



Questions and Answers: Draft Revised Recovery Plan for the Mount Graham Red Squirrel

Arizona Ecological Services Field Office

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Contacts: Marit Alanen (520) 670-6150 ext. 234
Jeff Humphrey (602) 242-0210 ext. 222

Q1: What is the Mount Graham red squirrel and where is it found?

A1: The Mount Graham red squirrel is a subspecies that exists only in the upper-elevation forests of the Pinaleno Mountains in southeastern Arizona. It likely represents a relictual population of what was once a much more widely distributed taxon.

In 1987 the U.S. Fish and Wildlife Service (Service) listed the Mount Graham red squirrel as an endangered species (a species at risk of extinction) under the Endangered Species Act (Act). In January 1990, we designated as critical habitat the Mount Graham Red Squirrel Refugium (on Mount Graham), as well as Webb Peak to the west and Heliograph Peak to the south.

Q2: Why is the Mount Graham red squirrel in danger of extinction?

A2: Threats to the subspecies at the time of listing included its small population size and range; changes in forest age structure and density within the squirrel's habitat; loss of habitat due to development, road construction, and forest fires; and competition with the introduced Abert's squirrel. These same threats continue today, compounded by the additional threats of climate change (including drought), insect infestation, and fire suppression activities. Recent research also indicates that predation, competition with Abert's squirrels, and demographic factors (mainly due to its small population size) may impact the Mount Graham red squirrel population more than expected.

Q3: How many Mount Graham red squirrels are there?

A3: Population estimates climbed from approximately 140 individuals in the late 1980s to over 560 in the late 1990s. Subsequent habitat loss due to multiple insect outbreaks, wildfires, and fire suppression activities correlates with a decline in population estimates since that time. From 2001 through 2010, the population has fluctuated between approximately 200 and 300 squirrels, with the most recent conservative estimate (Fall 2010) of 214.

Q4: What are recovery plans and how are they enforced?

A4: The Act mandates that recovery plans be completed and implemented for listed species unless such a plan will not promote the conservation of the species. A recovery plan is not a legally binding document, but a blueprint for actions needed to improve the status of a listed species to the point where it no longer needs the protection of the Act. Recovery is a process by which the decline of an endangered or threatened species is arrested or reversed, and threats to its survival are neutralized, so that its long-term survival in nature can be ensured.

The Act authorizes the Secretary of the Interior to appoint recovery teams for development of recovery plans. Recovery plans include – (i) a description of site-specific management necessary to achieve the plan's goal for the conservation and survival of the species; (ii) objective, measurable criteria which,

when met, would ultimately recover the species so it can be removed from the list; and (iii) estimates of the time and cost required to carry out those measures needed to achieve the plan's goals and to achieve intermediate steps toward those goals.

Q5: Isn't a Mount Graham red squirrel recovery plan already in place; why is it being revised?

A5: We originally completed a recovery plan for the species on May 3, 1993. However, given the species' current status and a better understanding of the species and its threats (as stated above), the recommendations in that plan are now outdated.

Q6: Who will implement the draft revised recovery plan?

A6: Implementation of the recovery strategy will be conducted as a collaborative effort among an extensive group of technical experts, and state and Federal agencies. These partners include the Arizona Game and Fish Department; U.S. Forest Service – Coronado National Forest; U.S. Fish and Wildlife Service – Ecological Services; Graham County Sheriff's Department; The Phoenix Zoo; Miller Park Zoo (Bloomington, IL); researchers from AGFD, USFS, Universities, Forest Service Range and Experimental Stations, etc.; Implementation Subgroup of the Recovery Team; Technical Subgroup of the Recovery Team; and others.

Q7: What recovery goals does the draft revised recovery plan prescribe?

A7: The goal of the revised recovery plan is to assure the long-term viability of the Mount Graham red squirrel in the wild, allowing initially for reclassification to threatened status and, ultimately, removal from the list of endangered and threatened wildlife. Recovery plans provide guidance and do not obligate the Service or potential partners to undertake the work described in them.

The draft revised recovery plan proposes new downlisting and delisting criteria based on maintaining and increasing population numbers and habitat quality. The revised recovery plan focuses on protecting and managing the remaining population and habitat, restoring and creating habitat to allow for the existence of a viable and robust population, researching the conservation biology of the Mount Graham red squirrel in order to facilitate efficient recovery, developing support and building partnerships to facilitate recovery, monitoring progress toward recovery and practicing adaptive management.

The **downlisting** objectives are to restore and maintain a forest mosaic of at least 70 percent of the range (13,838 acres) of the Mount Graham red squirrel and a 10-year (5 squirrel generations) population increase at a rate of at least 20 percent of the known population. Since 2001, the population has fluctuated between approximately 200 and 300 squirrels.

The **delisting** objectives are to restore and maintain a mosaic of at least 80 percent of the range (15,815 acres) and stabilize or increase the population for at least a 20-year period following downlisting. The draft plan notes the date of recovery for the Mount Graham red squirrel is unknown at this time. Forest habitat regeneration is a long-term process. Several recovery actions will take at least 50 years to see results and 100 to 300 years may be needed to fully restore squirrel habitat.

Q8: What habitat is essential to the Mount Graham red squirrel?

A8: This red squirrel historically inhabited only mature to old-growth associations in mixed conifer and spruce-fir above about 8,000 feet in the Pinaleno Mountains of Graham County, Arizona. These mountains occur entirely on the Safford Ranger District of the Coronado National Forest, administered by the U.S. Forest Service. This red squirrel requires full, forested canopy cover for arboreal travel and some protection from raptor predation. The primary food of the red squirrel is conifer cones, so cone crops must be adequate. Several conifer species must be available in case one tree species' cone crop fails. Microclimates of cool, moist conditions near and at the base of large, mature, old growth conifers (the preference appears to be Engelmann spruce, corkbark fir, and Douglas-fir trees), along with large-diameter snags and dead and down logs, allow the red squirrel to create middens (deep piles of cone scales) and bury closed conifer cones to excavate and eat throughout the winter and into spring. Old growth trees can range between 100 to 300

years in age and are not easily replaced when lost. These trees have specific requirements on the mountain, which are increasingly difficult to meet due to recent drought, insect and disease damage, high-severity wildfires, fire suppression activities, and predicted climate change. Devastating losses of trees have dictated changes in the red squirrel's opportunities for foraging, nesting, and dispersal, and the current habitat of the red squirrel is primarily in the mixed conifer forest rather than the spruce-fir.

Q9: How long will it take to recover the Mount Graham red squirrel and how much will it cost?

A9: The draft plan notes the date of recovery for the Mount Graham red squirrel is unknown at this time. Forest habitat regeneration is a long-term process. Several recovery actions will take at least 50 years to see results and 100 to 300 years may be needed to fully restore red squirrel habitat. Shared costs of recovery during the initial five years of the recovery plan are estimated at \$2,919,000.

Q10: How can I provide comments on the draft Mount Graham Red Squirrel Recovery Plan, First Revision?

A10: Persons wishing to review the draft revised recovery plan can obtain a paper or electronic copy from the Arizona Ecological Services Field Office, U.S. Fish and Wildlife Service, 2321 W. Royal Palm Road, Suite 103, Phoenix, AZ 85021-4951; by phone at (602) 242-0210; or from the Internet at www.fws.gov/southwest/es/arizona/. Written comments and materials pertaining to the draft revised recovery plan may be mailed to "Field Supervisor" at the address above or emailed to MGRSrecovery@fws.gov. To ensure that comments are considered, they should be received no later than July 26, 2011.