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**White and Leatherman BioServices, "Results of Arroyo Toad Habitat  
Assessment at Tesoro del Valle" (July 18, 2000)**

Original in Matt Carpenter's Office

2000 Toad

**WHITE AND LEATHERMAN BIOSERVICES**

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18 July 2000

Signed Copy  
avail  
on 7/19

Mr. Tom Smith  
**BON TERRA CONSULTING**  
151 Kalmus Drive, Suite E-200  
Costa Mesa, California 92626

Re: Results of Arroyo Toad Habitat Assessment at Tesoro del Valle

Dear Tom:

This letter presents the results of a habitat assessment for the federally endangered arroyo southwestern toad (*Bufo microscaphus californicus*) along San Francisquito Creek on the Tesoro del Valle project site in northern Los Angeles County, California.

**EXECUTIVE SUMMARY**

Based on a review of the available literature and an assessment of the Tesoro del Valle project site along San Francisquito Creek, the project site: 1) is not currently suitable for breeding, development, or maturation of arroyo toads nor is it likely to be suitable for this species; and 2) will leave potential dispersal habitat within the wash intact.

**BACKGROUND**

The U. S. Fish and Wildlife Service (USFWS 2000) has recently proposed a portion of this creek (including that portion along the project site) as critical habitat, and the U.S. Army Corps of Engineers (Corps) has suspended the Section 404 permit for the project. Although the Corps understands that this portion of San Francisquito Creek does not have the appropriate surface flow for supporting a breeding population and that the toad is therefore likely absent from the project site, it has made a preliminary determination that the proposed critical habitat may be adversely modified as a result of project construction (Corps 2000).

Critical Habitat is a formal designation made by the USFWS. It includes specific areas within and outside the geographic range occupied by a species at the time of its listing that are determined to be essential to the conservation of that species. Critical habitat is protected from destruction or adverse modification by the requirement that federal

Mr. Tom Smith  
Page 2

Mr. Tom Smith

Page 2

18 July 2000

agencies that fund, authorize, or carry out projects consult (or confer on proposed rules, such as the Critical Habitat designation) with the USFWS under Section 7 of the Endangered Species Act. Destruction or adverse modification of critical habitat is defined as direct or indirect alteration that appreciably diminishes the value of critical habitat for the survival and recovery of the listed species.

In the proposed critical habitat designation, the USFWS (2000) has identified the Upper Santa Clara River Basin as a portion of the Northern Recovery Unit for the toad. This basin includes portions of Castaic Creek, San Francisquito Creek and the upper Santa Clara River. San Francisquito Creek and Castaic Creek are both tributaries to the Santa Clara River, which flows east to west through the area. San Francisquito Creek is located about 3.5 miles east of Castaic Creek, and both flow into the Santa Clara River from the north. The proposed rule identifies San Francisquito Creek and the upper Santa Clara River as areas that offer an excellent opportunity for expanding toad populations with appropriate management and rehabilitation.

## **METHODS**

White and Leatherman BioServices conducted a review of literature pertaining to the life history, habitat requirements, and distribution of the arroyo toad. A one-day reconnaissance survey of the stream habitat through the project area, and upstream and downstream of the project area, was conducted on 5 July 2000 to qualitatively assess potential habitat. The habitat along the creek within the project area was surveyed on foot, including portions of the adjacent upland benches. San Francisquito Canyon Road provided access to most of the area designated as critical habitat outside the project area, and many sections of the stream were walked to check for the presence of surface water and evaluate conditions. Reconnaissance of San Francisquito Creek outside the project area was conducted to approximately 6 miles upstream and 3 miles downstream, to its confluence with the Santa Clara River.

## **RESULTS**

### **Current Toad Distribution**

Within the Upper Santa Clara River Basin recovery subunit, the arroyo toad is currently known only from Castaic Creek (USFWS 1999; Stephenson and Calcarone 1999). The occupied habitat along the creek includes sections both above and below Lake Castaic. The population above the dam occurs over a distance of approximately 1 mile, but is isolated from the downstream population by the lake. The population below the dam apparently occurs over a distance of approximately 2 miles (USFWS 1999).

Mr. Tom Smith  
Page 3  
18 July 2000

NO NODS  
The Recovery Plan for the toad states that potential habitat probably exists in the upper Santa Clara River basin and some of its tributaries, including parts of the San Francisquito Canyon and Bouquet Canyon drainages (USFWS 1999). To date however, no records of arroyo toad occurrence have been documented along the Santa Clara River or its tributaries upstream of Castaic Creek (Jennings and Hayes 1994; Stephenson and Calcarone 1999). Surveys conducted as recently as 1999 for arroyo toads in San Francisquito Canyon upstream of the project site on the Angeles National Forest were negative (B. Brown, USFS, pers. comm.).

### **Characteristics of Occupied Toad Habitat**

Arroyo toads have very specific habitat requirements (Jennings and Hayes 1994). Suitable habitat includes rivers and streams with the following primary constituent elements (those physical and biological features that are essential to the conservation of the species), based studies completed by Sweet (1992,1993) and summarized by USFWS (2000):

1. A hydrologic regime that supplies sufficient flowing water of suitable quality for breeding followed by complete metamorphosis (i.e., hatching from eggs into tadpoles and completed development from tadpoles into juvenile toads). In the northern portion of the range, surface water, either as stream flow or persisting pools, must last into at least July;
2. Low gradient stream segments with shallow breeding pools (for mating and egg laying) with sandy or fine gravel beds (where egg masses are deposited and tadpoles develop), and sparsely vegetated sand and gravel bars that are sufficiently wet (at least temporarily) for juvenile toads to forage and burrow;
3. A natural flooding regime, which reworks sand and gravel bars, scours dense streamside vegetation, and deposits streamside sand bars and upland sand terraces such that breeding pools, terraces, and vegetation requirements are maintained for all life stages of the toad;
4. Upland sandy terrace habitats of sufficient width and quality with areas of loose sandy soil where adult toads can burrow outside the breeding season;
5. Few or no nonnative wildlife species (e.g., crustaceans, gamefish and bullfrogs, which may compete with or prey on adult or juvenile toads and/or tadpoles) and plants (e.g., giant reed, which chokes out native vegetation and may alter flood patterns);

Mr. Tom Smith

Page 4

18 July 2000

6. Streams and upland areas absent of artificial barriers, which interfere with natural flooding regimes and toad movement (migration to and from breeding pools, dispersal between populations, or recolonization of previously occupied areas);
7. Habitats undisturbed by grading, agriculture, or other human-associated land use conversions.

This suite of conditions is vital to the persistence of viable toad populations, yet occur in dynamic stream systems that are inherently unstable, and can change within the lifetime of an individual (for example by a flood event). Arroyo toad habitat is generally produced and maintained by narrow drainages of intermediate size (Sweet 1992) - typically 3<sup>rd</sup> to 6<sup>th</sup> order streams (or larger), generally where the stream is still bordered by ridges of moderate relief and the stream gradient is low. In headwater areas above these stream segments, the higher stream gradient, lack of sediment build up, and smaller amount of available water result in sections that dry too soon. Downstream of these areas, the broader canyons and increased streambed widths result in early loss of surface flows, or increased stream gradients drain available water too quickly.

#### **Characteristics of Habitat at Tesoro del Valle**

San Francisquito Canyon in the Tesoro del Valle project area can be characterized as a wide, shallow, valley. San Francisquito Creek, likely a third or fourth order system, is a very broad flat wash in the project area with substrates consisting of sand and gravel. As an example, near the south end of the project area, the terrace on the west bank measured approximately 330 feet wide, the streambed 350 feet wide, and the eastern terrace 500 feet wide. Average width of the San Francisquito Creek wash between the project area and its confluence with the Santa Clara River is 624 feet (Woodward-Clyde 1997). Cobbles up to approximately 8 inches in diameter are scattered on the surface. Flow within the wash looks to be concentrated in one of several braided channels that are slightly lower than in-wash sandbars. Although the overall wash is generally linear in nature in this area, the small braided channels within the wash appear to meander gently. Vegetation in the wash is extremely sparse, being limited to a few scalebroom and scattered mulefat. Cottonwood trees of moderate size and very limited extent are present along the west bank in the northern part of the project area. An overflow channel outside the primary wash system to the east (along San Francisquito Canyon Road) also supports cottonwood trees, as well as willows and mulefat. However, this latter area does not appear to support flows in most years.

There are no marginal zones between the wash and the adjacent upland terrace, which, as noted above, is several hundred feet wide on either side of the creek. The height of the

Mr. Tom Smith  
Page 5  
18 July 2000

terrace, which appears to be a 100 year flood zone, varies through the project area. In some stretches, a gradual slope from the wash to the upland terrace occurs; however, most of the terrace is separated from the channel by an abrupt drop-off of up to approximately 12 feet. The upland terraces support a mature scrub habitat dominated by scalebroom; trees are largely absent. In some portions of the project site, the terrace has been converted to agricultural fields. Soils on the upland terraces consist of sand and gravel sediments.

Water appears to flow only very briefly in this section of the wash, likely following substantial or prolonged rain events. No vegetation occurs along the small channel that apparently conducts the ephemeral flows within the wash.

About 3 miles upstream of the project site, San Francisquito Canyon narrows, the streambed is not as wide, and smaller benches with riparian vegetation occur along stream margins. Surface water was observed intermittently upstream and downstream of an existing LADWP powerhouse, which is approximately 4 miles upstream of the project area. Surface water downstream of the powerhouse appears to be from releases from the LADWP facility following its use for power generation. Whether surface water was present this far down the canyon at this time of year historically (prior to its diversion and subsequent release for power generation) is unknown.

San Francisquito Creek and the adjacent terrace near the downstream (southern) end of the project area is relatively undisturbed for about a quarter-mile before crossing under the relatively newly constructed Copperhill Drive bridge. Only the active wash portion of the floodplain is bridged, with the abutments built on fill on the 100-year flood terrace, which is several hundred feet wide on the west bank. A second bridge (Decoro Drive) is currently under construction about 1.5 miles downstream of the project site, and a third bridge (Newhall Ranch Road) exists across the creek approximately 2 miles downstream. Access was limited to these areas and an assessment of the restrictions on stream flow was not made. A mature riparian forest with an overstory of cottonwoods and willows occurs in San Francisquito Creek downstream of the project area towards its confluence with the Santa Clara River.

## DISCUSSION

Based on this habitat assessment, the best potential habitat for the arroyo toad along San Francisquito Creek occurs approximately three miles upstream of the project site on U. S. Forest Service lands; though recent surveys in that area were negative (B. Brown USFS, pers. comm.) and there are no historic records of arroyo toad from San Francisquito Canyon. Development adjacent to and bridging San Francisquito Creek downstream have already compromised potentially suitable arroyo toad habitat.

Mr. Tom Smith  
Page 6  
18 July 2000

The late breeding season and long periods of dependence on surface water by arroyo toad tadpoles and juveniles restrict them from stream sections that dry out by early summer (Sweet 1992). The most critical primary constituent element is therefore a hydrologic regime that supports habitat for breeding adults, eggs, tadpoles, and metamorphosing juveniles. This critical element appears to be absent from the San Francisquito Creek system in the Tesoro del Valle project area.

Many of the remaining primary constituent elements are present to some degree in the project area. The upland benches are separated from portions of the creek by abrupt cliffs as high as approximately 12 feet, restricting migration to and from would-be breeding sites. Streamside sand and gravel bars that provide suitable moisture levels and foraging habitat for juvenile toads are therefore largely absent.

From a critical habitat perspective, the portion of San Francisquito Creek within the project area does not appear to be suitable for arroyo toad breeding etc.; the area would only be useful for dispersing individuals from upstream or downstream populations, though neither occur at this time. The project likely would not interfere with dispersal because the streambed, where any future dispersal would most likely occur, would be largely avoided by the development, except for the footings of a proposed emergency access bridge. The only portion of the development within the floodplain is a sport field complex located on a 100 year terrace where habitat was converted to agricultural fields many years ago. The remaining terrace area, most of which is undisturbed, is extensive and is not part of the development.

The nearest known population of arroyo toads is in Castaic Creek below the dam. This population is approximately seven stream miles from the Tesoro del Valle project site (down Castaic Creek, up the Santa Clara River, then up San Francisquito Creek). Adult toads are largely sedentary (Sweet 1993), but adult movements up to 0.6 miles along a stream in a single breeding season have been documented (Griffen et al. 1999). The longest known dispersal distances may be over 5 miles (USFS 1999, cited in USFWS 2000). Even though arroyo toads hypothetically could reach the project area (over the course of several seasons from the Castaic Creek population), lack of suitable breeding habitat would necessitate continued dispersal to areas of potentially suitable habitat up- or downstream.

Two bridges exist and a third is being built across San Francisquito Creek downstream of the project area. Upland areas between the bridges vary in habitat quality from recently graded, to already converted to agricultural fields, partially disturbed, and relatively intact native shrublands (although most of it is private property and access was limited). Quality of these areas as arroyo toad habitat is considered poor to marginal. The upland

Mr. Tom Smith  
Page 7  
18 July 2000

habitat on the 100-year terraces immediately south of the project area are already proposed for development (Woodward-Clyde 1997).

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Sincerely,

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Brian Leatherman  
Wildlife Biologist

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