

Wildlife v. Norton, 258 F.3d 1136 (9th Cir. 2001).

The definition of “significant” used in this finding carefully balances these concerns. By setting a relatively high threshold, we minimize the degree to which restrictions will be imposed or resources expended that do not contribute substantially to species conservation. But we have not set the threshold so high that the phrase “in a significant portion of its range” loses independent meaning. Specifically, we have not set the threshold as high as it was under the interpretation presented by the Service in the *Defenders* litigation. Under that interpretation, the portion of the range would have to be so important that current imperilment there would mean that the species would be currently imperiled everywhere. Under the definition of “significant” used in this finding, the portion of the range need not rise to such an exceptionally high level of biological significance. (We recognize that if the species is imperiled in a portion that rises to that level of biological significance, then we should conclude that the species is in fact imperiled throughout all of its range, and that we would not need to rely on the significant portion of its range language for such a listing.) Rather, under this interpretation we ask whether the species would be in danger of extinction everywhere without that portion, *i.e.*, if the species was completely extirpated from that portion.

The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that have no reasonable potential to be significant *and* threatened or endangered. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that: (1) The portions may be “significant,” and (2) the species may be in danger of extinction there or likely to become so within the foreseeable future. Depending on the biology of the species, its range, and the threats it faces, it might be more efficient for us to address the significance question first or the status question first. Thus, if we determine that a portion of the range is not “significant,” we do not need to determine whether the species is endangered or threatened there; if we determine that the species is not endangered or threatened in a portion of its range, we do not need to determine if that portion is “significant.” In practice, a key part of the portion status analysis is whether the threats are geographically concentrated in some

way. If the threats to the species are essentially uniform throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats applies only to portions of the species’ range that clearly would not meet the biologically based definition of “significant,” such portions will not warrant further consideration.

In determining whether *Calopogon oklahomensis* is threatened or endangered in a significant portion of its range, we first addressed whether any portions of the range of *C. oklahomensis* warrant further consideration. We have no evidence that any particular population or portion of the range of *C. oklahomensis* is critical to the species’ survival. *Calopogon oklahomensis* may actually occur continuously across its known range, but consistent, range-wide surveys have not been done. The population areas delineated in this document were derived from existing data and information; however, information on the species’ distribution and numbers may change with more survey effort. Other than the potential threat of habitat destruction and modification, which is concentrated on private land, other potential threats to the species are essentially uniform throughout its range. The 14 *C. oklahomensis* populations that occur on private lands, which are not specifically protected from habitat destruction or modification, are not contiguous, but scattered throughout the range of the species. Other than the land ownership, there is nothing unique about these 14 populations that would contribute to the resiliency, redundancy, or representation of the species—they have the same biological characteristics that contribute to the species resiliency to periodic disturbance; even in their absence, there are multiple, stable and protected populations distributed throughout the species’ range; and they do not contain unique genetic, morphological, physiological, behavioral, or ecological diversity of the species that is not represented in the protected populations. Therefore, we find that *C. oklahomensis* is not in danger of extinction now, nor is it likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Therefore, listing *C. oklahomensis* as threatened or endangered under the Act is not warranted at this time.

We request that you submit any new information concerning the status of, or threats to, *Calopogon oklahomensis* to our Chicago, Illinois Fish and Wildlife Office (see **ADDRESSES**) whenever it becomes available. New information

will help us monitor *C. oklahomensis* and encourage its conservation. If an emergency situation develops for *C. oklahomensis* or any other species, we will act to provide immediate protection.

References Cited

A complete list of references cited is available on the Internet at <http://www.regulations.gov> and upon request from the Chicago, Illinois Fish and Wildlife Office (see **ADDRESSES**).

Author

The primary author of this notice is a staff member of the Chicago, Illinois Ecological Services Field Office.

Authority

The authority for this section is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: September 23, 2011.

Rowan Gould,

Acting Director, Fish and Wildlife Service.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2007–0023; MO 92210–0–0008–B2]

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Amargosa River Population of the Mojave Fringe-Toed Lizard as an Endangered or Threatened Distinct Population Segment

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list the Amargosa River population of the Mojave fringe-toed lizard (*Uma scoparia*) located in San Bernardino County, California, as an endangered or threatened distinct population segment (DPS), under the Endangered Species Act of 1973, as amended (Act). After a thorough review of all available scientific and commercial information, we find that the Amargosa River population of the Mojave fringe-toed lizard does not constitute a DPS under our 1996 policy and, therefore, is not a listable entity under the Act. We ask the

public to continue to submit to us any new information concerning the status of, and threats to, the Amargosa River population of this species and the species overall. This information will help us to monitor and encourage the ongoing management of this species.

DATES: The finding announced in the document was made on October 4, 2011.

ADDRESSES: This finding is available on the Internet at <http://www.regulations.gov> at Docket Number FWS-R8-ES-2007-0023 and at <http://www.fws.gov/ventura/>. Supporting documentation we used in preparing this finding is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003; telephone 805-644-1766, extension 372; facsimile 805-644-3958. Please submit any new information, materials, comments, or questions concerning this finding to the above street address.

FOR FURTHER INFORMATION CONTACT: Michael McCrary, Listing and Recovery Coordinator, U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office (see **ADDRESSES** section). Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(B) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), requires that, for any petition to revise the Lists of Endangered and Threatened Wildlife and Plants that contains substantial scientific and commercial information that the petitioned action may be warranted, we make a finding within 12 months of the date of our receipt of the petition. In this finding, we determine that the petitioned action is: (1) Not warranted; (2) warranted; or (3) warranted, but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether species are endangered or threatened, and expeditious progress is being made to add or remove qualified species from the Lists of Endangered and Threatened Wildlife and Plants. Section 4(b)(3)(C) of the Act requires that we treat a petition for which the requested action is found to be warranted but precluded as though resubmitted on the date of such finding; that is, it requires a subsequent finding to be made within 12 months. We must

publish these 12-month findings in the **Federal Register**.

Previous Federal Actions

We received a petition dated April 10, 2006, from the Center for Biological Diversity (CBD) and Ms. Sylvia Papadakos-Morafka requesting that the Amargosa River population of the Mojave fringe-toed lizard (*Uma scoparia*) located in San Bernardino County, California, be listed as an endangered or threatened distinct population segment (DPS) under the Act (CBD and Papadakos-Morafka 2006). According to the petition, the Amargosa River population is limited to Ibex and Dumont dunes and Coyote Holes, which are located at the northern end of the entire range of the species. On January 10, 2008, the Service made its 90-day finding (73 FR 1855), concluding that the petition did present substantial scientific or commercial information to indicate that the Amargosa River population of the Mojave fringe-toed lizard may be a DPS based on genetic evidence, which may meet both the discreteness and significance criteria of the DPS policy (61 FR 4722; February 7, 1996), and, thus, may be a listable entity under the Act. Additionally, the Service found the petition presented substantial scientific or commercial information that listing the Amargosa River population of the Mojave fringe-toed lizard as endangered or threatened may be warranted. With publication of the 90-day finding, the Service initiated a status review of the Amargosa River population of the Mojave fringe-toed lizard and solicited scientific and commercial information regarding this population.

To ensure that this finding is based on the latest information and incorporates the opinions of the scientific community, the Service considered information provided by the public and additional information and data in our files that, combined, provided the basis for the status review for the Amargosa River population of the Mojave fringe-toed lizard.

Species Information

Species Biology

The Mojave fringe-toed lizard is in the North American spiny lizard family (Phrynosomatidae). This medium-sized lizard, which may reach a snout-to-vent length of up to 4.5 inches (112 millimeters), is highly adapted to a sand-dwelling existence (Norris 1958, p. 253). As part of its adaptation to living in sand, the Mojave fringe-toed lizard's body and tail are dorsoventrally (top to bottom) compressed, which facilitates

sand self-burial (Hollingsworth and Beaman 1999, p. 1). The hind feet have a series of elongated scales fringing the lateral edges of the third and fourth digits; these fringes widen the toes, giving the lizard additional support for locomotion on sand, and serve as "sand shoes." The fringes also assist in the lizard's movements beneath the surface of the sand (Norris 1958, p. 253). Self-burial by fringe-toed lizards is presumed to be defensive; there is no evidence to suggest that self-burial is thermoregulatory or used for subsurface hunting as exhibited by other genera of sand lizards (Pough 1970, p. 153). Nasal valves restrict the entrance of sand into the lizard's nasal passages. The nasal passages are also specialized for desert living; they are convoluted and have absorbing surfaces that reduce moisture loss through the nasal openings (Stebbins 1944, p. 316). Other adaptations to a sand environment include smooth skin surface, a wedge-shaped head, and well-developed eye and ear flaps (Pough 1970, p. 145).

The Mojave fringe-toed lizard's smooth skin is patterned with small, black circles and flecks. Both sides of the belly have a conspicuous black spot, the underside of the tail has black bars, and both sides of the throat have crescent-shaped markings. The concealing coloration of fringe-toed lizards is striking and is one of the best examples of this phenomenon among North American vertebrates. Adults of the species have a yellow-green wash on the belly and pink on the sides during breeding periods, but during other times of year, the Mojave fringe-toed lizard's color mimics the sand dunes on which they dwell (Norris 1958, p. 253). The Mojave fringe-toed lizard is distinguished from other fringe-toed lizard species by the dark black spot on each side of the belly and the crescent-shaped markings present on the sides of the throat. The small black circles over the shoulders do not unite to form lines as they do in the very closely related species, *Uma notata*.

Mojave fringe-toed lizards are omnivorous throughout their lives. They primarily feed on insects but will also eat seeds and flowers (Stebbins 1944, p. 329). Annual plants provide forage during the springtime; however, their availability diminishes during the summer as vegetation dries up (Stebbins 1944, p. 329). Mojave fringe-toed lizards derive most of their water from arthropods and plants they ingest.

The Mojave fringe-toed lizard is diurnal (active during the day) and has daily activity patterns that are temperature-dependent. The actual ambient temperature range in which the

Mojave fringe-toed lizard is active has not been documented. However, it is documented that the Mojave fringe-toed lizard is likely active when its internal body temperature is between 79 and 112 degrees Fahrenheit (26 and 44 degrees Celsius) (Hollingsworth and Beaman 1999, p. 3). In March and April, Mojave fringe-toed lizards are active fewer hours than other species of fringe-toed lizards due to cooler temperatures in the Mojave Desert. From May to September, they move about in the mornings and late afternoons but retreat underground when temperatures are high. Hibernation occurs from November to February (Mayhew 1966, pp. 120–121).

The Mojave fringe-toed lizard generally reaches sexual maturity during the second summer following hatching. Reproductive activity in both sexes varies from year-to-year and tends to increase with higher rainfall; winter rainfall (October to March) in particular seems to be the critical reason for the increased reproductive activity. The moisture promotes germination in sand-

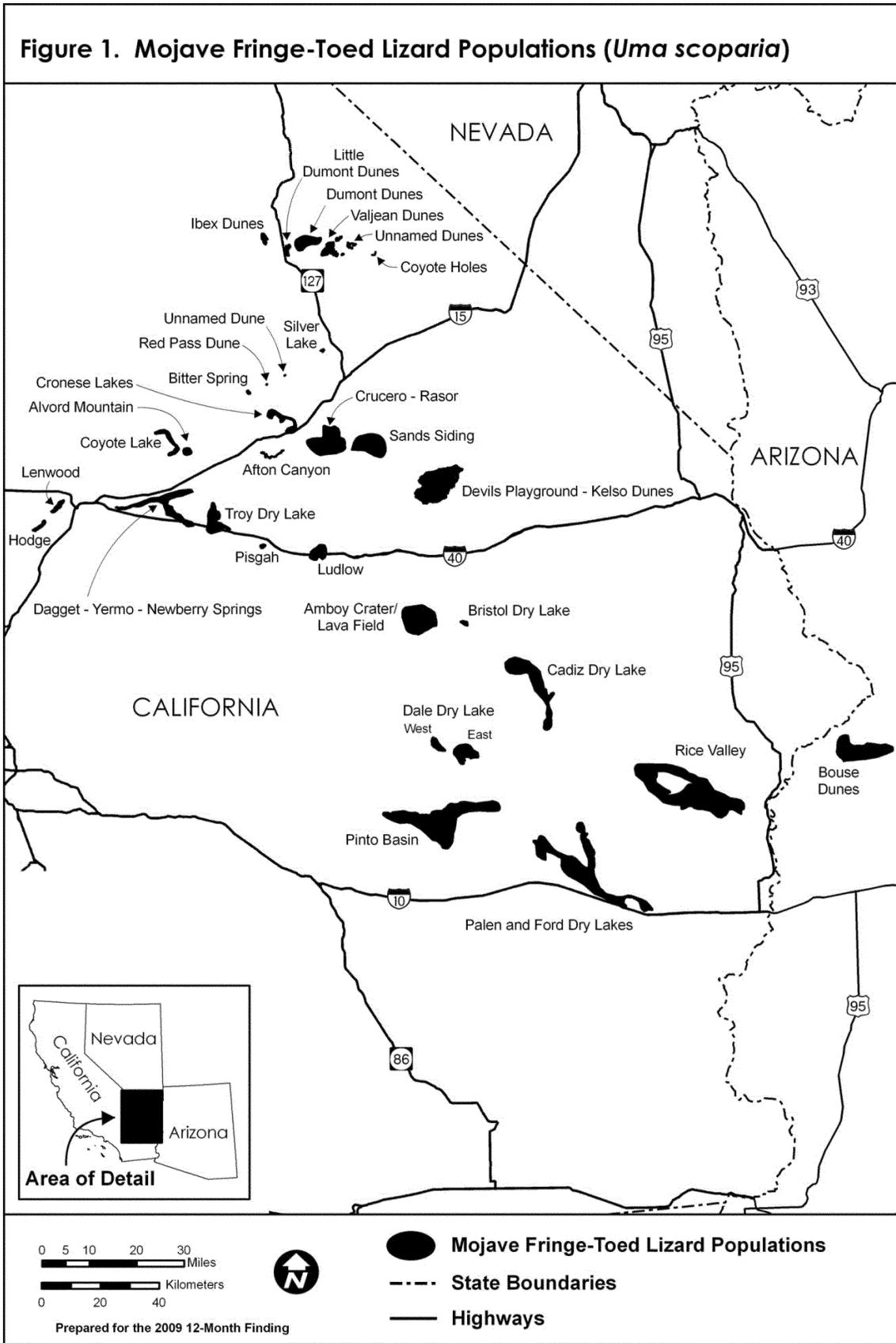
dwelling plants and production of leaves and flowers that provide nutrients, moisture, and protective cover to the lizards, and thus enhances reproductive activity (Mayhew 1966, pp. 119–120). Breeding coloration and increase in testis size indicate the male breeding period, which typically occurs between April and late June. Female breeding colors are displayed between April and September (Mayhew 1966, pp. 115–117). Ovarian egg counts also fluctuate in response to rainfall and food availability, with reduced egg counts and fewer juveniles following dry winters. There is also evidence to suggest that female lizards may have more than one brood per year (Mayhew 1966, p. 118).

Species Range, Habitat, and Dispersal

The Mojave fringe-toed lizard is endemic to the deserts of southern California and a small area across the Colorado River in western Arizona. The Mojave fringe-toed lizard occurs in the lower Sonoran life zones of the Mojave

Desert and the northwestern reaches of the Sonoran Desert characterized by palo verde (*Cercidium floridum*), mesquite (*Prosopis chilensis*), creosote bush (*Larrea tridentata*), white bur sage (*Franseria* sp.), indigo bush (*Dalea* sp.), and numerous species of annuals. The Mojave fringe-toed lizard inhabits areas of wind-blown sand, including dunes, washes, hillsides, margins of dry lakes, and flats with sandy hummocks that form around bases of vegetation (Hollingsworth and Beaman 1999, p. 8). Fringe-toed lizards (*Uma* spp.), including the Mojave fringe-toed lizard, likely select active sand dune areas and other areas of wind-blown, intermediate-sized grains of sand, because those conditions facilitate self-burying and respiration while under the sand (Pough 1970, p. 154). Based on the scientific literature, the Mojave fringe-toed lizard is currently known to occur at more than 35 sand dunes localities in southern California and one dune in western Arizona (Figure 1).

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On April 10, 2006, we received a petition to list the Amargosa River population of Mojave fringe-toed lizard as an endangered or threatened DPS under the Act. The petition defined the Amargosa River population as Mojave fringe-toed lizards occurring at Ibex Dunes, Dumont Dunes, and Coyote Holes (Figure 1). Subsequent to the submittal of the petition, and as part of the status review conducted for this finding, Mojave fringe-toed lizards were found in new locations for which there are no historical records of occurrence. Based on their proximity to the three petitioned dunes, several of the new locations are part of the Amargosa River population and, as hereafter described in this finding, the Amargosa River population includes the following newly discovered occupied dunes: Little Dumont Dunes, located about 3 miles (mi) (4.8 kilometers (km)) southwest of Dumont Dunes (Glenn 2008, *in litt.*); Valjean Dunes, located about 4 mi (6.4 km) southeast of Dumont Dunes (Encinas 2008, *in litt.*); the sandy area between Dumont and Valjean dunes (Encinas 2008, *in litt.*); and three unnamed dunes located roughly midway between Valjean Dunes and Coyote Holes (Encinas 2008, *in litt.*) (Figure 1).

Additionally, new records of Mojave fringe-toed lizards have also expanded the areas known to be occupied at Ibex Dunes, Dumont Dunes, and Coyote Holes (Glenn 2008, *in litt.*). Although not part of the Amargosa River population, Mojave fringe-toed lizards have also been recently found at an unnamed dune between Red Pass Dune and Silver Lake (Glenn 2008, *in litt.*) (Figure 1). In aerial photographs, we also noted the presence of other dune formations and wind-blown sand areas southeast of Ibex Dune, northwest of Valjean Dunes, between Silver Lake and Red Pass Dune, and between Red Pass Dune and Cronese Lakes. The physical characteristics and structure of these areas appear to be similar to habitat known to be occupied by the Mojave fringe-toed lizard. However, these areas have not yet been surveyed for the presence of Mojave fringe-toed lizards.

Dispersal of Mojave fringe-toed lizards between populations is poorly studied. No specimen of fringe-toed lizard has been captured more than approximately 150 feet (ft) (46 meters (m)) from wind-blown sand deposits (Norris 1958, p. 257). Norris believed that fringe-toed lizards are totally restricted to areas of wind-blown sand. For this reason, Mojave fringe-toed lizards, in the absence of intervening suitable habitat, have historically been considered to be restricted to active

dunes, and in a few cases, sandy habitat associated with dry lakes and washes.

Genetics

Mojave fringe-toed lizard phylogenetics have been studied by Murphy *et al.* (2006, pp. 226–247) and more recently by Gottscho (2010, pp. 1–81). Phylogenetics is the study of the evolutionary relationships between groups of organisms, such as families, subfamilies, genera, and species, based on genetic material. Murphy *et al.* (2006, pp. 231–233) analyzed the relationships between different populations of Mojave fringe-toed lizards based on mitochondrial DNA. Mitochondrial DNA is inherited from the female parent and not the male; thus, the genetic information reflects the matrilineal history. In the mitochondrial DNA study, tissue samples from 79 lizards were collected from 21 major dune systems, including 1 dune in Arizona, known to be occupied by the Mojave fringe-toed lizard as verified by collections in the California Academy of Sciences and Los Angeles County Museum of Natural History. Murphy *et al.* (2006, p. 232) detected 52 unique haplotypes among the 21 dune systems sampled. A haplotype is a set of closely linked genetic markers on a single chromosome that tend to be inherited together. The number of tissue samples collected per dune was small, with three or fewer samples collected from the majority (57 percent) of dunes (Murphy *et al.* 2006, p. 230). Based on mitochondrial DNA sequence data from two mitochondrial genes, Murphy *et al.* (2006) developed a phylogenetic tree (a diagram consisting of branches that represent genetic relationships, similar in appearance to a family tree) for the Mojave fringe-toed lizard.

Murphy *et al.* (2006, pp. 232–233) concluded that the lizards from the 21 dune systems consisted of 6 genetically related groupings or clades. One of the six is the Amargosa River clade, which Murphy determined consists of Ibex and Dumont Dunes, Coyote Holes, and Red Pass Dune (Murphy *et al.* 2006, p. 234). Red Pass Dune is geographically associated with the Mojave River drainage system clade, which is the next population to the south of the Amargosa River population. Although Murphy *et al.* (2006, pp. 232–233) classified lizards from the Amargosa River population as constituting a separate genetic clade than lizards in the Mojave River drainage system, the population of Mojave fringe-toed lizards occurring at Red Pass Dune is unique in that it shares a haplotype with both the Amargosa River clade and the Mojave River drainage system clade. For this

reason, Red Pass Dune appears twice in the phylogenetic tree developed by Murphy *et al.* (2006, p. 233), once in the Amargosa River clade and once in the Mojave River drainage system clade. However, Murphy *et al.*'s (2006, p. 241) overall conclusion was that the Amargosa River population is genetically distinct from other Mojave fringe-toed lizard populations.

Gottscho (2010, pp. 9–18) also studied the relationships between different populations of Mojave fringe-toed lizards but based his analysis on nuclear DNA instead of on mitochondrial DNA. Nuclear DNA is inherited from both the female and male; thus each tissue sample had genetic information inherited from both the mother and father as opposed to mitochondrial DNA, which has genetic information inherited from the mother only. Gottscho conducted his DNA analysis on tissue samples collected from lizards at 20 major dune systems throughout the range of the species. Fifteen unlinked DNA sequences (or loci) from each tissue sample were analyzed to determine genetic divergence between population locations. Unlinked DNA sequences represent random segments of DNA that are not typically inherited together and thus represent independent samples of genetic variation across the entire genome. Based on the nuclear DNA sequences from the 15 loci, Gottscho developed 15 gene trees for the Mojave fringe-toed lizard, and none of these gene trees showed evidence of genetic divergence between the Amargosa River population and other Mojave fringe-toed lizard populations (Gottscho 2010, pp. 54–68). Gottscho (2010, p. 26) found that “No geographic structuring within *U. scoparia* is evident, particularly between the Mojave and Amargosa populations, which is expected given that they have 0% sequence divergence.” Thus, based on his analysis of 15 nuclear DNA loci, Gottscho found no evidence that the Amargosa River population of Mojave fringe-toed lizard was genetically distinct from other Mojave fringe-toed lizard populations (see Distinct Vertebrate Population Segment (DPS) section for additional discussion of research results of Gottscho (2010) and Murphy *et al.* (2006)).

Distinct Vertebrate Population Segment (DPS)

Section 3(16) of the Act defines “species” to include “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” (16 U.S.C. 1532 (16)). Under the joint DPS

policy of the Service and National Marine Fisheries Service (61 FR 4722; February 7, 1996), three elements are considered in the decision concerning the establishment and classification of a possible DPS. These are applied similarly for additions to or removal from the List of Endangered and Threatened Wildlife. These elements include:

(1) The discreteness of a population in relation to the remainder of the species to which it belongs;

(2) The significance of the population segment to the species to which it belongs; and

(3) The population segment's conservation status in relation to the Act's standards for listing, delisting, or reclassification (*i.e.*, Is the population segment, when treated as if it were a species, endangered or threatened?).

Under the DPS Policy, we must first determine whether the population qualifies as a DPS; this requires a finding that the population is both: (1) Discrete in relation to the remainder of the species to which it belongs; and (2) biologically and ecologically significant to the species to which it belongs. If the population meets the first two criteria under the DPS policy, we then proceed to the third element in the process, which is to evaluate the population segment's conservation status in relation to the Act's standards for listing as an endangered or threatened species. The DPS evaluation in this finding concerns the Amargosa River population as it has been defined herein.

Discreteness

Under the DPS Policy, a population segment of a vertebrate taxon may be considered discrete if it satisfies either one of the following conditions:

(1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation.

(2) It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act.

Markedly Separated From Other Populations of the Taxon

Under the first test of discreteness in our DPS policy, a population segment may be considered discrete if it is "markedly separated from other populations of the same taxon as a consequence of physical, physiological,

ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation." Although absolute separation is not required under our DPS Policy, the use of the term "markedly" in the Policy indicates that the separation must be strikingly noticeable or conspicuous.

As part of the status review associated with this finding, we have examined the Amargosa River population of Mojave fringed-toed lizard and expanded the definition of this population to include the newly discovered occupied dunes, as described above in the "Species Range, Habitat, and Dispersal" section. We have examined the Amargosa River population of the Mojave fringe-toed lizard to determine if it is markedly separated from other populations of the same taxon.

The important question with regard to discreteness under our DPS policy is whether or not the Amargosa River population is markedly separated from other populations of Mojave fringed-toed lizard. The Amargosa River population could be found to be markedly physically separated if the distance between any part of that population and any other population is greater than the distance the lizard is believed to be able to travel across areas without suitable habitat (*i.e.*, without windblown sand). Mojave fringe-toed lizard movement among dunes is considered unlikely in the absence of nearby areas of wind-blown sand. Mojave fringe-toed lizards have historically been considered to be restricted to active dunes and, in a few cases, sandy habitat associated with dry lakes and washes (Hollingsworth and Beaman 1999, p. 3).

As noted above in the "Species Range, Habitat, and Dispersal" section, surveys conducted subsequent to the submittal of the petition show that there are more Mojave fringe-toed lizards in the Amargosa River area than was previously thought. New locations with documented Mojave fringe-toed lizards include Little Dumont Dunes, Valjean Dunes, the area between Dumont and Valjean dunes, and three unnamed dunes located between Valjean Dunes and Coyote Holes (Glenn 2008, *in litt.*; Encinas 2008, *in litt.*) (Figure 1). The Mojave fringe-toed lizard is also now known to occur in additional areas of Ibex Dunes, Dumont Dunes, and Coyote Holes (Encinas 2008, *in litt.*). In combination, these new areas have expanded the range of the Amargosa River population beyond what was described in the petition. However, the expanded Amargosa River population, including these new areas, is still

approximately 17 mi (27 km) from the next nearest location known to be occupied by the species (Silver Lake, Figure 1).

As also noted above in the "Species Range, Habitat, and Dispersal" section, there are other dunes and areas of suitable wind-blown sand that could allow for movement of lizards between populations. Two dry lakes, the larger Silurian Lake and a smaller, unnamed lake, lie between the Amargosa River population at Dumont Dune and the Mojave River drainage population at Silver Lake, all of which are connected by a dry streambed. In the past, Norris (1958, p. 263) personally observed this area covered in sand and occupied by Mojave fringe-toed lizards and specifically mentioned dunes at Silurian Lake being occupied. He noted migration between river drainages was allowed across low divides, such as the divide between the Mojave and the Amargosa Rivers when sand shadows (an accumulation of sand formed in the shelter of a fixed obstruction, such as clumps of vegetation) and blow-ups were present (Norris 1958, p. 316). Sand dunes are highly dynamic and continually moving, in some cases, moving several meters per year (Norris 1958, p. 262). This dune movement may have accounted for the species' movement and occupancy of the low divide between the Mojave and Amargosa River drainages, providing a corridor between populations (Norris 1958, p. 263). However, based on our review of aerial photos taken subsequent to Norris' observations, suitable dune habitat does not appear to currently exist around Silurian Lake. Gottscho (2010, p. 31) also noted that the low-divide area between the Mojave and Amargosa River drainages that Norris referred to in 1958 as being covered by sand and occupied by Mojave fringe-toed lizards does not appear to be covered by sand or occupied by Mojave fringe-toed lizards currently. Therefore, at the present time, the Amargosa River population appears to be physically isolated from other populations of Mojave fringed-toed lizards.

Thus, based on the best scientific and commercial information currently available, we believe that the 17 mi (27 km) of unsuitable habitat between the Amargosa River population and the next nearest area known to be currently occupied by the species is beyond the dispersal capability of the species, and we conclude that the Amargosa River population is markedly physically separated from other populations. Therefore, we have determined that the Amargosa River population of the

Mojave fringe-toed lizard meets the discreteness element of our DPS policy.

International Boundaries

A population segment of a vertebrate species may be considered discrete if it is delimited by international governmental boundaries across which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act. The range of the Mojave fringe-toed lizard occurs solely within the continental United States and is not delimited by international governmental boundaries. Therefore, the Amargosa River population of Mojave fringe-toed lizard does not satisfy this condition.

Summary for Discreteness

We find that the Amargosa River population is markedly physically separated from other populations because of the limited dispersal capability of the Mojave fringe-toed lizard and the absence of intervening habitat that could provide for the regular movement of lizards between this population and other populations. Consequently, and based upon review of the best available information, the Service finds that the Amargosa River population meets the discreteness element of our DPS policy.

Significance

Because we have determined that the Amargosa River population of Mojave fringe-toed lizard is discrete under our DPS policy, we will next consider its biological and ecological significance to the taxon to which it belongs in light of Congressional guidance that the authority to list DPSs be used "sparingly" while encouraging the conservation of genetic diversity. To evaluate whether a discrete vertebrate population may be significant to the taxon to which it belongs, we consider available scientific evidence of the population segment's importance to the taxon to which it belongs. Because precise circumstances are likely to vary considerably from case to case, the DPS policy does not describe all the classes of information that might be used in determining the biological and ecological importance of a discrete population. However, the DPS policy describes four possible classes of information that provide evidence of a population segment's biological and ecological importance to the taxon to which it belongs. As specified in the DPS policy (61 FR 4722), this consideration of the population

segment's significance may include, but is not limited to the following:

- (1) Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon,
- (2) Evidence that loss of the discrete population segment would result in a significant gap in the range of a taxon,
- (3) Evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range, or
- (4) Evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

A population segment needs to satisfy only one of these criteria to be considered significant. Furthermore, the list of criteria is not exhaustive; other criteria may be used as appropriate. Here we evaluate the four potential factors suggested by our DPS policy in evaluating significance.

Persistence of the Discrete Population Segment in an Ecological Setting Unusual or Unique for the Taxon

Available information does not indicate that differences exist in the ecological setting between the Amargosa River population and other populations within the species' range. The habitat occupied by the Amargosa River population is wind-blown sand, which is typical of other populations of Mojave fringed-toed lizard. There is no difference in climate or other physical or biological factors between the Amargosa River population and the Silver Lake population, which is located 17 mi (27 km) to the south but is part of the Mojave River drainage population. There is no available information that would suggest the existence of any morphological, behavioral, or physiological differences between individuals from the Amargosa River population and individuals from other Mojave fringed-toed lizard populations. We therefore determine that the Amargosa River population of the Mojave fringe-toed lizard does not meet the significance element of the DPS policy based on this factor.

Evidence that Loss of the Discrete Population Segment Would Result in a Significant Gap in the Range of a Taxon

We estimate that the areas covered by wind-blown sand habitat at Ibex and Dumont dunes and Coyote Holes, along with the newly discovered areas that constitute the Amargosa River population as defined herein, make up less than 5 percent of the total wind-blown sand habitat occupied by the

species (73 FR 1855; January 10, 2008). The Amargosa River population is the most northerly population of the species, and as such, the loss of the Amargosa River population would not result in the isolation of any other populations to the south.

The Amargosa River population is a peripheral population, and peripheral populations can be important in species conservation if they are genetically divergent from populations in the central portion of the species' range (Lesica and Allendorf 1995, pp. 753–760; Lomolino and Channell 1998, pp. 481–484; Fraser 2000, pp. 49–53). Peripheral populations that are spatially distant from central populations may be exposed to different environmental conditions and thus different natural selection forces, which in some populations may result in unique adaptations that may be important for the species in adapting to future environmental changes. However, as discussed above, habitat and climate in the area occupied by the Amargosa River population are similar to environmental conditions elsewhere in the species' range. If different natural selection pressures were acting on the Amargosa River population, differences in morphological, behavioral, or physiological characteristics might be expected between Amargosa River Mojave fringed-toed lizards and Mojave fringed-toed lizards in other populations to the south, but there is no available evidence of such differences. Evidence of genetic differences is discussed below.

We conclude that the loss of the Amargosa River population would not result in a significant gap in the range of the species because the population represents only a small percentage (less than 5 percent) of the species' range, and potential loss of the population would not result in the isolation of any other Mojave fringed-toed lizard populations. Peripheral populations can have conservation value, but available evidence does not indicate that individuals from the Amargosa River population have unique morphological, behavioral, or physiological adaptations that may be significant to the species' conservation.

Whether the Population Represents the Only Surviving Natural Occurrence of the Taxon

The Amargosa River population is not the only surviving natural occurrence of the species. Mojave fringe-toed lizards are known to occur at more than 35 sand dune complexes in California, and one in Arizona, all of which are naturally occurring within the species'

historical range. Consequently, we conclude that the Amargosa River population of the Mojave fringe-toed lizard does not meet this factor of the significance criterion of the DPS policy.

Evidence That the Discrete Population Segment Differs Markedly From Other Populations of the Species in Its Genetic Characteristics

Two studies have compared genetic characteristics between the Amargosa River population and other Mojave fringed-toed lizard populations (see "Genetics" section). One study, based on analysis of mitochondrial DNA, found that individuals from the Amargosa River population possessed unique haplotypes and differed genetically from other Mojave fringed-toed lizard populations (Murphy *et al.* 2006, pp. 226–247). Another study, based on analysis of 15 nuclear DNA loci, found no genetic divergence between the Amargosa River population and other Mojave fringed-toed lizard populations (Gottscho 2010, pp. 21–68).

Different patterns of genetic variation between mitochondrial and nuclear DNA analyses are not uncommon (Moore 1995, pp. 718–726; Avise 2004, pp. 273–276, 372–380; Ballard and Whitlock 2004, pp. 729–744; Bazin *et al.* 2006, pp. 570–572; Zink and Barrowclough 2008, pp. 2107–2121). Mitochondrial and nuclear DNA differ in important aspects. Genes in the mitochondrial genome evolve as a single linkage unit (Allendorf and Luikart 2007, p. 159). Mitochondrial DNA analysis thus yields only a single gene tree, and single gene trees potentially misrepresent the taxon's evolutionary history (Ballard and Whitlock 2004, p. 734; Zink and Barrowclough 2008, p. 2108). For most animal species, including the Mojave fringed-toed lizard, individuals inherit mitochondrial DNA from only the mother; nuclear DNA is inherited from both mother and father (Allendorf and Luikart 2007, p. 159). These and other differences between mitochondrial and nuclear DNA have led some to caution against the sole use of mitochondrial DNA analysis when trying to understand the phylogeography or evolutionary history of a species or population (Moore 1995, pp. 718–726; Hare 2001, pp. 700–706; Ballard and Whitlock 2004, pp. 729–744; Bazin *et al.* 2006, 570–572).

One of the implications of the differences between mitochondrial and nuclear DNA is that genetic drift will cause divergence between isolated populations to occur more slowly at nuclear gene loci than at mitochondrial gene loci (Hare 2001, pp. 701–702; Zink

and Barrowclough 2008, p. 2109). Genetic drift is change in the frequency of a gene variant, or allele, within a population due to random sampling. Zink and Barrowclough (2008, pp. 2107–2121) concluded that mitochondrial DNA is more likely than nuclear DNA to reveal more recent evolutionary splits and that nuclear markers are more lagging indicators of changes in population structure.

Another implication of the differences between mitochondrial and nuclear DNA is that mitochondrial DNA is a single molecule with a single specific history that, for various reasons, can differ from the true evolutionary history of the species or population (Ballard and Whitlock 2004, p. 734). For example, because mitochondrial DNA is inherited only from the mother, mitochondrial DNA patterns might be a biased portrayal of the overall lineage history of the species if the species exhibits different dispersal patterns between males and females (Avis 2004, pp. 274–277; Zink and Barrowclough 2008, p. 2108). Indeed, sex-biased dispersal is known to occur in various lizard species (Doughty *et al.* 1994, pp. 227–229; Johansson *et al.* 2008, p. 4426; Urqhart 2008, p. 2). In Mojave fringed-toed lizards, although the dispersal of males compared to that of females has not been studied, males do display territorial behavior causing rival males to be pushed out of their territory (Carpenter 1963, p. 406). In addition, there is evidence that the home ranges of male Mojave fringe-toed lizards are larger than those of females (Penrod *et al.* 2008, p. 47). Because it is likely that Mojave fringe-toed lizard males disperse farther than females, we would expect more gene flow to occur among nuclear genes than among mitochondrial genes because mitochondrial genes are only inherited from the female. As a result of reduced female dispersal, gene flow among mitochondrial genes may be reduced compared to nuclear gene flow in species with sex-biased dispersal patterns (Avis 2004, pp. 273–276; Gottscho 2010, p. 32). Reduced flow of mitochondrial genes compared to nuclear genes would be expected to result in greater genetic divergence between individuals and populations in mitochondrial DNA-based studies compared to nuclear DNA-based studies, which is consistent with the pattern observed in the Murphy *et al.* (2006, pp. 226–247) mitochondrial DNA-based study and the Gottscho (2010, pp. 1–81) nuclear DNA-based study.

Gottscho (2010, pp. 21–68) found zero percent genetic divergence between the Amargosa population and other Mojave

fringed-toed lizard populations at 15 independent nuclear loci. He concluded that lack of genetic divergence is best explained by past gene flow between Mojave fringed-toed lizard populations (Gottscho 2010, pp. 26–34). He noted that the lack of a single fixed difference between the Amargosa River population and Mojave River population was not unexpected given that the Mojave River overflows into the Amargosa River when its current terminus at Silver Lake reaches capacity, and no mountains exist that might have impeded the movement of sand dunes and lizards between these drainages in historical times (Gottscho 2010, p. 26). Gottscho (2010, pp. 32–33) noted that although sand dune complexes may seem isolated today, in geologic time (evolutionary time) they have moved across the landscape regularly with changing climate.

We conclude that the results of Murphy *et al.* (2006) do not reflect deep genetic divergence between the Amargosa River population and other Mojave fringed-toed lizard populations, as evidenced by the shared haplotypes from the Amargosa River clade and Mojave River drainage clades at the Red Pass Dune location, which is located outside of the Amargosa River drainage (see Genetics section). We conclude that the results of Murphy *et al.* (2006) and Gottscho (2010) are best explained by relatively recent evolutionary population divergence between the Amargosa River population and Mojave River drainage populations: the relatively recent divergence has been enough for subtle differences in the mitochondrial DNA to develop, as indicated by the Murphy *et al.* (2006) study, but not enough for differences in the nuclear DNA genetic markers to develop, as indicated by the Gottscho (2010) study (Gottscho 2011, pers. comm.). We find that the best available information is not indicative of marked differences in genetic characteristics between the Amargosa River population and other Mojave fringed-toed lizard populations because: (1) The Gottscho (2010) study, which showed no genetic differentiation between the Amargosa River population and other Mojave fringed-toed lizard populations, was based on analysis of multiple, independent nuclear gene loci, whereas the Murphy *et al.* (2006) study was based on analysis of a single mitochondrial gene locus and thus may not present a full and accurate representation of the population's evolutionary history (see discussion above of potential limitations of mitochondrial DNA studies); (2) the

results of Murphy *et al.* (2006) are not indicative of deeply divergent genetic differentiation, as evidenced by the shared haplotypes from the Amargosa River clade and Mojave River drainage clades at the Red Pass Dune location.

Summary for Significance

Based on the best information available, we do not find that the Amargosa River population occurs in a unique ecological setting because the population occurs in an ecological setting similar to other nearby populations. Climate and habitat within the Amargosa River population area are similar to climate and habitat in nearby population areas within the Mojave River drainage. We also do not find that the loss of the Amargosa River population would result in a significant gap in the range of the species because the loss of the population would not result in the isolation of other Mojave fringed-toed lizard populations, and the Amargosa River population makes up only a small percentage (less than 5 percent) of the entire range of the species. The Amargosa River population is not the only surviving natural occurrence of the taxon, as all known areas currently occupied by the species (see Figure 1) are naturally occurring populations within the historical range of the species. We also find that the Amargosa River population does not differ markedly from other Mojave fringed-toed lizard populations in its genetic characteristics. One study found evidence of certain genetic differences between the Amargosa River population and other Mojave fringed-toed lizard populations (Murphy *et al.* (2006)), and another study found evidence of no genetic differentiation between populations (Gottscho (2010)). We conclude that in total, the best available data from these studies does not rise to the level of meeting the standard of marked differences in genetic characteristics between the Amargosa River population and other Mojave fringed-toed lizard populations. We also note that there is no evidence of morphological, physiological, or behavioral differences between individuals from the Amargosa River population and individuals from other Mojave fringed-toed lizard populations; such differences may be expected if Mojave fringed-toed lizards from the Amargosa River population possessed unique evolutionary adaptations. Moreover, the best available scientific evidence does not indicate any other classes of information that may provide evidence of the Amargosa River population's biological and ecological

importance to the Mojave fringe-toed lizard species.

Overall, based on our review of the factors for significance as summarized herein, we find that the Amargosa River population of the Mojave fringe-toed lizard does not satisfy the considerations of the DPS policy for being significant in relation to the remainder of the taxon.

Determination of Distinct Population Segment

Based on the best scientific and commercial data available, we find that the Amargosa River population of Mojave fringed-toed lizard meets the discreteness element of our 1996 DPS policy, but not the significance element. To qualify as a DPS under the Services' 1996 DPS policy, a population must meet both the discreteness and significance elements of the policy. Therefore, the Amargosa River population does not qualify as a DPS under our DPS policy and is not a listable entity under the Act. Because the population does not qualify as a DPS, we will not proceed with an evaluation of the status of the population under the Act.

Finding

We have carefully assessed the best scientific and commercial information available for the Amargosa River population of the Mojave fringe-toed lizard, including information in the petition, and available published and unpublished scientific and commercial information. This 12-month finding reflects and incorporates information that we received from the public and interested parties or that we obtained through consultation, literature research, and field visits.

On the basis of this review, we have determined that the Amargosa River population of Mojave fringe-toed lizard, although discrete according to our DPS policy, does not meet the significance element of our 1996 DPS policy. The best available scientific and commercial information does not indicate that the Amargosa River population occurs in an ecological setting unusual or unique for the taxon; climate and habitat in the Amargosa River population area are similar to climate and habitat of nearby populations, and we are not aware of differences in behavior, physiology, or morphology between lizards in the Amargosa River population and nearby populations. The best available information also does not indicate that loss of the Amargosa River population would result in a significant gap in the range of the species; loss of the population would not result in the

isolation of other Mojave fringed-toed lizard populations; and the population area makes up only a small portion of the entire species' range. The Amargosa River population does not represent the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range. Although an analysis of mitochondrial DNA showed genetic differences between individuals in the Amargosa River population and individuals in other Mojave fringed-toed lizard populations (Murphy *et al.* 2006, pp. 226–247), this study found that individuals from a population area in the Mojave River drainage (Red Pass Dune) had shared haplotypes from the Amargosa River clade and Mojave River drainage clades. A recent study that analyzed nuclear DNA found zero genetic divergence between lizards in the Amargosa River population and lizards in other Mojave fringed-toed lizard populations at all 15 independent nuclear loci analyzed (Gottscho 2010, pp. 26–30). The best available information does not indicate that individuals from the Amargosa River population possess unique evolutionary adaptations as there are no known morphological, physiological, or behavioral differences between individuals from the Amargosa River population and other Mojave fringed-toed lizard populations. We conclude that the best scientific and commercial data available do not indicate that the Amargosa River population differs markedly from other populations of the species in its genetic characteristics.

We have determined that the Amargosa River population, while markedly separated from other existing populations of Mojave fringe-toed lizard and thus discrete, does not meet the significance element of our 1996 DPS policy and, therefore, does not qualify as a DPS and is not a listable entity under the Act. Therefore, we find that the petitioned action to list the Amargosa River population of Mojave fringe-toed lizard as an endangered or threatened species under the Act is not warranted.

We request that you submit any new information concerning the status of, or threats to, this species to our Ventura Fish and Wildlife Office (see **ADDRESSES** section) whenever it becomes available. New information will help us monitor this species and promote its conservation. If an emergency situation develops for this or any other species, we will act to provide immediate protection.

References Cited

A complete list of all references cited in this document is available on the Internet at <http://www.regulations.gov>, or upon request from the Field Supervisor, Ventura Fish and Wildlife Office (see **ADDRESSES** section).

Authors

The primary authors of this notice are the staff members of the Ventura Fish and Wildlife Office (see **ADDRESSES** section).

Authority

The authority for this action is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: September 23, 2011.

Rowan Gould,

Acting Director, Fish and Wildlife Service,
[FR Doc. 2011-25561 Filed 10-3-11; 8:45 am]

BILLING CODE 4310-55-P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R2-ES-2010-0072; MO 92210-0-0009-B4]

RIN 1018-AX17

Endangered and Threatened Wildlife and Plants; Endangered Status and Designation of Critical Habitat for Spikedace and Loach Minnow; Revised Proposed Rule

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; revision and reopening of the comment period.

SUMMARY: We, the U.S. Fish and Wildlife Service, announce the reopening of the October 28, 2010, public comment period on the proposed designation of critical habitat and proposed endangered status for the spikedace (*Meda fulgida*) and loach minnow (*Tiaroga cobitis*) under the Endangered Species Act of 1973, as amended (Act). We also announce the availability of a draft economic analysis (DEA) and draft environmental assessment (EA) on the proposed designation of critical habitat for spikedace and loach minnow, and an amended required determinations section of the proposal. We are also announcing a revision to proposed critical habitat units 6 (San Francisco River Subbasin) and 8 (Gila River Subbasin) for loach minnow. We are reopening the comment period to allow

all interested parties an opportunity to comment simultaneously on the proposed rule, revisions to the proposed rule, the associated DEA and draft EA, and the amended required determinations section. Comments previously submitted need not be resubmitted and will be fully considered in preparation of the final rule.

DATES: Comment submission: We will consider comments received on or before November 3, 2011. Comments must be received by 11:59 p.m. Eastern Time on the closing date. Any comments that we receive after the closing date may not be considered in the final decision on this action.

Public hearing: We will hold a public hearing on the critical habitat proposal, draft economic analysis, and draft environmental assessment, preceded by an informational session. The informational session will be held from 3 to 4:30 p.m., followed by a public hearing from 6:30 to 8 p.m., on October 17, 2011.

ADDRESSES: Document availability: You may obtain a copy of the DEA or EA at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2010-0072 or by contacting the person listed under **FOR FURTHER INFORMATION CONTACT**.

Comment submission: You may submit comments by one of the following methods:

- **Federal eRulemaking Portal:** <http://www.regulations.gov>. Follow the instructions for submitting comments to Docket No. FWS-R2-ES-2010-0072.

- **U.S. mail or hand-delivery:** Public Comments Processing, Attn: FWS-R2-ES-2010-0072, Division of Policy and Directives Management, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Suite 222, Arlington, VA 22203.

Public hearing: The public hearing of October 17, 2011, will be held at the Apache Gold Convention Center (Geronimo Room), located five miles east of Globe, Arizona on Highway 70. People needing reasonable accommodations in order to attend and participate in the public hearings should contact Steve Spangle, Arizona Ecological Services Office, at (602) 242-0210 as soon as possible (see **FOR FURTHER INFORMATION CONTACT**). In order to allow sufficient time to process requests, please call no later than one week before the hearing date.

FOR FURTHER INFORMATION CONTACT: Steve Spangle, Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Office, 2321 W. Royal Palm Road, Suite 103, Phoenix, AZ 85021; telephone (602) 242-0210; facsimile (602) 242-2513. Persons who

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

SUPPLEMENTARY INFORMATION:

Public Comments

We will accept written comments and information during this reopened comment period on our proposed uplisting and designation of critical habitat for the spikedace and loach minnow that was published in the **Federal Register** on October 28, 2010 (75 FR 66482), our draft economic analysis and draft environmental assessment of the proposed designation, and the amended required determinations provided in this document. We will consider information and recommendations from all interested parties. We are particularly interested in comments concerning:

(1) The factors that are the basis for making a listing determination for a species under section 4(a) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), which are: (a) The present or threatened destruction, modification, or curtailment of its habitat or range; (b) Overutilization for commercial, recreational, scientific, or educational purposes; (c) Disease or predation; (d) The inadequacy of existing regulatory mechanisms; or (e) Other natural or manmade factors affecting its continued existence.

(2) Additional information concerning the range, distribution, and population size of this species, including the locations of any additional populations of this species.

(3) Any information on the biological or ecological requirements of the species.

(4) The reasons why we should or should not designate habitat as "critical habitat" under section 4 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*) including whether there are threats to the species from human activity, the degree of which can be expected to increase due to the designation, and whether that increase in threat outweighs the benefit of designation such that the designation of critical habitat may not be prudent.

(5) Specific information on:

(a) The amount and distribution of spikedace and loach minnow habitat;

(b) What areas occupied at the time of listing and containing features essential to the conservation of the species should be included in the designation and why;