



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
Carlsbad Fish and Wildlife Office  
2177 Salk Avenue, Suite 250  
Carlsbad, California 92008



In Reply Refer To:  
FWS-OR-13B0443-14TA0229

JUL 24 2014

Mr. Baltazar Mejia  
Senior Engineer, Public Services Department  
City of Costa Mesa  
77 Fair Drive  
Costa Mesa, California 92626

Subject: Restoration, Management, and Protection of Vernal Pools within Fairview Park, City of Costa Mesa, Orange County, California

Dear Mr. Mejia:

This letter has been prepared by the U.S. Fish and Wildlife Service (Service) to provide the City of Costa Mesa (City) with information on the actions needed to restore, protect, and manage vernal pool habitat and associated species within the City at Fairview Park, Orange County, California. This information is provided in response to: (1) the installation of a path in Fairview Park that was routed within and adjacent to vernal pools occupied by the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*), (2) your written request received September 4, 2013, for our review of restoration alternatives for vernal pools impacted by the installation of the path (LSA 2013), and (3) recommendations provided by Finium Environmental (2013) following removal of the path. Although the City's primary focus is on restoration of vernal pools impacted by the path, this letter includes actions the Service considers necessary to protect all vernal pool habitat and associated species within Fairview Park. This letter addresses future actions the City may take; it does not address or resolve issues relating to past actions, including the path construction, or the "take"<sup>1</sup> of listed species associated with those past actions. This letter does not constitute authorization for future "take" of listed species.

### Background

San Diego fairy shrimp were first identified in Fairview Park in 1994 (Michael Brandman Associates 1995), 3 years prior to the Federal listing of the species (62 FR 4933). Seven vernal pool basins (numbered 1 through 7) and a "vernal marsh" were delineated in 1995 (Michael Brandman and Associates 1995) (Figure 1). San Diego fairy shrimp have since been identified in all but Basin 7

<sup>1</sup> Section 9 of the Endangered Species Act and associated regulations prohibit the take of endangered and threatened species without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Harm is further defined by the Fish and Wildlife Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering.

(City 2008, Appendix C, Simovich 2005). Three additional vernal pools were observed in Fairview Park, east of Placentia Avenue in 2002 (Glenn Lukos 2002 in LSA 2007). To our knowledge, no surveys for fairy shrimp have been completed in these pools.



Figure 1. Location of vernal pool basins at Fairview Park.

Source: Michael Brandman Associated (1995) and Fairview Master Plan (November 2002 revision). Pool basins relabeled for clarity.

Restoration projects to improve the quality of habitat for San Diego fairy shrimp and sensitive plant species were completed in Fairview Park as mitigation for impacts to U.S. Army Corps of Engineers jurisdictional waters of the United States (Michael Brandman Associates 2002; Glenn Lukos Associates 2006). As a result of these projects, Basins 1, 2, and 3 were combined (Restored Basin 1), and Basin 4 and the “vernal marsh” were restored into a vernal pool complex (Restored Complex 4).

In above average rainfall years, it is likely that the watersheds of Restored Basin 1 and Restored Complex 4 are connected across the path that artificially separates the watersheds (Figure 2). It is also likely that Basins 5, 6, and 7 are part of a vernal pool complex with a shared hydrological connection during high rainfall years. Monitoring during previous restoration efforts identified the connection between Basins 5 and 6 (Michael Brandman Associates 2002), and the boundary between the watersheds of Basin 5 and 7 was coincident with a row of logs that have since been removed (Finium Environmental 2013).



Figure 2. Vernal pools in Fairview Park during an above average rainfall year (facing south). Paths bisect the basins in several locations, and the fencing is in the water.

Photo source: <http://www.savefairviewpark.org/documents/fpcac-pack-5-29-13.zip>. Labels added.

Fairview Park supports one of the last coastal terrace vernal pools complexes in Orange County (Service 2007). Conservation and management of the San Diego fairy shrimp and its habitat in Fairview Park and other vernal pool complexes in the Los Angeles Basin-Orange Management Area is one of the criteria identified for recovery of the San Diego fairy shrimp in the Service's Recovery Plan for Vernal Pools of Southern California (Service 1998). Vernal pools in Fairview Park also support several plant species that are locally rare (City 2008; Chung 2010).

In the past, the City has supported restoration of the vernal pools and other sensitive habitat in Fairview Park, and the Fairview Park Master Plan (City 2008) includes a commitment that “the pools and basins [in Fairview Park] are to be retained, restored, and protected.” Specific actions in the plan anticipated to benefit the San Diego fairy shrimp include, but are not limited to: (1) restoration of vernal pool habitat; (2) development of a formalized path system to avoid sensitive areas to the extent feasible; (3) installation of educational signage and observation platforms in the vernal pool restoration area; (4) installation of fencing to protect the vernal pools; and (5) cessation of mowing within the vernal pools or, if necessary, mowing only late in the season after annual forbs and grasses have set seed.

We agree that the general measures identified in the Master Plan are appropriate to maintain the vernal pools. We are concerned, however, that some measures have not been implemented and others have been implemented in ways that may have impacted the San Diego fairy shrimp. More specific details are needed to ensure that the San Diego fairy shrimp and its habitat are protected. Activities that may have impacted or have the potential to impact the San Diego fairy shrimp and its habitat at Fairview Park include the following:

Installation of paths and parking areas: A path was installed in late 2013 that may have resulted in direct and indirect impacts to San Diego fairy shrimp, as described in our letter, dated November 14, 2013 (13B0443-14TA0039). While the path has been removed, grading associated with path installation altered the hydrology of the watershed supporting Basins 5 and 6 so that water may not pond to the extent it did historically (Finium Environmental 2013). As a result, fairy shrimp cysts may not hatch to their historical capacities until changes in topography are corrected (Finium Environmental 2013). The portion of the watershed supporting Basin 7 (including the basin area) has been used as a temporary parking area, and logs were placed in the watershed to delineate the parking boundary. A portion of the watershed of Restored Complex 4 was impacted by the installation of permanent parking along Canyon Drive. Grading for the parking area changed the topography so that water now ponds in the parking area (Figure 2).

Improvements to Estancia High School Stadium: The installation of fencing and a field events area impacted a significant portion of the watershed area supporting Basin 6 and altered the hydrology by re-grading the site. The changes in topography may limit the potential for the City to restore the basin within the boundaries of Fairview Park.

Pedestrians, dogs, and bicycles: While substantial resources have been focused on restoring and protecting Restored Basin 1, the unfenced northern end has informal paths leading directly into the basin and allowing bicycle access. Bicycle tracks and paths encroach within the northern end of the basin. Because the fencing was installed only around the restored basin area, the paths leading to the boardwalk are within the watershed of the basin. In January 2011 (an above average rainfall year), it was apparent that several paths and the fence are located in the basin (Figure 2). Restored Complex 4 has multiple paths running through it and shows signs of frequent use by dogs.

Operation of motorized vehicles during the wet season: In Restored Complex 4, deep tire tracks are evident due to motorized vehicle encroachment when the basins were inundated. The deep tracks may have altered the hydrology of the basins by causing water to pool first in the tracks, potentially concentrating fairy shrimp cysts within smaller portions of each basin.

Installation of landscaping and associated irrigation systems: Ornamental landscaping and turf areas border Basins 5 and 6 to the north, south, and east. Irrigation systems installed to support the landscaping are contributing to conversion of the vegetation communities within the watershed where water is now available throughout the year. The perennial water source is supporting wetland species such as mulefat (*Baccharis salicifolia*), curly dock (*Rumex crispus*), and sedges (*Cyperus* sp.) (Finium Environmental 2013). The conversion of the vernal pool habitat to wetland can result in the permanent loss of habitat for San Diego fairy shrimp.

Mowing and pesticide and herbicide application: We have little information regarding the current timing and location of mowing activities or the application of pesticides and herbicides, but these activities have the potential to impact San Diego fairy shrimp and their habitat. Mowing equipment can crush cysts, spread invasive plant species, and cause ruts if mowing is conducted when the ground is damp. Pesticides and herbicides could potentially harm San Diego fairy shrimp cysts and adults.

### **Restoration, protection, and management of vernal pools in Fairview Park**

While accommodating public uses within Fairview Park, it is the City's responsibility to ensure that its actions comply with the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). In consideration of the degraded condition and management needs of the vernal pool habitat within Fairview Park, implementation by the City of the following measures would help ensure that the San Diego fairy shrimp population within the coastal terrace vernal pools at Fairview Park remains viable. Some of these restoration actions can be implemented immediately without further authorization under the Act, but others have the potential to result in take of listed species for which additional authorization under the Act would be required. To ensure that the City's future actions are appropriately authorized under the Act, we recommend that the City coordinate closely with our office to ensure that any incidental take associated with these actions is appropriately exempted under the Act. As indicated above, this letter does not exempt future take of listed species.

The following measures apply to Restored Basin 1, Restored Complex 4, and the vernal pool complex consisting of Basins 5, 6, and 7.

1. Watershed Restoration – Prepare and implement a restoration plan to address damages to the hydrological function of the vernal pool watersheds. The plan should be prepared by a biologist with a minimum of 5 years of experience restoring vernal pools in southern California and should identify actions that are necessary to restore hydrological function to the vernal pools. The plan should be reviewed and approved by the Service prior to implementation. Measures that should be included in the restoration plan include, but are not limited to:
  - a. Corrections to the watershed topography, as necessary, to ensure the basins will pond for a sufficient duration during an average rainfall year to support the life history of the San Diego fairy shrimp.
  - b. Management of the irrigation systems to prevent runoff from entering the watershed of Basins 5, 6, and 7. The City should coordinate with Newport-Mesa Unified School

District to ensure irrigation supporting landscaping at Estancia High School Stadium does not enter Fairview Park. We are available to assist the City with this coordination, as necessary.

- c. Removal of landscaping, turf, and non-vernal pool associated wetland plants (e.g., mulefat, curly dock) that were supported by irrigation systems in the watersheds and replacement with appropriate native vegetation.
  - d. Removal of non-native plant species (e.g., annual grasslands and mustards) if needed to re-establish hydrological function.
  - e. Restoration of native vegetation around the vernal pool basins and along informal and unauthorized paths, as appropriate (e.g., outside the basin area).
  - f. Removal of trash or other debris from the vernal pool watershed.
2. Permanent Protection – Record a conservation easement over the vernal pool basins and watersheds. Consistent with the Fairview Park Master Plan, the conservation easement should provide for the protection of the San Diego fairy shrimp and its habitat while allowing appropriate public access and enjoyment of the park.
  3. Fencing and Paths – The Service generally recommends fencing a sufficiently large habitat buffer (i.e., at least 100 feet from the outer edge of the watershed in most cases) to reduce encroachment by pedestrians and off-road vehicles, trash accumulation and dumping, and other indirect effects of development (Service 2008). A large buffer is necessary to account for natural changes in the basin dimensions over time in response to varying hydrological conditions and to prevent alterations to the watershed that could impact the duration and extent of ponding. To ensure the watersheds in Fairview Park are protected, the fencing should limit entry to the majority of the watershed area. Pets should be kept on leash in the park to prevent entry into fenced areas. Formal paths that will pass through the watershed of vernal pools should be placed on boardwalks, above the water surface elevation of the basins, to minimize changes in hydrology and the introduction of contaminants into the basins. Suggested locations for fencing are provided for discussion purposes (Figure 3).
  4. Public Education – The Service would like to partner with the City to develop educational materials and signs that can highlight the importance of biological resources in Fairview Park. The preservation of remaining coastal terrace pools in the City of Costa Mesa should be considered a source of pride for the City and its citizens. Educational signs, located along primary access routes (e.g., Figure 3), can help to enhance and contribute to the public’s use and enjoyment of the vernal pool area. A “nature path” with stopping points where users can learn more about vernal pools and the plants and animals they support can highlight species that are not readily seen and can maintain a public awareness of the rarity of these biological resources for generations to come.



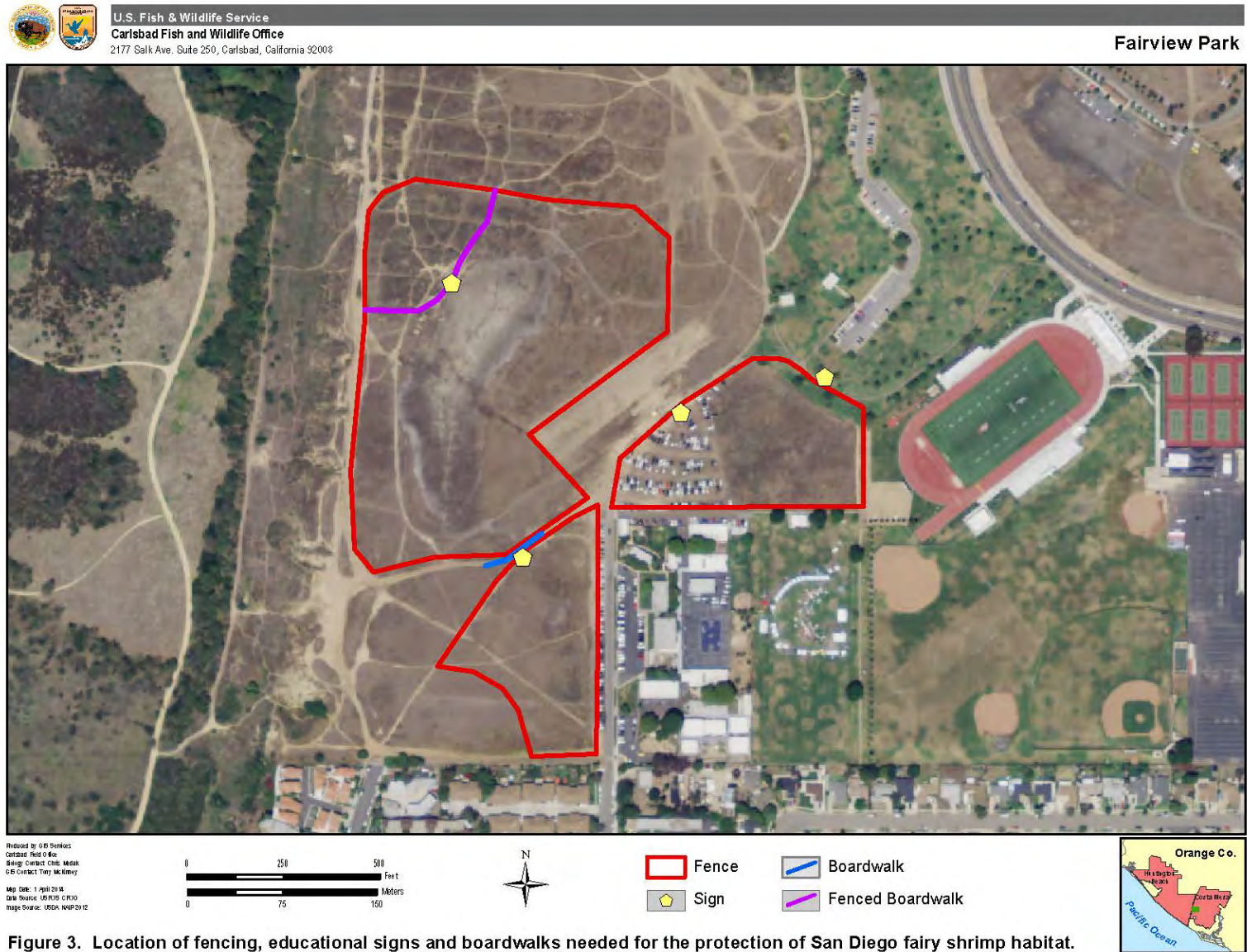


Figure 3. Location of fencing, educational signs and boardwalks needed for the protection of San Diego fairy shrimp habitat.

5. Trash – Provide trash receptacles and pet waste stations in convenient locations to minimize the potential for trash to be discarded in the vernal pool watersheds.
6. Mowing, Weed Control, and Pesticide Use – Mowing should be conducted outside the limits of the vernal pool basins to avoid direct impacts to San Diego fairy shrimp. In addition, we recommend that mowing be restricted within approximately 50 feet of the basin area to avoid restored habitat and sensitive plant species surrounding the basin area. The mowing limits should be periodically reevaluated to compensate for changes in the size and location of the basin area and corresponding zone of sensitive plant species. Please coordinate with the Service regarding use of pesticides and herbicides within the vernal pool watersheds to ensure chemicals harmful to San Diego fairy shrimp are avoided.
7. Employee Education – Provide an on-site education program for current and new employees of the City that will have assigned duties in Fairview Park to review sensitive biological resource areas and the City's responsibilities for management of these areas.
8. Patrol – Include as part of regular patrol duties, inspection of the fencing surrounding the watersheds and reporting of any damage to the fences or signs of encroachment within the fenced boundary.
9. Biological Monitoring – Regular biological monitoring is necessary to determine the efficacy of management measures to preserve and protect the San Diego fairy shrimp. Biological monitoring should include:
  - a. Annual watershed inspection – A biologist who has experience with San Diego fairy shrimp and its habitat should prepare a brief summary of the status of the habitat and a list of any additional management actions needed to protect and/or restore damages to the habitat.
  - b. Surveys for fairy shrimp – The City should conduct periodic surveys once every 5 years when there is sufficient rainfall to document the status of the San Diego fairy shrimp in each of the pools in Fairview Park.
10. Adaptive Management – Review the effectiveness of management actions annually to determine if additional measures are needed to protect San Diego fairy shrimp from harm. Cable wire fencing is proposed in the Fairview Park Master Plan to protect the pool basins. If this type of fencing is not adequate to prevent the public from regularly entering the basin areas, additional fencing or a different type of fencing may be required. If the degradation of the pools has already impacted the viability of the San Diego fairy shrimp, additional inoculation of the pools with cysts may be necessary.

Three additional vernal pool areas, located east of Placentia Avenue, require additional surveys to determine if San Diego fairy shrimp and/or sensitive vernal plant species are present. We recommend the City delineate the watershed of the three pools in the near future and avoid impacts to the watershed areas until protocol surveys (Service 1996) can be completed. Positive survey results may require changes in management actions to address



San Diego fairy shrimp. The City should coordinate adaptive management with the Service prior to implementation.

11. Fairview Park Master Plan Update – Include in an update to the Fairview Park Master Plan specific and ongoing management actions that will be implemented to ensure high quality habitat for San Diego fairy shrimp is maintained and that the species is protected.

These are the measures that are needed to protect San Diego fairy shrimp and their habitat in Fairview Park and are not intended to offset the damage caused by path construction. Issues relating to take that may have been caused by path construction remain under investigation by the Service at this time and will be addressed separately in the future.

We look forward to meeting with the City to further refine the details and timing of restoration, protection, and management actions. Should you have any questions regarding this letter, please contact Christine Medak of this office at 760-431-9440, extension 298.

Sincerely,



Karen A. Goebel  
Assistant Field Supervisor

cc:

Marilyn Fluharty, California Department of Fish and Wildlife

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Mr. Baltazar Mejia (FWS-OR-13B0443-14TA0229)

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