

activity later in the breeding season. Regular monitoring found no evidence of tern nesting during the summer months even though approximately six to eight adults occupied Brantley Reservoir until August. Continued lack of recruitment in future breeding seasons could lead to complete loss of the colony at Brantley Reservoir. For these reasons, ensuring availability of suitable habitat when terns are expected to arrive in 2006 is an important measure to minimize incidental take.

In 2004, a total of at least 14 adult terns nested at Brantley Reservoir, with an estimated 7 nests on the lakeshore. Six juvenile terns were observed near the nesting area in late August (Bureau of Reclamation 2005b; J. Montgomery, Fish and Wildlife Service permittee, electronic mail message, August 23, 2004). We therefore estimate that the following numbers of adults and young may be incidentally taken by implementing this proposed action: Up to 14 adult terns are authorized to be taken in the form of harassment caused by high water levels resulting from block releases. The eggs and very young, immobile chicks of these pairs may be incidentally taken in the form of harm caused by water levels rising as a result of block releases. The number of chicks taken may be up to 3 per pair, or a total of up to 21 eggs or immobile chicks in any combination for first nests, and the same number for renesting terns, for a combined total of 42 eggs or immobile chicks. Up to 42 older, mobile young may be taken in the form of harm or harassment caused by high water levels resulting from block releases. Some of this age cohort could die as a result of displacement by high water levels and others may survive displacement.

### **Effect of the Take**

In the accompanying biological opinion, the Service determined that these levels of anticipated take are not likely to result in jeopardy to the tern.

## **VII. Reasonable and Prudent Measures**

### **Pecos Bluntnose Shiner**

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of the shiner.

1. Monitor the shiner population and river conditions.
2. Coordinate between all parties in the Pecos River to meet both the needs of the shiner and the water users.

### **Terms and Conditions**

#### **Pecos Bluntnose Shiner**

In order to be exempt from prohibitions of section 9 of the Act, Reclamation must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above and outline required reporting/monitoring requirements. These terms and

conditions are non-discretionary.

The following implements reasonable and prudent measure 1:

- a. Continue population monitoring of the shiner using methods and sites that are consistent with the surveys that have been conducted. A minimum of 4 surveys will be made during the year, with at least 2 months separating each collection. Surveys should not be made when discharge is greater than 250 cfs. Twelve to fifteen sites will be sampled between Sumner and Brantley Reservoirs. Ten to twenty seine hauls should be made at each site, depending on habitat complexity, discharge, and fish abundance (i.e., if habitat heterogeneity is high or fish abundance is low, more samples would be taken). Results from each seine haul should be recorded individually (i.e., do not lump all seine hauls from one site together). All mesohabitats at a site should be sampled at least once. Seine hauls should be taken roughly in proportion to the area of the mesohabitat types present (i.e., if 80 percent of the area is a run then the majority of seine hauls should occur in runs). The length, area, and mesohabitat type of each seine haul should be recorded. Sample design should be evaluated and coordinated yearly with NMDGF and NMFRO.
- b. Monitor the video camera at the lower end of the upper critical habitat to assist in ensuring flows are sufficient to maintain a continuous river.
- c. Monitor river gages with emphasis on the Acme gage to assist in ensuring flows are sufficient to maintain a continuous river.
- d. Monitor the river between Bitter Lakes National Wildlife Refuge and the Taiban Creek confluence through weekly flights to ensure the river remains continuous.
- e. During the peak irrigation season, coordinate water operations with Pecos water managers and stakeholders on a weekly basis.

The Service believes that incidental take will not limit the ability of the shiner population to sustain itself. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action.

### **Interior Least Tern**

The Service believes the following reasonable and prudent measure is also necessary and appropriate to minimize or avoid impacts of incidental take to the tern:

- 1) In cooperation with other willing land managers at Brantley Reservoir, Reclamation shall fund, implement and/or assist with enhancement of tern nesting and brood-rearing habitat at Brantley Reservoir prior to the arrival of terns in May 2006, in consultation with NMESFO. This measure will ensure that suitable habitat is available when terns arrive this spring.

## **Terms and Conditions**

### **Interior Least Tern**

1.1 Reclamation shall enhance habitat for terns at least twice the size of the 28-ac 2004 tern colony at Brantley Reservoir, equaling 56 or more acres of nesting and brood-rearing habitat. Tern habitat enhancement sites shall be based upon: (1) The following NMESFO recommendations where they are applicable, (2) site analyses by NMDGF and other tern experts, (3) new or existing scientific, peer-reviewed research at this or similar sites, and (4) in consultation with NMESFO. Potential site enhancements shall incorporate important characteristics of the occupied habitat at Brantley Reservoir, as well as new or existing research on tern breeding habitat preferences, movements and establishment of territories at Brantley Reservoir and similar habitats throughout the subspecies' range.

The NMESFO recommends the following physical conditions for tern nesting, brood-rearing, and foraging habitats (U.S. Fish and Wildlife Service 2000):

#### **Nesting Habitat:**

- Substrate – Nesting substrates consist of well-draining particles ranging in size from fine sand to stones < 1 in (2.5 cm) in diameter.
- Size/Shape – Nesting areas should be a minimum of 1 ac (.4 ha), preferably 10 acres (4 ha); circular to oblong in shape, maximizing surface area; recommended slopes of 1:25 with maximum slopes not exceeding 1:10; surface height above water to exceed 18 inches (45.7 cm) at nest initiation.
- Visibility – Smooth topography with < 10 percent early successional vegetation.

#### **Brood Rearing Habitat:**

- Substrate – Same as nesting substrate but may contain fine silts, organic detritus, and other unconsolidated fine particulate matter.
- Size/Shape – Brood-rearing areas should be 3 to 5 times larger than the nesting area; very irregular in shape, maximizing shoreline to water interface; recommended slopes of 1:25 with maximum slopes not exceeding 1:10.
- Visibility – Vegetation can increase up to 25 percent ground coverage but should occur in a patchy pattern.
- Connectivity – Brood rearing areas must occur connected to nesting areas or immediately adjacent and separated only by shallow channels (< 1 in [2.5 cm] deep) or mud flats.

#### **Foraging Habitat:**

- Substrate – Terns require shallow, slow velocity water that provides habitat for schooling baitfish that are 0.5 to 3.0 in (1.3-7.6 cm) in length. Substrates range from

large grained sand to heavy silts.

- Connectivity – Tern foraging areas should not be greater than 438 yards (400 m) from the brood-rearing areas.

Suggested management techniques for habitat creation include: (1) Replenishment or nourishment of river sandbars and islands; (2) creation of suitable nesting habitat in reservoir depositional zones; (3) creation or enhancement of shallow and backwater areas, off-channel chutes, and flats as foraging habitat; (4) removal of early successional vegetation from nesting areas; (5) peninsular cutoffs or island creations in reservoir side bays; and (6) dike construction to dewater reservoir side bays for nesting and foraging habitat.

1.2 In accordance with the recommendations listed in 1.1, Reclamation shall enhance 14 or more acres as tern nesting habitat and approximately 3 or more times this amount as brood-rearing habitat, using elevated areas around Brantley Reservoir as close to the full conservation pool level and the 2004 colony site as feasible. Tern nesting and brood-rearing habitats shall be created in at least two new areas: 1) Directly above and behind the 2004 colony site, and 2) across the Seven Rivers inlet north of the 2004 colony site. In areas designated for enhancement or clearing where migratory birds may be concurrently nesting, Reclamation shall survey for active nests and ensure that neither migratory bird eggs nor young will be killed while enhancing habitat for terns.

1.3 Because terns are sensitive to human disturbance, Reclamation shall work with other willing land managers to ensure that a buffer zone of at least 1/4 mile is maintained around areas where terns are exhibiting breeding behavior and around active colonies to protect them from potentially disturbing activities.

1.4 Reclamation shall coordinate with and update NMESFO on the details and implementation of these terms and conditions weekly during April and May 2006. Reclamation shall again meet with NMESFO if terns establish nests that could be subject to take.

1.5 Reclamation shall monitor the implementation and success of these habitat enhancements and survey and monitor terns throughout the breeding season, and submit interim update reports to NMESFO at biweekly intervals from June through August. A final report shall be submitted to NMESFO by December 15, 2006.

## **VIII. Conservation Recommendations**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.