is the location of the proposed observatory?

Service response: The observatory is proposed in the vicinity of one of the densest squirrel areas.

Comment 20: It seems unlikely that development would take all of the squirrels' food supply because 62,000 acres of wilderness wraps around the area and squirrels are in the wilderness area.

Service response: Only a few Mount Graham red squirrels have been found in the Wilderness Area, and the habitat in the Wilderness Area is not of high quality for the squirrel (Barry Spicer, AGFD, pers. comm., January 5, 1987).

Comment 21: Listing will not assure the survival of the Mount Graham red squirrel. A plan is needed.

Service response: The Endangered Species Act requires that recovery actions be carried out for all listed species. A recovery plan will be written and recovery actions initiated following listing.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service had determined that the Mount Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or

threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the Mount Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) are as follows (information taken from Spicer *et al.* 1985, and from recent surveys and censuses by the USFS, AGFD, and U of A, unless otherwise indicated):

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The Mount Graham red squirrel has always been naturally restricted to a relatively small area, and its range and numbers have evidently declined during the past century. In 1914 it was considered common above elevations of 8,500 feet (2,590 meters), and was found as low as 6,750 feet (2,057 meters). Feared extinct by the 1960's, it subsequently seemed to make a partial recovery, but probably has not reached its former numbers. It is now seldom found below 9,200 (2,804 meters), is nowhere abundant, and appears to be common only in small, scattered patches of the best habitat. Such habitat consists mainly of spruce-fir forest. There are about 680 acres (275 hectares) of contiguous pure spruce/fir in the Pinalenos. In this habitat, the estimated density is one red squirrel per 8 acres (3.2 hectares), though not all of the spruce-fir forest is uniformly occupied. The red squirrel also inhabits portions of the adjacent Douglas fir/white fir forest, but only at an estimated density of one individual per 124 acres (50 hectares). The total red squirrel population now in the Pinalenos is estimated at 280.

Although not precisely documented, the apparent decline of the Mount Graham red squirrel seems to parallel the expansion of logging operations in the Pinalenos. Such activity began in the 1880's and was initially not widespread. By 1933, however, roads had been constructed to Old Columbine and some time in the late 1950's or early 1960's the road was cut from Swift Trail up to High Peak (Larry Allen, USFS, pers. comm., December 16, 1986). By 1973, most of the accessible timber had been cut, thereby reducing the age structure and density of the red squirrel's forest habitat.

The construction of a major astrophysical facility on Mount Graham has been proposed by Steward Observatory, University of Arizona. Observatory construction has been proposed for the vicinity of one of the densest squirrel areas. Construction could have a variety of adverse effects on the Mount Graham red squirrel including removal of vegetation resulting in decreased food sources, increased blow-down of trees caused by

the opening-up of areas, change in the microclimatic conditions necessary for middens, and increased vulnerability to predation. Other potential adverse impacts could occur due to noise, decreased reproductive interaction due to increased habitat fragmentation and population isolation, and possible increases in tourism, recreational use, and traffic. These latter effects could occur due to the maintenance of year-round access to the mountaintop. In the past, the mountaintop has been inaccessible during most of the year due to snow.

Additional losses to red squirrel habitat could result from forest fires, road construction and improvement, recreational development at high elevations, including potential picnic areas, campgrounds, and snow play areas, and collection of dead and down wood. Considering the squirrel's low numbers, restricted range, and past history of decline, any new potential habitat disturbance may be cause for concern. In addition, the cumulative effects could be severe over time.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Tree squirrels (including the red squirrel) were legally hunted in the Pinalenos during October and November, until 1986. Almost all hunters, however, sought the introduced tassel-eared squirrel. Investigations by the Arizona Game and Fish Department (AGFD) have found no substantial take of the red squirrel. In 1986, however, AGFD banned hunting of Mount Graham red squirrels because "as its habitat is reduced or degraded the squirrel will not be able to withstand even limited population losses" (Terry Johnson, AGFD, statement at Public Hearing on August 26, 1986). Hunting is not now considered a major threat.

C. *Disease or predation.* Nothing is known about diseases or parasites in the Mount Graham red squirrel. Other subspecies, however, are susceptible to a variety of diseases including tularemia and those caused by infectious viruses. Predation is not known to have caused reductions in the red squirrel population of the Pinalenos, but a number of predatory mammals, birds, and reptiles are present in the area.

D. *The inadequacy of existing regulatory mechanisms.* Both the AGFD and the USFS, which manages the land inhabited by the Mount Graham red squirrel, are aware of the presence of this mammal and the problems it may face. Both agencies have policies and agreements that give some consideration to the welfare of this squirrel. AGFD also closed the hunting season on the

Mount Graham red squirrel in 1986. However, none of these agreements or regulations specifically require protection of the squirrel's habitat. The Endangered species Act offers additional possibilities for protection and management of habitat.

E. *Other natural or manmade factors affecting its continued existence.* The Mount Graham red squirrel may have suffered through competition with the tassel-eared squirrel, which was deliberately introduced in the Pinalenos from 1941 to 1943. The latter species now occupied nearly all coniferous forest in the area. Although little is known about interaction between these two kinds of squirrel, a number of authorities have suggested that competition has resulted in the excluding of the red squirrel from habitat with ponderosa pine (*Pinus ponderosa*), to which the tassel-eared squirrel is particularly adapted. This process may have ultimately led to a reduction in the red squirrel's range and numbers.

The Mount Graham red squirrel has probably been isolated from other populations of *Tr. hudsonicus* for about 11,000 years. The nearest locality where the species is known to occur is 68 miles (110 kilometers) to the northeast and is separated by a stretch of arid, unsuitable habitat. Natural immigration of genetic exchange is highly improbable. Because of these factors and its restricted population size and distribution, the Mount Graham red squirrel is particularly vulnerable to any disturbance that might bring about further declines in its already precariously low numbers and weakening of genetic viability. Although the variation in the Mount Graham red squirrel population size is unknown, other red squirrel subspecies' population fluctuations have led to an 80 percent decline in 2 years (Warshall 1986).

The Service has carefully assessed the best available scientific information regarding the past, present, and probable future threats to the species in determining to make this rule final. Based on this evaluation, the Service has decided to list the Mount Graham red squirrel as endangered. A decision to take no action would constitute failure to properly classify the Mount Graham red squirrel pursuant to the Endangered Species Act and would exclude this squirrel from protection provided by the Act. A decision to propose only threatened status would not adequately reflect the very small population size and distribution of this squirrel, its history of vulnerability and decline, and the multiplicity of problems

that confront it. For the reasons given below, critical habitat designation is being postponed. Designation of critical habitat will be addressed in a subsequent **Federal Register** notice.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that critical habitat be designated to the maximum extent prudent and determinable concurrently with the determination that a species is endangered or threatened. Section 4(b)(6)(C) further indicates that a concurrent critical habitat determination is not required, and that the final decision on designation may be postponed for one additional year from the date of publication of the proposed rule, if the Service finds that a prompt determination of endangered or threatened status is essential to the conservation of the species involved. The Service considers that a prompt determination of endangered status for the Mount Graham red squirrel is essential. As a proposed species, the Mount Graham red squirrel would be eligible only for the limited consideration given under the conference requirement of section 7(a)(4) of the Act, as amended. This does not require a limitation on the commitment of resources on the part of concerned Federal agencies or applicants for Federal permits. Therefore, to ensure that the full benefits of section 7 and other conservation measures under the Act will apply to the Mount Graham red squirrel, prompt determination of endangered status is essential.

Section 4(b)(2) of the Act requires the Service to consider economic and other impacts of designating a particular area as critical habitat. The Service is in the process of evaluating the information obtained during the comment period on the economic impacts of designating critical habitat. However, because of the complexities and extent of the activities being assessed, the Service has not completed the evaluation. The Service is currently performing the economic and other impact analyses required for a determination soon. The final decision on designation of critical habitat for the Mount Graham red squirrel must be made by May 21, 1988, pursuant to section 4(b)(6)(C)(ii) of the Act, as amended.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition

through listing encourages the results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Because the Mount Graham red squirrel occurs in highest densities in dense spruce-fir forest, it would suffer through activities that destroy such habitat or substantially reduce forest density. Potential activities that could adversely affect the habitat include timber harvesting, recreational development, and construction of the proposed astrophysical facility on Mount Graham, if these were undertaken without adequate consideration of the welfare of the squirrel. Any such activities that take place on national forests would require authorization by the U.S. Forest Service. Because the entire range of the Mount Graham red squirrel is within a national forest, the activities in question could require appropriate USFS consultation as described above.

Section 9 of the Act, and implementing regulations found at 50 CFR 17.21, set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take, import or export ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that

has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued during a specified time to relieve undue economic hardship that would be suffered if such relief were not available.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

This final listing is effective upon publication in the **Federal Register**. Because the construction of an observatory in the Graham Mountains could pose significant threats to the Mount Graham red squirrel, and

because this proposed action is presently pending for permit approval by the U.S. Forest Service, the Service considers that the protection available to the species under section 7(a)(2) of the Act should be implemented as soon as the public receives notice of the final listing decision. For these reasons, the Service finds that "good cause" exists to make the final rule listing the Mount Graham red squirrel as an endangered species effective upon publication (5 U.S.C. 553(d)(3); 50 CFR 424.18(b)(1)).

References Cited

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Author

This final rule was prepared by Alisa M. Shull, Endangered Species Biologist, U.S. Fish and Wildlife Service, Albuquerque, New Mexico 87103 (505/766-3972 or FTS 474-3972).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.11(h) by adding the following, in alphabetical order under "Mammals," to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *
 (h) * * *

SPECIES		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Mammals							
squirrel, Mount Graham red.....	<i>Tamiasciurus hudsonicus grahamensis</i>	U.S.A. (AZ).....	Entire.....	E	268	NA	NA

Dated: May 26, 1987.
 Susan Recce,
 Acting Assistant Secretary for Fish and Wildlife and Parks.
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 BILLING CODE 4310-55-M