

Dated: January 9, 2004.

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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition To List the Midvalley Fairy Shrimp as Endangered

**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 for a petition to list the midvalley fairy shrimp (*Branchinecta mesovallensis*) under the Endangered Species Act of 1973, as amended. After reviewing the available scientific and commercial information, we find that listing is not warranted at this time. We ask the public to submit to us any new information that becomes available concerning the status of or threats to the species. This information will help us monitor and encourage the conservation of this species.

**DATES:** The finding announced in this document was made on January 20, 2004. Although further listing action will not result from this finding, we request that you submit new information concerning the status of or threats to this species whenever it becomes available.

**ADDRESSES:** The complete file for this finding is available for inspection, by appointment, during normal business hours, at the Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2800 Cottage Way, Sacramento, CA 95825-1846. Submit new information, materials, comments, or questions concerning this species to the Service at the above address.

**FOR FURTHER INFORMATION CONTACT:** Glen Tarr or Arnold Roessler, at the Sacramento Fish and Wildlife Office (see **ADDRESSES** section above), by telephone at (916) 414-6600, by facsimile at (916) 414-6712, or by electronic mail at [mvfairyshrimp@fws.gov](mailto:mvfairyshrimp@fws.gov).

#### 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 List of Threatened and Endangered Species that contains substantial scientific and commercial information that listing may be warranted, we make a finding within 12 months of the date of the receipt of the petition on whether the petitioned action is (a) not warranted, or (b) warranted, or (c) warranted but precluded by other pending proposals. Such 12-month findings are to be published promptly in the **Federal Register**.

On August 31, 2001, we received a petition dated August 14, 2001, from the Center for Biological Diversity and VernalPools.Org, requesting us to list the midvalley fairy shrimp as an endangered species. On April 29, 2003, we announced an initial petition finding in the **Federal Register** that the petition presented substantial information to indicate the petitioned action may be warranted (68 FR 22724). In accordance with section 4(b)(3)(A) of the Act, we have now completed a status review of the best available scientific and commercial information on the species, and have reached a determination regarding the petitioned action. This determination meets deadline requirements established by a court-approved consent decree (*Butte Environmental Council v. Wayne White*, Consent Decree, CIV.S-00-797 WBS).

##### Species Information

The midvalley fairy shrimp is a small (0.28 to 0.79 inch (in), (7 to 20 millimeter (mm)) freshwater crustacean found in shallow ephemeral pools (pools that seasonally fill and dry up) near the middle of California's Central Valley (Helm 1998; Eriksen and Belk 1999; Belk and Fugate 2000). It swims on its back by beating its phyllopods, which are legs with leaflike or paddlelike structures. The moving phyllopods also extract oxygen from the water, along with floating bits of food such as phytoplankton and detrital bacterial colonies.

The midvalley fairy shrimp was only recently formally described as a species by Belk and Fugate (2000). Adult males of the species most closely resemble male Conservancy fairy shrimp (*Branchinecta conservatio*), while adult females more closely resemble female vernal pool fairy shrimp (*Branchinecta lynchi*). Distinguishing characteristics include differently shaped second antennae for males, and the absence of a pair of bumps on the third thoracic segments of females (Belk and Fugate 2000). Both of these characteristics can not be confirmed through visual observation in the field.

##### Range and Distribution

Midvalley fairy shrimp have been found in the following California counties: Sacramento, Solano, Contra Costa, San Joaquin, Madera, Merced, Fresno and Yolo (Belk and Fugate 2000; California Natural Diversity Database (CNDDDB) 2003a). The known occurrences of midvalley fairy shrimp are distributed in five different Vernal Pool Regions as described by Keeler-Wolf *et al.* (1998) (Southeastern Sacramento Valley, Livermore, Southern Sierra Foothills, San Joaquin Valley, and the Solano-Colusa Region). Each of these regions is classified as having different or unique vernal pool characteristics. The area encompassed by these regions includes the vernal pool habitats in the San Joaquin Valley, the Sierra Nevada foothills from Yuba County south to Kern County, the Sacramento Valley from Glenn County south to Santa Clara County along the Coast Range. Although the vernal pool grassland complexes which are contained within these regions offer unique or specific environmental conditions for the species inhabiting them, without site specific knowledge of the exact habitat requirements of the midvalley fairy shrimp it would be difficult to rule these areas out as not being habitat available for the species. Midvalley fairy shrimp are distributed within the same vernal pool complexes as other listed vernal pool crustaceans (vernal pool fairy shrimp, vernal pool tadpole shrimp (*Lepidurus packardii*), and conservancy fairy shrimp) and known habitat preferences for midvalley fairy shrimp can be reasonably presumed to fall within the parameters of these listed vernal pool crustaceans.

Since we published our 90-day finding on a petition to list the species in April, 2003 (68 FR 22724), the CNDDDB has documented six new sites (two in Yolo County and 4 in Sacramento County). This brings the total number of known occurrences from 52 to 58. Additional records not recorded in CNDDDB have also been documented as a result of surveys in east Merced County in 2001 and 2002 (K. Fien, *in litt.* 2002, CNDDDB 2002, CNDDDB 2003). The increase of known locations lends additional support to the idea that the range and distribution of midvalley fairy shrimp is greater than the distribution of known occurrences. The two reported occurrences in Yolo County are in an area previously not known to support midvalley fairy shrimp.

With the exception of eastern Merced County, the range and distribution of the midvalley fairy shrimp has been

poorly documented by surveys. Helm's (1998) survey of large branchiopods is the most comprehensive, but the 95 locations surveyed in that study are spread out across the northern counties of the state, leaving many counties within or on the borders of the midvalley fairy shrimp's known range with few or no sampled locations. The known range is primarily based on occurrence data submitted to the CNDDDB, but such data do little to rule out the existence of additional occupied areas (CNDDDB *in litt* 2003). Most potentially occupied sites have yet to be surveyed for the species, and surveys conducted for other vernal pool species can not be relied on to provide midvalley fairy shrimp data to the CNDDDB. The species is difficult to identify, and was not formally described until 2000 (Belk and Fugate 2000). Although survey permits for listed vernal pool species now require biologists to submit any midvalley fairy shrimp data to the CNDDDB, failure to do so would be difficult to detect.

In addition the CNDDDB has yet to incorporate data from certain surveys conducted in eastern Merced County in 2001 and 2002 that specifically looked for midvalley fairy shrimp (among other species) (K. Fien, California Department of Fish and Game (CDFG), *in litt.* 2002). These surveys are among the most comprehensive conducted for the species in the Merced area and produced a great deal of new site data. It is difficult to estimate how many new occurrences the additional surveys sites represent because CNDDDB occurrences combine population locations within about 0.25 miles (mi) (0.40 kilometers (km)) (Darlene McGriff, CNDDDB, pers. comm. 2003), and because some of the additional site data include multiple records at the same location (John Hunter, Restoration Ecologist, Jones and Stokes, pers. comm. 2003). However, visual examination of the new locations using Geographic Information Systems (GIS) software shows a fairly continuous distribution of new sightings running from the proposed UC Merced area to Myer's Ranch, about 6 mi (9.7 km) to the east. New sightings also show up in the area of the Cunningham Ranch, about 10 mi (16 km) east by southeast of the UC Merced site, and also in a relatively small area at the southeast corner of the County about 20 mi (32 km) southeast of the UC Merced site. The total area roughly encompassed by new sightings not yet included in the CNDDDB is approximately 25 square miles (mi<sup>2</sup>) (65 square kilometers (km<sup>2</sup>)) or 15,600 acres (ac) (6,475 hectares (ha)).

The extent which a species is threatened depends on numerous

factors including the species' range and distribution. Vernal pool fairy shrimp species such as midvalley and the other listed *Branchinecta* are cryptic in nature and often require several years of surveying to identify occupied and unoccupied habitat. Also these species (especially the vernal pool fairy shrimp) tend to experience local extirpation and colonization events overtime within and between the vernal pool habitats and complexes in which it is found. As a result, a species may not express itself on a regular basis in every vernal pool or vernal pool complex it is found.

During the process to list the four vernal pool crustaceans, the original distribution and range of the California fairy shrimp (*Linderiella occidentalis*) was believed to be much more restricted than later found after subsequent survey efforts. The California fairy shrimp is subject to the same threats of habitat loss and alteration as the four listed crustaceans, yet due to its range and distribution is more widespread and not under threat of extinction.

Subsequently, the final rule to list excluded the California fairy shrimp and designated the vernal pool fairy shrimp as threatened from endangered (59 FR 48136, September 19, 1994). Similarly the vernal pool clam shrimp (*Cyzicus* sp.) also occurs in vernal pools, is under the same threats as other vernal pool species yet is well distributed and well documented throughout its range and not under threat of extinction. As discussed above, the range and distribution of the midvalley fairy shrimp is not well established due to its recent description as a species and may conceivably be much more extensive than indicated by currently available information.

The vernal pool habitat within Stanislaus and San Joaquin Counties provides specific examples that midvalley fairy shrimp may be more widespread than currently documented (CNDDDB 2003). Both these counties have relatively large tracts of habitat (as discussed below), including rangeland on their eastern margins (University of California 1998) with mapped vernal pool areas containing widely scattered smaller pools and closely packed (high density) pools of varying sizes (Holland 1998). They also include Riverbank geologic formations, as well as other formations shown by surveys in east Merced County to support midvalley fairy shrimp populations (CDMG 1981, CDMG 1991, Vollmar 2002). The current survey protocols for the listed vernal pool crustaceans requires that permittees stop netting vernal pools once a positive identification of a listed species has

been recorded. This would result in portions of a vernal pool complex not being specifically surveyed. Also the frequency of sampling outlined in the protocols may also result in negative detections of midvalley fairy shrimp due to their ability to complete their lifecycle within a short time frame (Service Eriksen and Belk 1999). With the similarity of physical characteristics between midvalley and other *Branchinecta* species it would be difficult at best to identify the species only through visual observation of the pools.

We attempted to address these problems in 2001 by commissioning a rangewide midvalley fairy shrimp survey, but although the survey did find some new populations, the survey was not conducted comprehensively or systematically. Also, most of the sightings found merely served to confirm population sites that were already in the published literature. The survey therefore did little to verify range or distribution limits of the species (Jan Knight, Service, *in litt.* 2002). We are currently funding a new survey to complete this work and are working closely with the contractors to ensure use of a reliable sampling methodology capable of supporting conclusions regarding both absence and presence of midvalley fairy shrimp in surveyed areas.

#### Habitat

Midvalley fairy shrimp live primarily in vernal pools, but occasionally may also be found in vernal swales and other ephemeral wetlands such as roadside puddles (Helm 1998; Belk and Fugate 2000; Vollmar 2002; CNDDDB 2003). Vernal pools are shallow depressions with relatively impermeable soils that pond water during the winter and early spring, dry down during the spring, and are completely dry by the late spring or early summer. Vernal pools support a specific community of plants and animals adapted to such conditions (Keeler-Wolf *et al.* 1998). Vernal swales are similar to vernal pools, but tend to convey surface runoff during wet seasons in shallow, vegetated channels. Vernal swales may interconnect vernal pools to form a matrix of swale and pool features called a vernal pool complex (Helm 1998). The majority of sightings of this species have been in vernal pools. For instance, a survey conducted in the early 1990s for large branchiopods in 27 California counties found 13 midvalley fairy shrimp occurrences in vernal pools (Helm 1998) and one in a vernal swale. A 2002 survey of eastern Merced County found midvalley fairy shrimp in 72 locations,

all of which were vernal pools (Vollmar 2002). A survey in 2000 documented several midvalley fairy shrimp occurrences in vernal pools, roadside drainages, and along a railroad easement (Rogers 2001).

Generally, the species appears to require shallow vernal pools with low to moderate dissolved salts (Eriksen and Belk 1999). Cysts appear to hatch best in cool water (about 10 degrees Celsius (°C) (50 degrees Fahrenheit (°F))), though adults have exhibited a high tolerance for warmer water conditions, and Helm (1998) found one occurrence in water that was 32 °C (90 °F) (Helm 1998; Eriksen and Belk 1999). A comparison of the characteristics of pools used by eight branchiopod species endemic to northern California found that midvalley fairy shrimp used the shallowest pools, both as determined according to average pool depth (4.0 in (10.1 centimeters (cm)) and maximum potential pool depth (5.4 in (13.7 cm)) (Helm 1998). It also used pools with the least potential ponding area (average of 721 square feet (ft<sup>2</sup>) (67 square meters (m<sup>2</sup>)) and total water volume (average of 23,908 cubic feet (ft<sup>3</sup>) (677 cubic meters (m<sup>3</sup>)) of all the endemic branchiopods but one (that one being the Modoc Plateau tadpole shrimp (*Lepidurus sp.*, not yet formally described), which was only found in two pools). Another study in Merced County found midvalley fairy shrimp in even smaller and shallower pools, averaging 5.1 in (13 cm) maximum ponding depth and 229.4 ft<sup>2</sup> (21 m<sup>2</sup>) maximum ponding area (Vollmar 2002).

Known midvalley fairy shrimp occurrences most commonly occur on "Riverbank" geologic formations and on low terrace, basin rim, and volcanic mudflow landforms (Helm 1998; Vollmar 2002). Landforms are surface geomorphic features formed by the deposition of soil and rock through flooding, glacial outwash, and volcanic eruptions (Smith and Verrill 1998). The landform types frequented by midvalley fairy shrimp occur at relatively low elevations with low gradients. Additionally, occurrences in eastern Merced County appear to cluster in areas containing a dense concentration of vernal pools, as mapped by Holland (1998) (CNDDDB 2003; Kristi Fien, CDFG, *in litt.* 2002, as explained by Jennifer Housely, Jones and Stokes, *in litt.* 2003, compiling data from Vollmar 2002, EIP Associates 1999, EIP Associates 2001, and URS 2000). This association is less clear in the northern portion of the species' range, holding fairly well for Solano County, which has a large area of high-density habitat, but less well for Sacramento County, which has several

smaller areas of such habitat at higher elevations. Yolo County has two midvalley fairy shrimp occurrences, but has virtually no high density vernal pool areas at all. Vollmar (2002) found midvalley fairy shrimp on Laguna geological formations, which are more typically found underlying high terrace grasslands (Reiner and Swenson 2000). Additionally, Helm (1998) found about 20 percent of his midvalley fairy shrimp populations on volcanic mudflow landforms underlain by Merhten geologic formations. Valley Springs is another geologic formation typical of volcanic mudflow landforms (Reiner and Swenson 2000), and Vollmar's (2002) study found roughly as many populations on Merhten and Valley Springs formations combined, as on Riverbank.

The apparent tendency of the species to avoid higher elevation terraces may conflict with its tendency to occur in smaller pools. Vollmar's (2002) stratified random survey of rangeland in eastern Merced County found average pool size on higher terraces to be small, shallow, and "seemingly ideal" for the species. Yet midvalley occurrences tended to occur in the smaller pools of the lower terraces, where average pool size was medium to large. Across the state, only three known population locations occur on soils associated with high terrace landforms (USDA 1998; Smith and Verrill 1998; CNDDDB 2003). These occurrences (occurrences 1, 28, and 45 in the CNDDDB) all occur within 2.0 mi (3.2 km) of each other in Sacramento County, and are all within about 0.5 mi (0.8 km) of the mapped edge of such soils.

Generally, all the midvalley fairy shrimp habitat requirements and correlations appear to fall within the range of habitat used by vernal pool fairy shrimp. For instance, midvalley fairy shrimp tend to use small, shallow pools, while vernal pool fairy shrimp can use pools that are either small or medium (Helm 1998). Helm's (1998) study, for example, found midvalley fairy shrimp in pools ranging from 8 to 19 cm (3.1 to 7.5 in) maximum ponding depth, and vernal pool fairy shrimp in pools of 3 to 122 cm (1.2 to 48 in) maximum ponding depth. Similarly, Vollmar's (2002) study in east Merced County found midvalley fairy shrimp in pools from 2 to 9 cm (0.79 to 3.5 in) maximum ponding depth, and vernal pool fairy shrimp in 2 to 16 cm (0.79 to 6.3 in) pools. Vollmar (2002) also found that midvalley fairy shrimp tend to avoid high terrace landforms, but found vernal pool fairy shrimp in both high and low terrace landforms. Vernal pool fairy shrimp in eastern Merced County

were also found on every geographic formation and in every area of the map (within 1 mi (1.6 km)) where midvalley fairy shrimp were found (EIP Associates 2001; Vollmar 2002). In other counties, known midvalley fairy shrimp locations also tend to occur within about a mile of known vernal pool fairy shrimp locations. The six midvalley fairy shrimp occurrences in San Joaquin County are the most serious exceptions to this trend. These occurrences were found in marginal roadside habitat from 5 to 15 mi (8 to 24 km) away from the nearest vernal pool fairy shrimp. Solano County also has four midvalley occurrences at distances of 1.5 to 5 mi (2.4 to 8 km) away from vernal pool fairy shrimp, and there is one such occurrence each in Contra Costa, Sacramento, Fresno, and Madera Counties.

### Reproduction and Growth

As might be expected from a species found in relatively small, potentially quick-drying pools, the midvalley fairy shrimp showed the fastest maturation rate of all the endemic Northern California branchiopods tested (Helm 1998). Interestingly, whereas Helm found that midvalley fairy shrimp could reach maturity (defined as having at least one individual in the population with apparently functioning sexual organs) in as few as 8 days, the average time to maturity was 26.3 days, which was considerably more than the 18.0 days on average required for vernal pool fairy shrimp. Helm relates that the late-season rain that led to the quickest maturation rate was followed by particularly warm weather and eventually resulted in water temperatures of 32 °C (90 °F) in the midvalley fairy shrimp's pool. The midvalley fairy shrimp's ability to mature and reproduce unusually quickly in warm water, while maintaining a maturation rate comparable to other species in cooler water, may allow it to take advantage of late spring or early summer storms without sacrificing its ability to utilize more long-lived ponds that form earlier in the season (Helm 1998). As stated above current survey protocols call for surveys to begin during the winter once the pools fill and stop once a listed species has been found or the pool dries in the spring. The timing and frequency of sampling outlined in the protocols may not be able to detect midvalley fairy shrimp occurrences.

Midvalley fairy shrimp populations survive the seasonal desiccation of their ponds by laying eggs encased in nearly impervious shells. Embryos within these eggs enter a dormant state called

diapause, which in related species can last for decades if necessary, until such time as their pools refill and proper environmental cues allow them to hatch. Dormant eggs are referred to as cysts, and because not all cysts hatch with each refilling of a pool, they can form a cyst bank (similar to a seed bank) in the soil that produces new populations of adult shrimp where none had been seen in years. Since the cysts can pass unharmed through the digestive systems of other animals, and since they are very small (0.012 in (0.27 mm)), they can be transported to new locations by birds or mammals and potentially colonize other vernal pools. Cysts also float after having been dried, so they can be washed to new locations by flooding (Eriksen and Belk 1999). After hatching, the shrimp pass through three stages of growth, called nauplius, metanauplius and juvenile, before becoming adults. These stages differ primarily in the extent to which the thoracic and abdominal segments have developed. For instance, the nauplius lacks thoracic segments and their accompanying phyllopod, and so must use its antenna for locomotion (Eriksen and Belk 1999).

#### Discussion of Listing Factors

Section 4 of the Act (16 U.S.C. 1533) and implementing regulations at 50 CFR part 424 set forth procedures for adding species to the Federal endangered and threatened species list. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to midvalley fairy shrimp are as follows:

##### A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Midvalley fairy shrimp are potentially vulnerable to the same urban and agricultural conversion pressures mentioned in our listing determination for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, and longhorn fairy shrimp (*B. longiantenna*) (Service 1994). Holland (1998) documented average annual losses of vernal pool complexes by county ranging from 0 to over 30,000 ac (12,140 ha) per year, and averaging about 550 ac (223 ha) per year through 1997 in counties known to contain midvalley fairy shrimp. Baseline years for each county ranged from 1985 to 1994, however. If we include only those counties (Sacramento, Solano, Fresno and Contra Costa) whose vernal pool losses can be ascertained from about 1994, which was the year the first 4

vernal pool crustaceans were listed (59 FR 48136, September 19, 1994), the average loss rate drops to 182 ac (74 ha) per year. Although this drop in the rate of habitat loss cannot be specifically attributed to the listing of the four vernal pool crustaceans, the listing and the protections of the Act certainly can be attributed to moderating vernal pool losses.

Of the 58 midvalley fairy shrimp occurrences in the CNDDDB (2003), 23 occurrences (roughly 40 percent) are on protected lands and 14 are in rural areas not currently under threat. In addition, approximately 66 sightings of midvalley fairy shrimp have also been documented as a result of surveys in east Merced County in 2001 and 2002 (K. Fien, *in litt.* 2002, CNDDDB 2002, CNDDDB 2003). Approximately 30 of these sightings are on protected lands and 23 are in rural areas not currently under threat. The remainder is within the proposed UC Merced development area. As discussed in the Range and Distribution section above, it is not clear how many CNDDDB occurrences these sightings will eventually represent; however, after reviewing the point data it is reasonable to assume that a majority of the sites will represent new occurrences and not confirmations of existing CNDDDB records. Taken together, the eastern Merced easement lands, which contain known midvalley fairy shrimp sightings, total approximately 20,750 ac (8,397 ha) (Kristi Fien, *in litt.* 2003). The easements are permanent, will generally be managed by the Nature Conservancy, and cannot be extinguished by selling the land to a new owner (Jeff Single, California Department of Fish and Game, *in litt.* 2003; Service, *in litt.* 2003). They are also currently independent of any additional vernal pool conservation actions to be taken by UC as part of its Conservation Strategy for vernal pool species.

Compared to the vernal pool fairy shrimp and vernal pool tadpole shrimp which consistently occur within the range of midvalley fairy shrimp this proportion of protection of occurrences is far greater than the other listed species. The protected midvalley fairy shrimp lands include two national wildlife refuges, several vernal pool conservation banks, a California Department of Fish and Game ecological reserve, and several Nature Conservancy and CDFG conservation easements. Overall the protected sites include representative locations from four of the five vernal pool regions occupied by midvalley fairy shrimp (*see* Habitat, above) (Keeler-Wolf *et al.* 1998), including five sites in Sacramento County (Southeastern Sacramento

Valley Region), 13 sites in east Merced County (Southern Sierra Foothills Region), one site in central Merced County (San Joaquin Valley Region), and four sites in Solano and Yolo counties (Solano-Colusa Region).

In east Merced County, 13 CNDDDB occurrences are on large land parcels protected by conservation easements. The CDFG purchased the easements specifically to help mitigate any impacts to vernal pool species that might result from construction in the area, particularly construction of the University of California (UC), Merced. The only portion of the proposed UC which has gone through Service review and the section 7 process is the phase 1 of the project. Phase 1 of the project occurred on an area which did not result in take to listed vernal pool species and as a result no take authorization was given for the development. Additional expansion of the UC will require consultation with the Service through section 7 of the Act.

In contrast, we are aware of development plans at various stages of completion for nine sites (15.5 percent). Of these nine, none have finalized plans to remove the known midvalley fairy shrimp habitat, and some are undergoing formal or informal consultation with us under section 7 of the Act for potential effects to listed vernal pool species. An additional 12 sites are located on habitat that has already been largely converted to other uses such as housing developments, vineyards or row crops. These sites generally involve relatively small remnant patches of habitat surrounded by the new land use. Although some of these sites are small, the midvalley fairy shrimp's ability to occupy small shallow pools, and its relative heat tolerance, may allow it to persist under the modified hydrologic patterns of such areas. Freshwater fairy shrimp species such as the midvalley may also be less susceptible to inbreeding effects that can threaten small isolated populations (Fugate 1998).

Based on the information available on specific threats, the amount of land area protected containing midvalley fairy shrimp occurrences either through location on specific vernal pool preserves, wildlife refuges, or through conservation easements we believe that the threats to the known occurrences of midvalley fairy shrimp are not to a level where the species is at risk of becoming extinct through a significant portion of its range. Approximately 64 percent of the CNDDDB occurrences are either protected or are currently not under any identifiable threat (23 protected, 14 not specifically threatened). In addition, a

significant number of sightings in eastern Merced County not included in CNDDDB are also either protected or not currently under threat. These occurrences represent a good cross section of the known range of the species and occupy examples of the various vernal pool habitat types habitat within four of the five vernal pool regions (Keeler-Wolf *et al.* 1998).

#### *B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

The listing petition acknowledges, and we agree, that current data do not indicate that these factors constitute a threat to the midvalley fairy shrimp at this time.

#### *C. Disease or Predation*

The listing petition acknowledges, and we agree, that current data do not indicate that these factors constitute a threat to the midvalley fairy shrimp at this time.

#### *D. The Inadequacy of Existing Regulatory Mechanisms*

The primary cause for the decline of vernal pool species is loss of habitat due to human activities. State and Federal laws exist that provide some protection to the midvalley fairy shrimp. Existing regulatory mechanisms that could provide some protection for the midvalley fairy shrimp include: (1) Section 404 of the Federal Clean Water Act; (2) occurrence with other species protected by the Federal Endangered Species Act; (3) consideration under the California Environmental Quality Act (CEQA) and other State regulations; and (4) local laws and regulations.

#### **Federal**

*Clean Water Act (CWA):* The Clean Water Act (33 U.S.C. 1251 *et. seq.*) prohibits the discharge of pollutants into "navigable waters," which it defines as "the waters of the United States" (33 U.S.C. 1311, 1362). Section 404 of the CWA (33 U.S.C. 1344) provides an exception to this general prohibition by authorizing the U.S. Army Corps of Engineers (Corps) to issue permits for the discharge of dredge or fill material. Regulations issued by the Corps define the term "waters of the United States" to include "wetlands \* \* \* the use, degradation or destruction of which could affect interstate or foreign commerce" (33 CFR 328.3). Under this authority, the Corps has regulated the discharge of fill material into vernal pools, except for discharges specifically exempted by the CWA, such as those resulting from "normal farming, silvicultural and

ranching activities" (33 U.S.C. 1344(f)(1)(A)). The CWA requires project proponents to obtain a permit from the Corps prior to undertaking many activities (*e.g.*, grading, discharge of soil or other fill material) that would result in the filling of wetlands subject to the Corps' jurisdiction. However, in light of a recent Supreme Court decision (*Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* No. 99-1178, 2001 (SWANCC)), the Corps' Sacramento District Office, which administers the section 404 permit process across the known range of the midvalley fairy shrimp, no longer requires section 404 permits for filling in vernal pools unless those pools are connected at some time by overland flow to navigable waters or their tributaries. The district office is determining which pools will require permits on a case-by-case basis, and estimates that "most" of the vernal pools in the district will remain subject to section 404 regulations (Nancy Haley, Corps Sacramento District Office, pers. comm. 2003).

For pools and discharges requiring permits, the section 404 process provides three levels of review. Projects involving fill of more than 0.5 ac (0.2 ha), or which may affect listed species or otherwise have more than a minimal adverse effect on the environment, require individual permits. The Corps issues such permits on a case-by-case basis according to guidelines established at 40 CFR part 230. Guidelines particularly applicable to vernal pool protection include requirements that: (1) No practicable alternatives exist with less environmental impact; (2) the project comply with the Endangered Species Act; (3) the project not contribute to significant water quality degradation as measured by impacts to (among other things) wildlife health and ecosystem diversity; and (4) appropriate and practicable steps be taken to minimize adverse impacts. Such appropriate and practicable steps may include the creation and protection of vernal pools in mitigation banks (60 FR 58605, July 31, 1998).

Smaller projects with minimal adverse effects may be issued a general permit. Such permits contain standardized provisions for particular types of projects within a particular region or across the nation. The general permits most applicable to midvalley fairy shrimp are nationwide permits (NWP) 39 and 40, which authorize discharges due to development and to nonexempted agricultural activities respectively (67 FR 2019, January 15, 2002). General permits are the most

common type issued, and require less review by the Corps than individual permits (Ruffolo 2002). Provisions in both NWP 39 and 40 also provide for the lowest level of review, under which wetlands of up to 0.1 ac (0.04 ha) may be filled without prior notification to the Corps if other requirements of the permit are met.

Available information indicates the section 404 permit process in some cases may be relatively effective at protecting wetlands under its jurisdiction (Ruffolo 2002). Such information, however, does not account for projects that do not come under permit review, such as vernal pool fill associated with normal farming or ranching practices. The tendency for midvalley fairy shrimp to occur on Riverbank formations and other low terrace land forms would subject the species and its habitat to a high degree of agricultural development pressure. In reviewing the information on habitat preferences for midvalley fairy shrimp for shallow vernal pool habitats and the fact that some of the occurrences are already isolated due to habitat fragmentation it is questionable that the Corps would take jurisdiction over the pools inhabited by midvalley fairy shrimp.

Considering the potential continued trend of vernal pool losses throughout the state and the questions raised regarding jurisdiction over vernal pools, it is possible that the regulatory mechanisms provided under the CWA may provide some minimal protection to the midvalley fairy shrimp.

#### **Endangered Species Act**

The Act will afford incidental protection to midvalley fairy shrimp where they co-exist with species already listed as threatened or endangered. Fleshy owl's-clover (*Castilleja campestris* ssp. *succulenta*), Solano grass (*Tuctoria mucronata*), Colusa grass (*Neostafia colusana*), Conservancy fairy shrimp, vernal pool tadpole shrimp, and vernal pool fairy shrimp, are listed as threatened or endangered under the Act and occur in some of the same habitat as the midvalley fairy shrimp. Consequently, prospective developers requiring a Federal permit (such as a permit to fill vernal pools under section 404 of the CWA, 33 U.S.C. 1344 *et seq.*) would already be required to survey for listed species prior to developing midvalley fairy shrimp pools in those quadrangles. This could lead to consultation requirements prior to destruction or modification of midvalley fairy shrimp pools, if those pools or their associated complexes also support occurrences of listed shrimp. When

considering the occupancy of vernal pool grasslands with listed vernal pool crustaceans we evaluate the biological and physical factors associated with the vernal pool wetland. Factors such as proximity to adjacent vernal pools, watersheds, hydrology, number of occurrences, connectivity with other vernal pools, wetland swales, and extent of the associated uplands are evaluated. As a result of this evaluation occupancy is usually considered within the complex and not isolated to an individual pool. This distribution occurs because different areas of the cyst bank hatch at different times in response to local conditions (59 FR 48136, September 19, 1994; Eriksen and Belk 1999). However, none of these species except the vernal pool fairy shrimp have been found to co-occur with midvalley fairy shrimp in the same vernal pools (Eriksen and Belk 1999) and this observation is believed to be a result of overland flow in a heavy precipitation event and not as a result of overlapping habitat requirements. Biological surveys are often inadequate and project proponents may miss detection of midvalley fairy shrimp due to its ability to occur in shallow pools which are inundated for short periods. In instances where coexistence of listed species and midvalley fairy shrimp are documented in the same complex, there may be incidental protection although there is no consultation requirement to avoid take or minimize effects of the action on the midvalley fairy shrimp.

#### State

California Environmental Quality Act (CEQA): The California Environmental Quality Act (Public Resources Code Sec. 21000–21177) requires a full disclosure of potential environmental impacts of proposed projects and offers broad opportunities to protect rare, threatened, endangered plants or animals and their habitats. Federally listed animals are considered rare, threatened, or endangered for purposes of CEQA (14 CCR 15380), which means that habitat protections taken under CEQA for the vernal pool fairy shrimp may also benefit the midvalley fairy shrimp in the same manner as discussed above with regard to the Act. In addition CEQA protects the environment more generally and broadly than the Endangered Species Act and mitigates all impacts to the environment. Protection of habitat under CEQA does not require the species be listed under the Endangered Species Act.

The public agency with primary authority or jurisdiction over a proposed project is designated as the lead agency and is responsible for conducting a

review of the project and consulting with other agencies concerned with the resources affected by the project. Section 15065 of the CEQA guidelines requires a finding of significance if a project has the potential to “reduce the number or restrict the range of a rare or endangered plant or animal.” Once significant effects are identified, the lead agency may either require changes in the project to mitigate the effects, or else in rare instances may decide that overriding social or economic considerations make mitigation infeasible. Projects approved under the latter circumstances are still required to mitigate. However, as a result without the fail safe of a jeopardy prohibition, projects may be approved that cause environmental damage, such as the destruction of rare species or their habitats. Protection of listed or rare species through CEQA is, therefore, dependent upon the discretion of the agency involved and available mitigation with no absolute protection. CEQA will therefore contribute to the protection of midvalley fairy shrimp habitat, but there may be instances where “overriding considerations” result in destruction, albeit mitigated, of midvalley fairy shrimp habitat.

The California Department of Fish and Game (CDFG) is the agency responsible for managing and regulating fish and wildlife resources in California. CDFG’s mission is to manage California’s diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFG has no officially adopted regulations or statutes pertaining to wetlands. However, Fish and Game Code § 1601 and § 1603 charge CDFG with executing Streambed Alteration Agreements. As a designated Trustee and/or Responsible Agency under CEQA § 15386 and § 15381, CDFG reviews and comments on documents produced by the lead agencies. These regulations only apply to streams and stream corridors and are not mechanisms which would protect upland areas and vernal pool grasslands.

#### Local

We are not aware of any specific county or city ordinances or regulations that provide protection for the midvalley fairy shrimp.

Based on the current level of protections afforded wetland habitats through the CEQA, CWA and the ESA, we believe that the existing regulatory mechanisms provide some protection of the midvalley fairy shrimp. However, the protections of the ESA are only

coincidental and the CWA and CEQA while protecting some vernal pool habitat do not necessarily protect all of it.

#### *E. Other Natural or Manmade Factors Affecting Its Continued Existence*

We are not aware of any other factors that constitute a threat to the midvalley fairy shrimp at this time.

#### Petition Finding

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species. We reviewed the petition, information available in our files, other published and unpublished information, and comments submitted to us during the public comment period following our 90-day petition finding, and we consulted with recognized vernal pool crustacean experts and other resource agencies. On the basis of the best scientific and commercial information available, we find that the proposal to list the midvalley fairy shrimp is not warranted at this time. Although vernal pool habitat continues to be lost in parts of the midvalley fairy shrimp’s range, from what we know of the current range and distribution of the species, it is well represented by occurrences on protected lands and with occurrences in areas with little or no current threat. Additionally, although several development projects and land use changes are affecting known occurrences, their effects are being mitigated and we are not aware of any occurrences likely to be extirpated in the near future due to habitat loss. While the existing regulatory mechanisms under CEQA, the CWA, and the ESA do not ensure protection of midvalley fairy shrimp, they are likely to moderate the rate and extent of habitat loss for midvalley fairy shrimp through their direct application and as an indirect benefit of conservation efforts undertaken for the other listed vernal pool crustaceans. As a result of these factors we find that the species is not in danger of extinction in the foreseeable future.

We will continue to monitor the status of the species, and to accept additional information and comments from all concerned governmental agencies, the scientific community, industry, or any other interested party concerning this finding.

#### References

A complete list of references used in the preparation of this finding is available upon request from the

Sacramento Fish and Wildlife Office  
(see ADDRESSES section).

#### Author

The primary author of this document is the Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service (see ADDRESSES section).

#### Authority

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

Dated: January 20, 2004.

**Marshall P. Jones Jr.,**

*Director, Fish and Wildlife Service.*

[FR Doc. 04-1510 Filed 1-23-04; 8:45 am]

BILLING CODE 4310-55-P

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### Draft Revised Recovery Plan for the Paiute Cutthroat Trout (*Oncorhynchus clarki seleniris*)

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

**ACTION:** Notice of document availability for review and comment.

**SUMMARY:** The U.S. Fish and Wildlife Service ("we") announces the availability of the Draft Revised Recovery Plan for the Paiute Cutthroat Trout (*Oncorhynchus clarki seleniris*) for public review. This draft plan includes specific recovery criteria and measures to be taken in order to delist the Paiute cutthroat trout.

**DATES:** Comments on the draft revised recovery plan must be received on or before March 26, 2004, to receive our consideration.

**ADDRESSES:** Copies of the draft revised recovery plan are available for inspection, by appointment, during normal business hours at the following location: U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, 1340 Financial Boulevard, Suite 234, Reno, Nevada (telephone (775) 861-6300). Requests for copies of the draft revised recovery plan and written comments and materials regarding this plan should be addressed to Robert D. Williams, Field Supervisor, at the above Reno address. An electronic copy of the draft revised recovery plan is also available at: <http://endangered.fws.gov/recovery/index.html#plans>.

**FOR FURTHER INFORMATION CONTACT:**  
Chad Mellison, Fish and Wildlife Biologist, at the above Reno address.

#### SUPPLEMENTARY INFORMATION:

##### Background

Recovery of endangered or threatened animals and plants is a primary goal of our endangered species program and the Endangered Species Act (Act) (16 U.S.C. 1531 *et seq.*). Recovery means improvement of the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act. Recovery plans describe actions considered necessary for the conservation of the species, establish criteria for downlisting or delisting listed species, and estimate time and cost for implementing the measures needed for recovery.

The Act requires the development of recovery plans for listed species unless such a plan would not promote the conservation of a particular species. Section 4(f) of the Act requires that public notice and an opportunity for public review and comment be provided during recovery plan development. We will consider all information presented during the public comment period prior to approval of each new or revised recovery plan. Comments may result in changes to the plan. Comments regarding recovery plan implementation will be forwarded to appropriate Federal or other entities so that they can take these comments into account during the course of implementing recovery actions. Individual responses to comments will not be provided.

The Paiute cutthroat trout is native to Silver King Creek in the East Fork Carson River drainage of east-central California, Humboldt-Toiyabe National Forest, Alpine County, California. Hybridization with non-native salmonids is the primary threat to the species.

The original recovery plan for the Paiute cutthroat trout was published in 1985. The objectives of the 1985 recovery plan were to reestablish a pure population of Paiute cutthroat trout in Silver King Creek above Llewellyn Falls, and secure and maintain the integrity of the occupied habitats in Silver King Creek, North Fork Cottonwood Creek, and Stairway Creek, all which occur outside of the presumed historic habitat. This revised plan incorporates recent research data and addresses the species' current status, threats, distribution, and recovery needs. It also addresses the effects of recovery actions on the

mountain yellow-legged frog (*Rana muscosa*) and the Yosemite toad (*Bufo canorus*), which occur within the Silver King Creek drainage as well as in the vicinity of the out-of-basin population sites. This plan identifies actions to maintain ecosystem integrity as well as to recover the listed species.

The draft revised recovery plan includes conservation measures designed to ensure that self-sustaining populations of Paiute cutthroat trout will once again occupy its historic range. Specific recovery actions focus on removing non-native salmonids and establishing a viable population in its historic range. The plan also identifies the need to protect pure populations which exist outside of the historic range. The ultimate goal of this plan is to delist the Paiute cutthroat trout by implementing a variety of measures to attain the following criteria: (1) All non-native salmonids are removed in Silver King Creek and its tributaries downstream of Llewellyn Falls to fish barriers in Silver King Canyon; (2) a viable population of Paiute cutthroat trout occupies all historic habitat in Silver King Creek and its tributaries downstream of Llewellyn Falls to fish barriers in Silver King Canyon; (3) Paiute cutthroat trout habitat is maintained in all occupied streams; (4) the refuge populations in Corral and Coyote Creeks, Silver King Creek and tributaries above Llewellyn Falls, as well as out-of-basin populations are maintained as refugia and are secured from the introduction of other salmonid species; and (5) develop a long-term conservation plan and conservation agreement which will be the guiding management documents once Paiute cutthroat trout are delisted.

#### Public Comments Solicited

We solicit written comments on the draft revised recovery plan described. All comments received by the date specified above will be considered in developing a final revised recovery plan.

#### Authority

The authority for this action is section 4(f) of the Endangered Species Act, 16 U.S.C. 1533(f).

Dated: November 24, 2003.

**Steve Thompson,**

*Manager, California/Nevada Operations Office, Region 1, U.S. Fish and Wildlife Service.*

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