



**Billing Code 4333-15**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**[Docket No. FWS-R2-ES-2015-0028; FXES11130900000-178-FF09E42000]**

**RIN 1018-AX99**

**Endangered and Threatened Wildlife and Plants; Removal of the Hualapai Mexican Vole From the Federal List of Endangered and Threatened Wildlife**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** Under the authority of the Endangered Species Act of 1973, as amended (Act), we, the U.S. Fish and Wildlife Service (Service), are removing the Hualapai Mexican vole (*Microtus mexicanus hualpaiensis*) from the Federal List of Endangered and Threatened Wildlife due to recent data indicating that the original classification is now erroneous. This action is based on a thorough review of the best available scientific and commercial information, which indicates that the currently listed subspecies is not a valid taxonomic entity. Therefore, we are removing the entry for the Hualapai Mexican vole from the Federal List of Endangered and Threatened Wildlife because subsequent investigations have shown that the best scientific or commercial data available when the subspecies was listed were in error.

**DATES:** This rule is effective [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].

**ADDRESSES:** This final rule is available on the Internet at <http://www.regulations.gov> under Docket No. FWS-R2-ES-2015-0028 and at the Service's websites at <http://www.fws.gov/southwest/es/arizona> and <http://www.fws.gov/angered>.

Comments and materials received, as well as supporting documentation used in the preparation of this rule, are available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, 9828 North 31st Avenue, Phoenix, AZ 85051; telephone 602-242-0210.

Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800-877-8339.

**FOR FURTHER INFORMATION CONTACT:** Steven Spangle, Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office (see **ADDRESSES**), telephone 602-242-0210. Individuals who are hearing impaired or speech-impaired may call the Federal Relay Service at 800-877-8339 for TTY assistance.

**SUPPLEMENTARY INFORMATION:**

**Background**

Under the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 *et seq.*), we administer the Federal Lists of Endangered and Threatened Wildlife and Plants, which are set forth in title 50 of the Code of Federal Regulations at part 17 (50 CFR 17.11 and 17.12). The factors for listing, delisting, or reclassifying species are described at 50 CFR 424.11. According to section 3(16) of the Act, we may list any of three categories of vertebrate animals: A species, subspecies, or a distinct population segment of a vertebrate species of wildlife. We refer to each of these categories as a "listable entity." If we determine that there is a species, or "listable entity," for the purposes of the

Act, our status review next evaluates whether the species meets the definitions of an “endangered species” or a “threatened species” because of any of the five listing factors established under section 4(a)(1) of the Act. Delisting may be warranted as a result of: (1) Extinction; (2) recovery; or (3) a determination that the original scientific data used at the time the species was listed, or interpretation of that data, were in error. We examine whether the Hualapai Mexican vole is a valid subspecies, and thus a “species” (or listable entity) as defined in section 3 of the Act.

### **Previous Federal Actions**

We listed the Hualapai Mexican vole as an endangered subspecies on October 1, 1987, without critical habitat (52 FR 36776). At the time of listing, the primary threats to the Hualapai Mexican vole were degraded habitat due to drought, elimination of ground cover from grazing by livestock and elk (*Cervus elaphus*), and human recreation.

A recovery plan for the Hualapai Mexican vole was completed in August 1991 (Service 1991, pp. 1-28). At that time, grazing, mining, road construction, recreational uses, erosion, and nonnative wildlife were attributed as the reasons for the decline in Hualapai Mexican vole populations (Service 1991, pp. iv-6). The recovery plan outlined recovery objectives and dictated management and research priorities, but did not contain recovery criteria for changing the subspecies’ status from endangered to threatened (i.e., downlisting) or for removing the subspecies from the List of Endangered and Threatened Wildlife (i.e., delisting) because of lack of biological information in order to develop objective, measurable criteria (Service 1991, p. iv).

## **Petition History**

On August 23, 2004, we received a petition dated August 18, 2004, from the Arizona Game and Fish Department (AGFD) requesting that the Hualapai Mexican vole be removed from the Federal List of Endangered and Threatened Wildlife (List) under the Act. The petition clearly identified itself as such and included the requisite identification information for the petitioners, as required at 50 CFR 424.14(a). Included in the petition was information in support of delisting the Hualapai Mexican vole based on an error in original classification due to evidence that the Hualapai Mexican vole is not a valid subspecies.

The petition asserts that the original scientific data used at the time the subspecies was classified were in error and that the best available scientific data do not support the taxonomic recognition of the Hualapai Mexican vole as a distinguishable subspecies (AGFD 2004, p. 4). The petition's assertions are primarily based on the results of an unpublished genetic analysis (Busch *et al.* 2001) and on taxonomic and genetic reviews of Busch *et al.*'s 2001 report. The petition did not claim that the Hualapai Mexican vole is extinct or has been recovered (no longer an endangered or threatened species), nor do we have information in our files indicating such. However, the petition did indicate that "fieldwork and genetic analyses have documented at least seven, but likely 14, populations (including one in Utah) of *M. m. hualpaiensis*." Only one population was known at the time of listing.

On May 15, 2008, we announced a 90-day finding in the **Federal Register** (73 FR 28094) that the petition presented substantial information to indicate that the

petitioned action may be warranted. On June 4, 2015, we published a warranted 12-month finding on the petition and a proposed rule to remove the Hualapai Mexican vole from the List because the original scientific classification is no longer the appropriate determination for the subspecies (80 FR 31875), meaning that current data indicate that the original classification is now erroneous. On December 22, 2016, we reopened the comment period on the proposed rule to remove the Hualapai Mexican vole from the List (81 FR 93879). We published a summary of the proposed rule in the Kingman Daily Miner newspaper on January 29, 2017.

### **Species Description**

#### *Taxonomy*

Goldman (1938, pp. 493-494) described and named the Hualapai Mexican vole as *Microtus mexicanus hualapaiensis* in 1938 based on four specimens. Cockrum (1960, p. 210), Hall (1981, p. 481), and Hoffmeister (1986, pp. 444-445) all recognized Goldman's description of the subspecies, and Hoffmeister (1986, pp. 444-445) further recognized the *Microtus mexicanus hualapaiensis* subspecies based on an examination of morphological characteristics from seven additional specimens collected in two areas (*i.e.*, Hualapai Mountains and the lower end of Prospect Valley).

Based on morphological measurements, the Hualapai Mexican vole was previously considered one of three subspecies of Mexican voles (*Microtus mexicanus*) in Arizona (Kime *et al.* 1995, p. 1). The three subspecies of Mexican voles were the Hualapai Mexican vole (*M. m. hualapaiensis*), Navajo Mexican vole (*M. m. navaho*), and Mogollon Mexican vole (*M. m. mogollonensis*). The Hualapai Mexican vole differed from the Navajo Mexican vole subspecies by a slightly longer body, longer tail, and

longer and broader skull (Hoffmeister 1986, p. 443). Additionally, the Navajo Mexican vole's range was farther to the northeast. The Hualapai Mexican vole was also differentiated from the Mogollon Mexican vole subspecies, located farther to the east, by a longer body, shorter tail, and longer and narrower skull (Hoffmeister 1986, p. 443).

The final rule listing the Hualapai Mexican vole as an endangered species (52 FR 36776; October 1, 1987) stated that this subspecies occupied the Hualapai Mountains, but also acknowledged that Spicer *et al.* (1985, p. 10) had found similar voles from the Music Mountains, which are located farther to the north in Arizona. The final listing rule (52 FR 36776; October 1, 1987) also stated that Hoffmeister (1986, p. 445) had tentatively assigned specimens from Prospect Valley to the Hualapai Mexican vole subspecies, pending a larger sample size. In addition, the final listing rule (52 FR 36776; October 1, 1987) stated that if future taxonomic evaluation of voles from the Music Mountains and Prospect Valley should confirm that they are indeed the Hualapai Mexican vole subspecies, then they would be considered part of the federally listed entity. However, we never recognized Hualapai Mexican voles outside of the Hualapai Mountains. Mountains due to insufficient data to support recognition of additional populations.

In May 1998, we reviewed Frey and Yates' 1995 unpublished report, "Hualapai Vole (*Microtus mexicanus hualapaiensis*) Genetic Study," to determine if Hualapai Mexican voles occur in additional areas outside of the Hualapai Mountains. We found that the report did not provide sufficient data for us to conclude that populations outside the Hualapai Mountains were Hualapai Mexican voles. On May 29, 1998, the Southwest Regional Director's Office issued a memo to the Arizona Ecological Services Field Office stating that the Service would only consult on voles in the Hualapai Mountains

until further investigations result in data definitive enough to establish that the Hualapai Mexican vole has a wider distribution than recognized at the time of listing. Thus, we referenced the memo in all requests for consultations on Federal projects outside the Hualapai Mountains. For these reasons, we have only considered the Hualapai Mexican vole's range to be the Hualapai Mountains.

Since the Hualapai Mexican vole was listed in 1987 (52 FR 36776; October 1, 1987), several focused surveys of the subspecies' distribution, habitat requirements, and genetic relationships to other Mexican vole subspecies were undertaken. We briefly describe these studies below. Researchers did not collect or analyze samples from the same locations, so locations and analyses across studies do not necessarily correlate fully. These studies represent the best scientific information available for the Service to analyze the Hualapai Mexican vole's distribution and taxonomic classification.

At the time of listing, we recognized the Hualapai Mexican vole as one of three subspecies of Mexican voles in Arizona based on Goldman (1938, pp. 493-494), Hall (1981, p. 481), and Hoffmeister (1986, p. 443). Since that time, Frey and LaRue (1993, pp. 176-177) referred to voles in Arizona, New Mexico, and Texas as *Microtus mogollonensis* rather than *Microtus mexicanus*. In an unpublished genetic analysis study on the Hualapai Mexican vole, Frey and Yates (1995) referred to the Hualapai Mexican vole subspecies as *Microtus mogollonensis hualpaiensis*. Also, in a study of montane voles, Frey (2009, p. 219) supported the earlier study conducted by Frey and LaRue (1993, pp. 176-177), which separated the vole species *Microtus mogollonensis* and

*Microtus mexicanus*. The Integrated Taxonomic Information System<sup>1</sup> (ITIS) indicates that *Microtus mexicanus hualpaiensis* (Goldman, 1938) is an invalid taxon and indicates that the valid taxon is *Microtus mexicanus* for the Hualapai Mexican vole ([http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=202377](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=202377)). For consistency with all previous Federal actions, including the scientific name that appears on the Federal List of Endangered and Threatened Wildlife, we refer to the Hualapai Mexican vole subspecies as *Microtus mexicanus hualpaiensis* in this rule because that is the entity we listed in 1987. However, many of the reviewers and documents that are referenced refer to voles in Arizona as *Microtus mogollonensis*. The ITIS indicates that *Microtus mogollonensis* (Frey and LaRue 1993, pp. 176-177) is an invalid taxon; and indicates that the valid taxon is *Microtus mexicanus* for the Hualapai Mexican vole ([http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=202377](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=202377)).

In a 1989 unpublished Master's thesis, Frey conducted an extensive study of geographic variation of specimens from throughout the range of the *Microtus mexicanus* group, which included populations in the United States and Mexico. Frey (1989) analyzed 44 external and 19 cranial characters from 1,775 vole specimens. Based on morphological analysis, Frey (1989, p. 50) recommended that specimens from the Bradshaw Mountains (Coconino County, AZ), which was formerly considered the

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<sup>1</sup> ITIS is the result of a partnership of Federal agencies formed to satisfy their mutual needs for scientifically credible taxonomic information. An overriding goal of the ITIS project is to provide accurate, scientifically credible, and current taxonomic data that meet the needs of the ITIS partners and the user public.

Mogollon Mexican vole subspecies, be reassigned to the Hualapai Mexican vole subspecies. Frey (1989, p. 50) concluded that two specimens that had been discovered from the Music Mountains (Mohave County, AZ) were morphologically distinct from other recognized subspecies, and these two specimens represented a previously unrecognized taxonomy. Frey's (1989) study did not include specimens from Prospect Valley.

Frey and Yates (1993, pp. 1-23) conducted a genetic analyses of Hualapai Mexican vole tissue samples taken from 83 specimens across 13 populations using electrophoresis and mitochondrial DNA. The 13 populations represented all 3 subspecies in Arizona and 1 population from Mexico (Frey and Yates 1993, p. 20). Their results showed that three populations (*i.e.*, Hualapai Mountains, Hualapai Indian Reservation, and Music Mountains) form a closely related group distinct from other populations in Arizona (Frey and Yates 1993, p. 10). According to their analysis, populations in the Hualapai Mountains, Hualapai Indian Reservation, and Music Mountains could be regarded as the Hualapai Mexican vole subspecies. Further, Frey and Yates (1993, p. 10) found that the Navajo Mexican vole subspecies populations for San Francisco Peaks and the Grand Canyon occurred in a clade (*i.e.*, related by a common ancestor) with the Mogollon Mexican vole subspecies populations along the Mogollon Rim. Frey and Yates (1993, p. 10) suggested that this grouping questions the validity of Navajo Mexican vole as a separate subspecies. However, in order to verify this suggestion, specimens would need to be examined from the type locality of the Navajo Mexican vole subspecies, which is Navajo Mountain, Utah (Frey and Yates 1993, p. 10). The authors recommended additional analyses, including larger sample sizes, to clarify the

arrangement in three separate subspecies (Frey and Yates 1993, p. 10). At that time, we continued to recognize the Hualapai Mexican vole subspecies as occurring in the Hualapai Mountains.

Frey and Yates (1995) continued their genetic work on Mexican vole subspecies and analyzed 173 specimens from 28 populations (16 from Arizona, 10 from New Mexico, 1 from Utah, and 1 from Mexico) using protein electrophoresis and mitochondrial DNA. They found that six populations (Hualapai Mountains, Hualapai Indian Reservation, Music Mountains, Aubrey Cliffs/Chino Wash, Santa Maria Mountains, and Bradshaw Mountains) could be the Hualapai Mexican vole subspecies (Frey and Yates 1995, p. 9). The authors found unique alleles at two loci in these six populations, which identified them as being closely related (Frey and Yates 1995, p. 9). Based on geographic proximity, Frey and Yates (1995, p. 8) suspected that two other populations (Round Mountain and Sierra Prieta) could also be the Hualapai Mexican vole subspecies, but they did not have adequate samples for genetic verification.

Additional genetic analyses were conducted by Busch *et al.* (2001). Busch *et al.* (2001, p. 4) examined nuclear genetic markers from 42 specimens across 6 populations in northwestern Arizona (Hualapai Mountains, Prospect Valley, Bradshaw Mountains, Sierra Prieta, Prescott, and Mingus Mountains) using Amplified Fragment Length Polymorphis (AFLP). Additionally, they examined mitochondrial (D-Loop) DNA from 83 specimens across 13 populations in Arizona (Hualapai Mountains, Prospect Valley, Bradshaw Mountains, Sierra Prieta, Prescott, Mingus Mountains, South Rim Grand Canyon, San Francisco Mountain, Mogollon Rim, White Mountains, Chuska Mountains, Aubrey Cliffs, and Navajo Mountain). Results from their study did not support the

separation of Mexican voles into three distinct subspecies based on nuclear and mitochondrial genetic analyses (Busch *et al.* 2001, p. 12). Populations referred to as the Navajo Mexican vole subspecies from Navajo Mountain, Mingus Mountain, San Francisco Peaks, and the Grand Canyon South Rim and populations referred to as the Mogollon Mexican vole subspecies from the Mogollon Rim, Chuska Mountains, and White Mountains were genetically similar to Mexican voles in the Hualapai Mountains, Hualapai Indian Reservation, Aubrey Cliffs, Bradshaw Mountains, Watson Woods, and Sierra Prieta (Busch *et al.* 2001, p. 12). In summary, the analyses conducted by Busch *et al.* (2001, p. 12) did not support the separation of Arizona populations of *M. mogollonensis* into three subspecies (i.e., *M. m. mogollonensis*, *M. m. navajo*, and *M. m. hualapaiensis*) as recognized by Frey and Yates (1993, 1995). According to Busch *et al.* (2001), populations of *M. mogollonensis* and *M. m. navajo* were not clearly differentiated from *M. m. hualapaiensis* (i.e., the Hualapai Mexican vole).

Busch *et al.* (2001, p. 12) suggested that only one subspecies of Mexican vole occurs in Arizona, but they did not suggest a new subspecies name to which the currently named subspecies of Mexican voles should be reclassified as. Further, Busch *et al.* (2001, p. 12) suggested that voles from the White Mountains and Chuska Mountains could be a different subspecies or may simply show some genetic differentiation due to geographic separation; however, their analysis was inconclusive. Even though Busch *et al.* (2001, p. 12) did not suggest a name to assign to the only subspecies of Mexican voles in Arizona, the AGFD's petition (2004, p. 4) referred to Busch *et al.*'s (2001) single subspecies as *Microtus mexicanus hualpaiensis*.

In 2003, AGFD sent the Busch *et al.* (2001) report to five genetic experts

representing the U.S. Geological Survey's Arizona Cooperative Fish and Wildlife Research Unit, the Conservation Breeding Specialist Group, the University of Colorado at Boulder, Oklahoma State University, and New Mexico State University for peer review. Four of the five reviewers concurred with the conclusions of Busch *et al.* (2001) that all populations in Arizona could be referred to as *M. m. hualpaiensis*. One of the five reviewers concluded that populations from the Hualapai Mountains, Music Mountains, and Hualapai Reservation form a closely related group distinct from other populations in Arizona based on the reviewer's work in 1993 and 1995. This reviewer further stated that *M. m. hualpaiensis* is a valid subspecies based on morphologic, genetic, and biogeographical data.

Busch *et al.*'s (2001) genetic report and reviews by the genetic experts were then sent to two mammalian taxonomy experts familiar with the research surrounding voles for additional review. One of the taxonomic reviewers agreed with the one dissenting genetic reviewer from 2003, who believed the data supported *M. m. hualpaiensis* in five locations. The other taxonomic reviewer concluded that there is no basis to consider the three subspecies of Mexican voles (Hualapai, Navajo, and Mogollon) separately. This second taxonomic reviewer stated that data used by Hoffmeister (1986) were insufficient to recognize three subspecies based on morphology, and that the genetic analyses conducted by Frey and Yates (1993; 1995) and Busch *et al.* (2001) were subject to methodological problems (AGFD 2004, p. 4). The second taxonomic reviewer asserted that all three subspecies should be considered as one subspecies, *Microtus mogollonensis mogollonensis* (common name not suggested).

According to AGFD, the field and laboratory studies concluded that *M. m.*

*hualaiensis* exists in at least seven populations and perhaps as many as 14 populations (one is in Utah), whereas only one population was known prior to listing. Field surveys demonstrated that the Hualapai Mexican vole is not as rare as it was once thought to be. Prior to listing, only 15 specimens from seven locations (all within the Hualapai Mountains) were known. The genetic studies mentioned above, in conjunction with trapping success, demonstrate that *M. m. hualpaiensis* populations are widespread and not restricted to a single mountain range (AGFD 2004, p. 9).

The AGFD provided a summary of factors affecting the Hualapai Mexican vole in their 2004 status assessment and petition. AGFD stated that the species is found in more xeric and mesic habitats than other vole species, so trampling of seeps and spring areas by cattle is no longer considered a threat to Hualapai Mexican voles as previously thought when the subspecies was listed (AGFD 2004, pp. 5-6). Further, AGFD stated that because the Hualapai Mexican voles' range is not as restricted as once thought, grazing and recreational uses are no longer threats to the subspecies (AGFD 2004, p 7). Finally, based on five genetic and two taxonomic reviews, the AGFD stated that all 14 populations analyzed by Busch *et al.* (2001) could be considered a single species, rather than three subspecies (AGFD 2004; p. 4).

In summary, the various analyses and reviews present multiple interpretations of the taxonomy and distribution of Hualapai Mexican voles in Arizona, none of which correlates to that of our original listing. The 1987 final listing rule for the Hualapai Mexican vole (52 FR 36776; October 1, 1987) relied on the best available information at the time, and only included Hualapai Mexican voles found in the Hualapai Mountains. The various published and unpublished reports all offer different conclusions about

which populations may or may not be Hualapai Mexican voles. At this time, the best available scientific information presents conflicting information on the taxonomy of Mexican voles in general. The majority (i.e., five out of seven) of scientists who reviewed the “Hualapai vole (*Microtus mogollonensis hualapaiensis*) Genetic Analysis” report by Busch *et al.* (2001) determined that Hualapai Mexican voles (*Microtus mexicanus hualpaiensis*) are not genetically distinct from other vole subspecies in Arizona. The best available science no longer supports the recognition of a separate Hualapai Mexican vole subspecies. Although the Hualapai Mexican vole subspecies is no longer considered a valid taxonomic entity, the scientific community agrees that the populations that were previously identified as the Hualapai Mexican vole subspecies are part of the larger Mexican vole species (*Microtus mexicanus*).

The Mexican vole is recognized by the scientific community as a species, including the International Union for Conservation of Nature (IUCN) and ITIS. The Mexican vole is listed as least concern by IUCN in view of its wide distribution, presumed large population, occurrence in a number of protected areas, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (Álvarez-Castañeda, S.T. & Reid, F. 2016). The Mexican vole species occurs from the southern Rocky Mountains southward in the Sierra Madre of Mexico to central Oaxaca Mexico (Tamarin 1985 p. 99). The existence of several populations improves the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes); and the ability of the species to withstand catastrophic events (for example, droughts, hurricanes). In

general, the more populations there are, the more likely the species is to sustain populations over time, even under changing environmental conditions. The distribution of the Mexican vole populations allows for sustained populations into the future. Based on the best available scientific and commercial data at this time, we find that the original data for classification were in error, and we are removing the Hualapai Mexican vole (*Microtus mexicanus hualpaiensis*) from the List under the Act.

### **Summary of Comments and Recommendations**

In our June 4, 2015, combined 12-month finding and proposed rule (80 FR 31875), we requested that all interested parties submit comments or information concerning the proposed delisting of the Hualapai Mexican vole. We provided notification of this document through e-mail, letters, and news releases to the appropriate Federal, State, and local agencies; county governments; elected officials; media outlets; local jurisdictions; scientific organizations; interested groups; and other interested parties. We also posted the document on our website ([https://www.fws.gov/news/ShowNews.cfm?ref=service-proposes-delisting-the-hualapai-mexican-vole&\\_ID=35074](https://www.fws.gov/news/ShowNews.cfm?ref=service-proposes-delisting-the-hualapai-mexican-vole&_ID=35074)).

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from five knowledgeable individuals with scientific expertise that included genetics, conservation biology, and ecology of voles and the ecosystems upon which they depend. We received comments from two peer reviewers associated with academic research institutions. One researcher noted that the data gathered and analyzed to date do not appear to support an integrative approach to taxonomy. For example, using a current genome-side marker like single nucleotide

polymorphisms (or SNPs) would be preferable. The same researcher stated that there is a strong reliance on mitochondrial DNA and lack of a thorough study of morphology, behavior, and ecology of this subspecies. The other peer reviewer noted that in the case of *M. m. hualpaiensis*, there is little morphologic and genetic evidence to distinguish it from its nearby conspecifics (i.e., other vole subspecies). This reviewer concluded that the current data are not sufficient to support the subspecific recognition of *M. m. hualpaiensis*. Both reviewers recommended continued studies.

We reviewed all comments we received from the peer reviewers and the public for substantive issues and new information regarding the proposed delisting of the Hualapai Mexican vole. We received four comments on the proposed rule. Two were in favor of delisting the Hualapai Mexican vole. One commenter provided a conservation status review to support the proposed delisting by documenting the current conservation status of the Hualapai Mexican vole and its likely synonymous populations, as well as an evaluation of potential threats to the larger, taxonomically valid subspecies. One commenter opposed the delisting of the Hualapai Mexican vole. Substantive comments we received during the comment period are addressed below.

(1) *Comment:* There is a concern that delisting the vole is based on conflicting scientific information instead of a peer review based on the five delisting factors (see section 4(a)(1) of the Act). In order to delist the subspecies, the Service must evaluate this erroneous classification by seeking a peer review pursuant to the five factors.

*Our Response:* The removal of the vole from the Federal List of Endangered and Threatened Wildlife is based on recent peer reviewed data indicating the original data for

classification were in error. Our June 4, 2015, proposed rule (80 FR 31875) was based on peer reviewed studies and has separately undergone peer review, as explained below. The regulations at 50 CFR 424.11(d) state that a species may be delisted if (1) it becomes extinct, (2) it recovers, or (3) the original classification data were in error. Our finding is that the original classification data were in error. Further, it is the policy of the Service to incorporate independent peer review in listing (and recovery) activities by soliciting the expert opinions relating to taxonomy, population models, and supportive biological and ecological information for species or subspecies under consideration of a listing decision (59 FR 34270; July 1, 1994). We sought the expert opinions of five appropriate independent specialists regarding the science in the June 4, 2015, proposed rule to delist the Hualapai Mexican vole. The purpose of peer review was to ensure that our delisting decision is based on scientifically sound data, assumptions, and analyses. We sent copies of the proposed rule and supporting documents to the peer reviewers immediately following publication in the **Federal Register**.

We received reviews from two peer reviewers. One of the peer reviewers stated that although it is still unclear exactly what the numbers are, it is clear that the numbers of these voles in the mountains of western Arizona are larger than was earlier suspected. Kime *et al.* (1995) found 21 locations harboring voles. The species is not tied to rare, moist habitats the way other species of *Microtus* are, and thus gene flow may be greater than expected earlier. The other peer reviewer stated that in the case of *M. m. hualpaiensis*, there is little morphologic and genetic evidence to distinguish it from its nearby conspecifics (i.e., other species of voles). Also, the 12-month finding found no natural history or biologically significant information on *M. m. hualpaiensis* to

distinguish individuals from the Hualapai Mountains from other populations in the region. Although voles from the Hualapai Mountains may be on an evolutionary trajectory in the direction of a “subspecies,” this trajectory is mostly likely very recent and insufficient to warrant description as an independent subspecies at this time. Given our review of the scientific and commercial data available for the Hualapai Mexican vole subspecies (*M. m. hualpaiensis*), we conclude that it is not a valid taxonomic entity for listing.

(2) *Comment:* The Service should conduct a detailed study and analysis on the vole’s genetics prior to taking any action to reclassify the subspecies. Conflicting data on genetics should be resolved prior to agency action and should not be used as a justification to delist. Further the Service must rationally explain why the uncertainty counsels in favor of delisting now, rather than, for example, more study.

*Our Response:* While we recognize that more studies are always beneficial, our action is based on a thorough review of the best available scientific and commercial data, which indicates that the currently listed subspecies was listed in error as it is not a valid taxonomic entity. One of the peer reviewers stated that both AFLP and D-loop sequences are appropriate genetic markers for the level of taxonomy in question, and both markers lack support for individuals from the Hualapai Mountains forming an independent, genetic lineage. Further, the peer reviewer also stated that the current data are not sufficient to support the subspecific recognition of voles from the Hualapai Mountains, *M. m. hualpaiensis*. While both peer reviewers suggested that more genetic studies be conducted, the Service has relied on the best available scientific and commercial data at

this time, as required under the Act.

(3) *Comment:* The Service is unable to show by the best scientific or commercial data available that classifying the Hualapai Mexican vole as an endangered subspecies of the greater Mexican vole species was in error.

*Our Response:* According to our regulations at 50 CFR 424.11(d), we may delist a species if the best available scientific and commercial data indicate that the species is neither endangered or threatened for the following reasons: (1) The species is extinct; (2) the species has recovered and is no longer endangered or threatened; and/or (3) the original scientific data used at the time the species was classified were in error. We determine that the original classification is in error because there is sufficient evidence that the currently listed entity for the Hualapai Mexican vole is not a valid taxonomic subspecies. This evidence was not available to the Service at the time we listed the subspecies in 1987. The various analyses and reviews present multiple interpretations of the taxonomy and distribution of Mexican voles in Arizona, none of which correlates to that of our original listing. The final listing rule for the Hualapai Mexican vole (52 FR 36776; October 1, 1987) relied on the best available information at the time, and only included Mexican voles found in the Hualapai Mountains. The various published and unpublished reports we have used to make this decision all offer different conclusions about which populations may or may not be Hualapai Mexican voles. At this time, the best available scientific information presents conflicting information on the taxonomy of Mexican voles in general, and no longer supports the recognition of a separate Hualapai Mexican vole subspecies. Although reviews of the published and unpublished reports

have inconsistent conclusions because of differences in data sets and genetic analyses, the Service and each of the peer reviewers agreed that the currently listed entity for the Hualapai Mexican vole is no longer a valid taxonomic subspecies. However, the populations that were previously identified as the Hualapai Mexican vole subspecies are recognized by the majority of the scientific community, including IUCN and ITIS, as part of a larger taxonomic species level of Mexican voles (*Microtus mexicanus*). Therefore, the original scientific data used at the time the subspecies was classified as an endangered subspecies were in error.

### **Listable Entity Determination**

The petition asserts that the Hualapai Mexican vole should be delisted. Working within the framework of the regulations for making delisting determinations, as discussed above, the petition asserts that the original data we used in our recognition of the Hualapai Mexican vole as a subspecies, and thus a listable entity under the Act, were in error. In determining whether to recognize the Hualapai Mexican vole as a valid (distinguishable) subspecies, we must base our decision on the best available scientific and commercial data. Additionally, we must provide transparency in application of the Act's definition of a species through careful review and analyses of all the relevant data. Under section 3 of the Act and our implementing regulations at 50 CFR 424.02, a "species" includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. As such, a "species" under the Act may include any taxonomically defined species of fish, wildlife, or plant; any taxonomically defined subspecies of fish, wildlife, or plant; or any distinct population segment of any vertebrate species as determined by us per our Policy

Regarding the Recognition of District Vertebrate Population Segments [DPSs] Under the Endangered Species Act (61 FR 4722; February 7, 1996). We note that Congress has instructed the Secretary to exercise this authority with regard to DPS's “\* \* \* sparingly and only when the biological evidence indicates that such action is warranted.”

Our implementing regulations provide further guidance on determining whether a particular taxon or population is a species or subspecies for the purposes of the Act: “the Secretary shall rely on standard taxonomic distinctions and the biological expertise of the Department and the scientific community concerning the relevant taxonomic group” (50 CFR 424.11(a)). For each species, section 4(b)(1)(A) of the Act mandates that we use the best scientific and commercial data available for each individual species under consideration. Given the wide range of taxa and the multitude of situations and types of data that apply to species under review, the application of a single set of criteria that would be applicable to all taxa is not practical or useful. In addition, because of the wide variation in kinds of available data for a given circumstance, we do not assign a priority or weight to any particular type of data, but must consider it in the context of all the available data for a given species.

For purposes of being able to determine what is a listable entity under the Act, we must necessarily follow a more operational approach and evaluate and consider all available types of data, which may or may not include genetic information, to determine whether a taxon is a distinguishable species or subspecies. As a matter of practice, and in accordance with our regulations, in deciding which alternative taxonomic interpretations to recognize, the Service will rely on the professional judgment available within the Service and the scientific community to evaluate the most recent taxonomic studies and

other relevant information available for the subject species. Therefore, we continue to make listing decisions based solely on the basis of the best scientific and commercial data available for each species under consideration on a case-specific basis.

In making our determination whether we recognize the Hualapai Mexican vole as a distinguishable subspecies and, thus, whether the petitioned action is warranted, we considered all available data that may inform the taxonomy of the Hualapai Mexican vole, such as ecology, morphology, and genetics.

In determining whether to recognize the Hualapai Mexican vole as a distinguishable subspecies, we must first define the criteria used to make this decision given the available information. Within the taxonomic literature, there are no universally agreed-upon criteria for delineating, defining, or diagnosing subspecies boundaries. Each possible subspecies has been subject to unique evolutionary forces, different methods of selection will act on each subspecies (genetic drift versus allopatric speciation), and the potential divergence time (recent versus more distant) will, therefore, lead to different signals, particularly genetically; as such, the methods for detecting each will be different (Amec 2015, pp. 101–102). Therefore, we conclude that the best scientific and commercial information available indicate that the Hualapai Mexican vole is not a distinguishable subspecies, and we, therefore, do not recognize it as a listable entity under the Act. (A “listable entity” is one that qualifies as a “species” under the definition in section 3 of the Act and is thus eligible to be listed as an endangered species or a threatened species.) Because we found that the Hualapai Mexican vole is not a valid listable entity, conducting a distinct population segment (DPS) analysis would be inappropriate.

## Delisting Analysis

After a review of all information available, we are removing the Hualapai Mexican vole from the List of Endangered and Threatened Wildlife (List). Section 4(a)(1) of the Act and regulations (50 CFR part 424) issued to implement the listing provisions of the Act set forth the procedures for adding species to or removing them from the List. The regulations at 50 CFR 424.11(d) state that a species may be delisted if (1) it becomes extinct, (2) it recovers, or (3) the original classification data were in error.

At this time, the best available scientific information presents conflicting information on the taxonomy of Mexican voles in general, and no longer supports the recognition of a separate Hualapai Mexican vole subspecies. Reviews of the published and unpublished reports have inconsistent conclusions because of different genetic analyses and data sets. However, there is sufficient evidence to indicate that the currently listed entity for the Hualapai Mexican vole is no longer a valid taxonomic subspecies. Additionally, the Mexican vole is listed as least concern by IUCN in view of its wide distribution, presumed large population, occurrence in a number of protected areas, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category (Álvarez-Castañeda, S.T. & Reid, F. 2016). We consider the entity that was previously described as Hualapai Mexican vole (*Microtus mexicanus hualpaiensis*) to be part of the Mexican vole species (*Microtus mexicanus*). The Mexican vole species ranges from the southern Rocky Mountains in southern Utah and Colorado, through central Arizona and New Mexico, and throughout the interior of north and central México in the Sierra Madre Mountains, as far south as central Oaxaca, Mexico (Tamarin 1985, p. 99).

Based on the best available scientific and commercial data, we have determined that the Hualapai Mexican vole is not a valid taxonomic subspecies, and therefore, is not a listable entity under the Act. In conclusion, we find that the Hualapai Mexican vole (*Microtus mexicanus hualpaiensis*) must be removed as a listed subspecies under the Act because the original scientific data used at the time the subspecies was classified were in error.

### **Effects of the Rule**

This final rule revises 50 CFR 17.11(h) to remove the Hualapai Mexican vole from the Federal List of Endangered and Threatened Wildlife. Because no critical habitat was ever designated for this subspecies, this rule will not affect 50 CFR 17.95.

On the effective date of this rule (see **DATES**, above), the prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, no longer apply to this subspecies. Federal agencies are no longer required to consult with the Service under section 7 of the Act in the event that activities they authorize, fund, or carry out may affect the Hualapai Mexican vole.

### **Required Determinations**

#### *National Environmental Policy Act*

We have determined that environmental assessments and environmental impact statements, 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 Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

#### *Government-to-Government Relationship with Tribes*

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), Executive Order 13175, and the Department of Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. Therefore, we solicited information from Native American Tribes during the proposed rule's comment periods to determine potential effects on them or their resources that may result from the delisting of the Hualapai Mexican vole. No comments were received from Native American Tribes.

### **References Cited**

A complete list of all references cited in this rule is available on <http://www.regulations.gov>, or upon request from the Field Supervisor, Arizona Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Authors**

The primary authors of this rule are the staff members of the Arizona Ecological Services Field Office, U.S. Fish and Wildlife Service (see **ADDRESSES**).

### **List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

### **Regulation Promulgation**

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

### **PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS**

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

Authority: 16 U.S.C. 1361-1407; 1531-1544; and 4201-4245, unless otherwise noted.

**§ 17.11 [Amended]**

2. Amend § 17.11(h) by removing the entry for “Vole, Hualapai Mexican” from the List of Endangered and Threatened Wildlife.

Dated:   May 25, 2017.

Signed:

James W. Kurth,

Acting Director, Fish and Wildlife Service.

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