

U.S. FISH AND WILDLIFE SERVICE - SPOTLIGHT SPECIES ACTION PLAN
2010-2014

Common Name: Antioch Dunes evening-primrose

Scientific Name: *Oenothera deltoides* ssp. *howellii*

Lead Region: Pacific Southwest Region - 8

Lead Field Office: Sacramento Fish and Wildlife Office

Species Information:

Status: Endangered, 43 FR 17910

Recovery Priority Number or Listing Priority Number: RPN 3

Recovery Plan or Candidate Assessment Form: Revised Recovery Plan for Three Endangered Species Endemic to Antioch Dunes, California, April 25, 1984

Most Recent 5-year Review: July 10, 2008

Other: N/A

Threats identified in listing rule and subsequently:

1. Factor A
 - a. Alteration of habitat from industrial and agricultural development (no longer considered a serious threat)
 - i. sand mining
 - ii. conversion to vineyards
 - iii. disking soil for maintenance
 - b. Habitat alteration and loss due to non-native plant invasion
 - i. Artificial dune stabilization and elimination of disturbance regime and suitable habitat
 - c. Recreation and pedestrian traffic (these are no longer considered serious threats)
 - i. Trampling due to heavy foot traffic
 - ii. Off-road vehicle use
2. Factor B – no current threats
3. Factor C (these are no longer considered serious threats)
 - a. Infestation by small mirid bugs (family Miridae of the insect order Hemiptera)
 - b. Predation by the chrysomelid beetle in the genus *Altica* commonly called the flea beetle (family Chrysomelidae in the insect order Coleoptera).
4. Factor D – no current threats

5. Factor E
 - a. Extirpation due to low population numbers
 - i. Stochastic demographic extinction
 - ii. Loss of genetic variability
 - b. Extirpation due to a single catastrophic event (although a small population of the Antioch Dunes evening-primrose also exists at Brannan Island and a purported population may exist at Brown Island)
 - c. Gypsum dust may adversely build up on plants and decrease photosynthesis and potentially change soil composition (not currently considered a significant threat)
 - d. Inadvertent wildfire set by trespassers
 - e. Herbicide use associated with control of non-native plants

Target: Species extinction prevented. The Antioch Dunes evening-primrose has a very limited distribution and critically low population numbers. Through the recovery actions described here we intend to ameliorate the effects of limited range and population numbers and prevent the extinction of this species.

Measure: The following measures are intended to address specific threats

1. Ameliorate Factor A threat of habitat alteration and loss through expansion and enhancement of available habitat
2. Ameliorate Factor E threat of low population numbers through out-planting

Actions: These actions are described in the 2008 5-year Review.

1. Deliver 100 truckloads of sand of a suitable grade to the Antioch Dunes NWR that will replace the sand lost during past mining operations and expand available dune habitat. This action addresses the following threats:
 - a. Factor A:
 - i. Historic loss and alteration of habitat due to industrial and agricultural development
 - b. Factor E:
 - i. reduce the risk of stochastic loss, loss of genetic diversity, and decrease impact of density dependent effects by increasing population numbers
2. Eradicate invasive plants and out-plant nursery stocks of seedlings of the primrose and other rare plants with annual plantings on 40 acres. This action addresses the following threats:
 - a. Factor A:
 - i. Habitat alteration and loss due to non-native plant invasion
 - b. Factor E:
 - i. Decrease in thatch will reduce risk of wildfire
 - ii. Decreasing risk of wildfire will reduce risk of loss to catastrophic events

3. Nursery propagation of 500 Antioch Dunes evening-primrose plants to safeguard against extinction of the natural population and augment existing population numbers. This action addresses the following threats:
 - a. Factor E:
 - i. Increasing population numbers will reduce the risk of stochastic loss, loss of genetic diversity, and decrease impact of density dependent effects
 - ii. Housing a portion of the population off-site will reduce the risk of extinction to a single catastrophic event

Identify responsible parties:

1. Role of other agencies: Continued funding will be sought through the U.S. Bureau of Reclamation's Central Valley Project Conservation Plan grant process.
2. Role of other ESA programs: The Partners Program at the Sacramento Fish and Wildlife Office and the Antioch Dunes NWR are currently developing a Safe Harbor Agreement with Pacific Gas & Electric Company for operations and maintenance activities associated with utility towers on two six-acre parcels adjacent to the Antioch Dunes NWR. If future habitat restoration occurs on neighboring private land an opportunity may exist for an additional safe harbor agreement. Existing funding has been provided by the USFWS Partners Program.
3. Role of other FWS programs: Coordination with the Antioch Dunes NWR is essential for successful completion of these actions. Current communication between the Sacramento Field Office and the Antioch Dunes NWR has allowed for the development and implementation of past recovery efforts. The Don Edwards NWR maintains a native plant nursery that will be responsible for propagation of plants for out-planting.
4. Other: N/A

Estimated costs of the actions: \$80,000 cost may be shared with other Antioch Dunes species actions

Additional funding analysis:

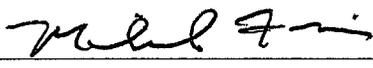
If additional funding became available, we would pursue acquisition of the McCulloch/Kemwater property abutting the eastern boundary of the Sardis Unit of the Antioch Dunes NWR. This property would provide an opportunity to expand the current range of the primrose, increase population numbers, and would lead to faster recovery of the species. This property is currently for sale and would provide a buffer for the refuge from industrial activities just to the east of the Sardis Unit. In addition, adding this property to the Antioch Dunes NWR would ensure that future development on this property would not threaten the Antioch Dunes evening-primrose. Acquisition would require coordination between the Sacramento Field Office and the Antioch Dunes NWR. Potential funding might be sought through the U.S. Bureau of Reclamation's Central Valley Project Conservation Plan grant process. The property has not yet been appraised; therefore, an estimated cost can not be determined at this time.

FIELD OFFICE APPROVAL:

Approve  Date 7-29-09

 Susan K. Moore
Field Supervisor
Sacramento Fish and Wildlife Office

REGIONAL OFFICE CONCURRENCE

Approve  Date 8/27/09

Assistant Regional Director Ecological Services
Pacific Southwest Region