2004 REPTILE AND AMPHIBIAN SURVEY
Federal Parcel, Pinal County, Arizona

Prepared for:

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EXECUTIVE SUMMARY

WestLand Resources, Inc. (WestLand) was retained by Resolution Copper Company (Resolution) to conduct a reptile and amphibian survey on the approximately 1,224-hectare (3,025-acre) Federal Parcel (the Parcel). The Parcel is in the Tonto National Forest (TNF), east of the town of Superior, in Pinal County, Arizona.

Resolution proposes to obtain the Parcel by way of a land exchange. In support of this effort, WestLand has conducted ongoing biological resource investigations on the Parcel. The purpose of this survey was to provide baseline data regarding reptile and amphibian populations on the Parcel. This survey effort focused on the U.S. Fish & Wildlife Service (USFWS) threatened Chiricahua leopard frog (*Rana chiracahuensis*) and the U.S. Forest Service (USFS) Sensitive lowland leopard frog (*Rana yavapaiensis*).

Surveys were conducted on the Parcel from August 16 through 18, 2004. Only those portions of the Parcel known to support surface water were surveyed for amphibians. Survey for amphibians was conducted following the USFWS-recommended protocol for Chiricahua leopard frog. No Chiricahua leopard frogs or lowland leopard frogs were detected on the Parcel. Lowland leopard frogs had been previously noted off-site by a WestLand biologist along Devils Canyon, just east of the Parcel, in September 2003. Amphibians that were noted during this survey effort include red-spotted toad (*Bufo punctatus*) and canyon tree frog (*Hyla arenicolor*). The only other amphibian that was observed on the Parcel was introduced (to this area) Arizona tiger salamander (*Ambystoma tigrinum nebulosum*) which was observed in 2003 but not in 2004.

The habitats found within the Parcel would be considered marginal to poor for Chiricahua leopard frog and lowland leopard frog. These species require a reliable source of surface water, which has not been noted within the Parcel. Predatory species (i.e., crayfish and tiger salamander) that have been associated with decreasing ranid populations in Arizona occur within the on-site seasonal surface water features. The seasonal stock ponds on the Parcel are home primarily to the introduced Arizona tiger salamander (a known predator of ranid tadpoles), which apparently are stocked and seined each year and sold as bait. Although the Parcel occurs within the elevation range and potentially supports habitat for Chiricahua leopard frog, there are no known populations or historical records for Chiricahua leopard frog from Pinal County. Based upon the species-specific surveys that have been conducted to date and the current condition of aquatic habitats within the Parcel, we do not expect Chiricahua leopard frog or lowland leopard frog to occur on the Parcel.

Reptile surveys were conducted during field reconnaissance for other biological surveys. Nighttime surveys were also conducted for reptiles on the Parcel along roadways. Reptiles that were noted on the Parcel during these survey efforts include banded gecko (*Coleonyx variegatus*), Arizona black rattlesnake (*Crotalus viridis cerberus*), and black-necked garter snake (*Thamnophis cyrtopsis*). Essentially, every

habitat type within the Parcel can be utilized by reptiles, and the presence of the rock and boulder formations on the Parcel provide numerous opportunities for reptile shelter**.**

1. INTRODUCTION AND BACKGROUND

1.1 STATEMENT OF PURPOSE

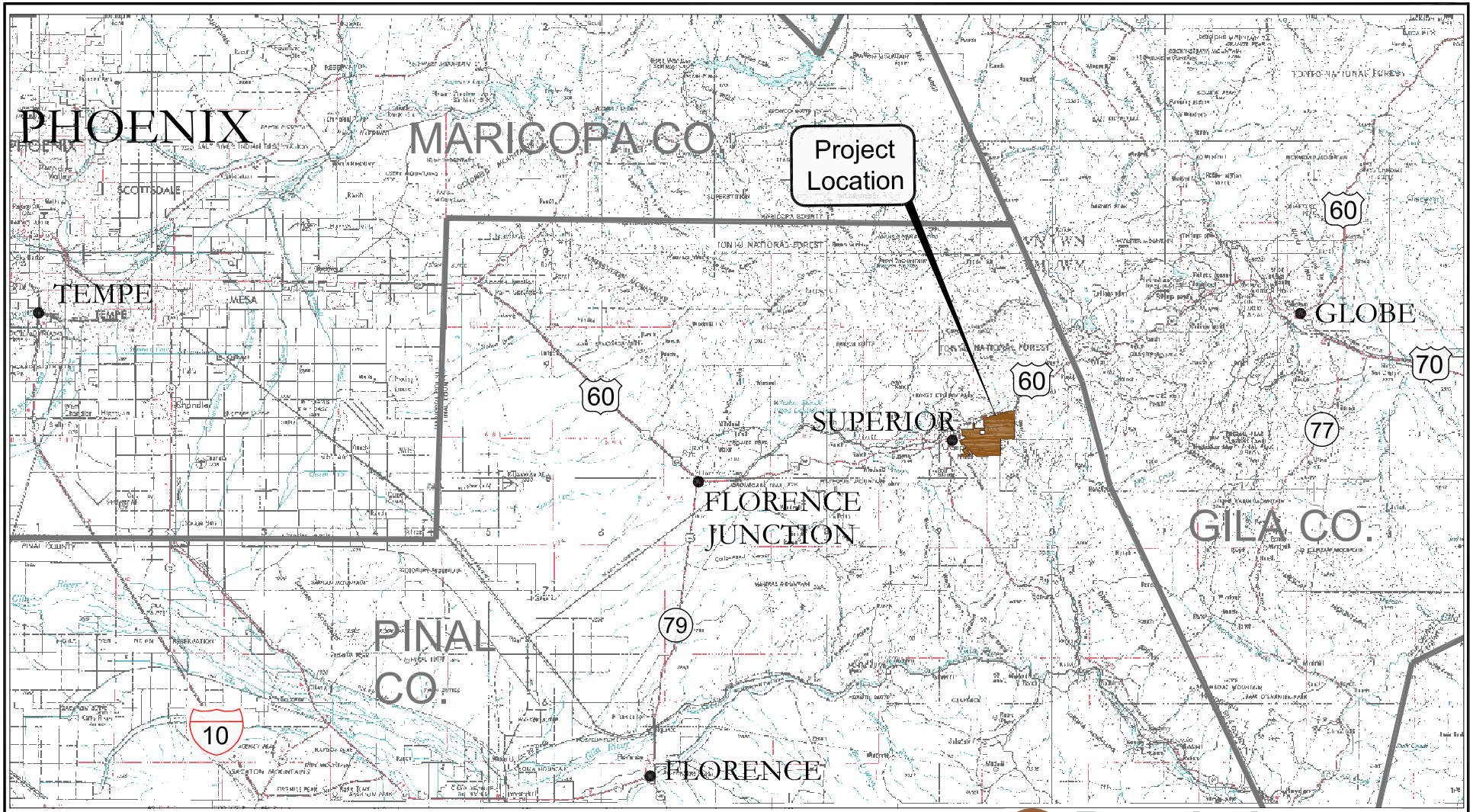
WestLand Resources, Inc. (WestLand) was retained by Resolution Copper Company (Resolution) to conduct a reptile and amphibian survey on the approximately 1,224-hectare (3,025-acre) Federal Parcel (the Parcel). The Parcel is in the Tonto National Forest, east of the town of Superior, in Pinal County, Arizona. The Parcel occupies a portion of Section 36, Township 1 South, Range 12 East; portions of Sections 1 and 2, Township 2 South, Range 12 East; portions of Sections 28, 29, 30, 31, and 32, and Section 33, Township 1 South, Range 13 East; and a portion of Section 6, Township 2 South, Range 13 East (Figure 1). This survey focused on the U.S. Fish & Wildlife Service (USFWS) threatened Chiricahua leopard frog (*Rana chiracahuensis*) and the U.S. Forest Service (USFS) Sensitive and Arizona Game and Fish Department (AGFD) Wildlife of Special Concern lowland leopard frog (*Rana yavapaiensis*) using the USFWS recommended survey protocol for the Chiricahua leopard frog.

Resolution proposes to obtain the Parcel by way of a land exchange. In support of this effort, WestLand has conducted ongoing biological resource investigations on the Parcel. The purpose of this survey was to provide baseline data with respect to reptile and amphibian populations on the Parcel and to identify the absence or presence of Chiricahua leopard frog and lowland leopard frog. Previous biological work conducted in Devils Canyon, immediately east of the Parcel, had identified the presence of lowland leopard frogs. Due to the similarity of habitat requirements of the two species, the possible presence of potentially suitable habitat on the Parcel, and the proximity of the Parcel to Devils Canyon, it was determined that survey of the Parcel would be appropriate.

1.2 DESCRIPTION, STATUS, RANGE, AND HABITAT

Ranids, also referred to as true frogs, may be distinguished from other frogs in Arizona by their ability to leap distances, relatively smooth skin, and well-developed webbing on their hind limbs. They often possess paired, glandular ridges (dorsolateral folds), which may be poorly defined, running along each side of the back (Sredl and Howland, undated). Currently, Arizona's ranid fauna include the Tarahumara frog (*Rana tarahumarae*) and six or seven species of leopard frog including the Chiricahua leopard frog and lowland leopard frog. Based on literature review of ranid range and habitat data, Chiricahua leopard frogs and lowland leopard frogs were initially considered to have potential to occur within the Parcel.

Ranids in Arizona are considered to be declining in numbers with the exception of an introduced species, the bullfrog (*Rana catesbeiana*), which out-competes and preys upon Arizona's native ranids. Other predators of ranid tadpoles include aquatic insects, native and non-native fish, garter snakes, crayfish, Arizona tiger salamander (*Ambystoma tigrinum nebulosum*), and wading birds. Predators of ranid juveniles and adults include native and non-native fish, garter snakes, raptors, and mammals. Also, a



Pinal County, Arizona
Mesa 1:250,000 USGS Map

0 6.5 13 KM

Approx. Scale 1" = 13 KILOMETERS

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2004 AMPHIBIAN SURVEY, FEDERAL PARCEL

VICINITY MAP
Figure 1

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chytrid fungus has infected populations of ranids, causing mass die-offs and local extirpations (AGFD 2001a). Other threats to ranid populations include habitat alteration, destruction, and fragmentation (50 CFR 40790). The following paragraphs provide species accounts for the Chiricahua leopard frog and lowland leopard frog.

1.2.1 Chiricahua Leopard Frog

Description

Adult Chiricahua leopard frogs have snout-vent lengths that range from 5.0 to 13.5 cm (2.0 to 5.3 inches). This species is sexually dimorphic (male frogs are smaller than female frogs) and is stockier than other leopard frogs with a more rounded head and shorter limbs and slightly upturned eyes, resembling a bullfrog (Platz and Mecham, 1979). Key identifying features of the Chiricahua leopard frog are indicated in the adjacent photograph. The dorsolateral folds of this species are usually broken into short segments toward the rear and angled inward. This leopard frog has fairly rough skin (possessing many tubercles); dorsal spots are generally smaller and more numerous than in other leopard frogs. It's coloration can be described as greenish or brown with dull whiteish or yellowish below, usually with gray mottling on throat and sometimes chest. This species is yellow in the groin and on the lower abdomen. It possesses an upper lip stripe that is diffuse or absent (Stebbins, 1985).

Photograph of Chiracahua leopard frog. Note the broken and inset dorsolateral fold toward the rear and the upturned eyes.

Source: J. Eric Wallace and Heritage Fund

Status

In 1991, based on information indicating that Chiricahua leopard frog was recently extirpated from historical sites, the species was added to the list of Category 2 candidate species (candidate for listing under the Federal Endangered Species Act [ESA]). The species was elevated to a Category 1 candidate species when more information on its biological vulnerability was gained through research. In 1998 this species was petitioned for listing as endangered with designated critical habitat by Southwest Center for Biological Diversity. In 2000, a proposed rule for listing of Chiricahua leopard frog was published (65 FR 37343). The Chiricahua leopard frog was listed as threatened under the ESA in 2002 (50 CFR 40790). This listing was published with a special rule that replaces the ESA's general rules on prohibition of take for Chiricahua leopard frog. Under the special rule, take of Chiricahua leopard frog caused by use of or maintenance and operation of stock tanks for cattle located on private, State, or Tribal lands would be exempt from Section 9 of the ESA. There is no proposed or designated critical habitat listed for this species.

Range

The range of this species is divided into two areas: 1) northern montane populations occur along the southern edge of the Colorado Plateau in central and eastern Arizona and west-central New Mexico, and 2) southern populations occur in mountains and valleys south of the Gila River in southeastern Arizona and southwestern New Mexico, and extending into Mexico along the eastern slopes of the Sierra Madre Occidental (Sredl and Jennings, in press). Distribution of this species within this range is fragmented due to the arid nature of the region. Elevational distribution in northern populations is between 1,061 to 2,710 meters (3,500 to 8,900 feet) and in southern populations is between 1,061 to 2,012 meters (3,500 to 6,600 feet) (Sredl, 1997).

Most known northern Chiricahua leopard frog populations are in higher elevation headwaters of the Salt, Verde, and upper Gila Rivers, with the remaining in the Little Colorado Rover drainage. Most known southern Chiricahua leopard frog populations are in the San Simon, San Pedro, and Santa Cruz River drainages, while the remaining are in the headwaters of the Rio Concepcion and Rio Yaqui, which flow south into Mexico (AGFD, 2001a).

Historical records for Chiricahua leopard frog exist from Coconino, Yavapai, Navajo, Apache, Greenlee, Pima, Santa Cruz, Graham, and Cochise counties, Arizona; Catron, Socorro, Sierra, Grant, Hidalgo, and Luna counties, New Mexico; and Chihuahua, extreme northern Durango, and northern Sonora, Mexico (Sredl and Jennings, in press).

Habitat

This species is strictly aquatic; it's primary vegetation habitat type is oak, mixed oak, and pine woodlands. Other habitat types range into areas of chaparral, grassland, and desert. Natural aquatic systems preferred by this species include rocky streams with deep rock-bound pools, river overflow pools, oxbows, permanent springs, permanent pools in intermittent streams, and beaver ponds. Man-made aquatic systems include earthen stock tanks, livestock drinkers, irrigation sloughs, wells, mine adits, abandoned swimming pools, and ornamental backyard ponds (AGFD, 2001a). Known northern Chiricahua leopard frog sites are evenly split between natural lotic systems (streams) and lentic systems (i.e., ponds, stock tanks).

1.2.2 Lowland Leopard Frog

Photograph of Lowland leopard frog. Note the broken and inset dorsolateral fold and the vague upper lip stripe.
Source: J. Eric Wallace and Heritage Fund

Description

Adult lowland leopard frogs have a snout-vent length of 4.6 to 7.2 cm (1.8 to 2.8 inches) in males and 5.3 to 8.7 cm (2.1 to 3.4 inches) in females. Key identifying features of the lowland leopard frog are indicated in the adjacent photograph. The dorsolateral folds of this species are present and prominent. This species is tan, gray-brown, or light gray-green to green above and yellow below. The lowland leopard frog has a vague upper lip stripe and a dark spotting network on rear of thigh. Its yellow groin color often extends onto rear of belly and underside of legs.

Status

The lowland leopard frog is classified as USFS Sensitive and Wildlife of Special Concern in Arizona by the AGFD. This species is not afforded legal protection under the ESA.

Range

The current distribution of the lowland leopard frog is mainly in Arizona. This species' range is from the Colorado River near Yuma to west, central, and southeast Arizona south of the Mogollon Rim. Its elevation range in Arizona is 250 to 1,700 m (800 to 5,500 feet). Historically, this species' range extended throughout low elevation sites in the drainage of the lower Colorado River and its tributaries in Nevada, California, Arizona, New Mexico, northern Sonora, and extreme northeast Baja California, Mexico.

Habitat

Lowland leopard frogs are habitat generalists inhabiting and breeding in a variety of natural and man-made aquatic systems located in habitat ranging from desert grasslands to pinyon-juniper between 250 to 1,700 m (800 to 5,500 feet) (AGFD 2001b). They prefer natural river systems, permanent streams, and permanent pools in intermittent streams, springs, and cienegas; however, they can be found in stock ponds, irrigation canals, backyard ponds, and other similar water features throughout their range (AGFD 2001b). The presence of emergent vegetation is an important habitat feature that provides basking habitat, refuge, and forage opportunities for this species (New Mexico Game and Fish Department [NMGFD], 2003).

1.3 DESCRIPTION OF THE SURVEY AREA

The Parcel is located in the Pinal Mountains within the Central Highlands Province, a transition zone between the Colorado Plateau and the Basin and Range Provinces. Elevation within the Parcel varies from approximately 900 to 1,500 meters (3,000 to 5,000 feet) above mean sea level.

Over 90 percent of the area of the Parcel is covered by the Apache Leap tuff, the youngest consolidated geologic formation, which forms the cap of the Apache Leap escarpment on the western portion of the Parcel. Underlying units are volcanic and sedimentary rocks exposed at the foot of the Apache Leap escarpment. A late Tertiary/early Quaternary weakly consolidated gravel and conglomerate unit overlies the Apache Leap tuff in a small area on the eastern portion of the Parcel.

The soils associated with the Apache Leap tuff are classified as Lithic Torriorthents (Brown, 1994), and were formed as a residuum weathered from the tuff. These soils are shallow, gravelly, and strongly sloping to very steep soils and, consequently, are well drained.

The Parcel is dominated by plant species associated with Interior Chaparral (east of Apache Leap) and Sonoran Desertscrub biotic communities (west of Apache Leap), as described by Brown (1994). Relatively isolated patches of xeroriparian and mesoriparian vegetation are located throughout the Parcel around stock tanks and in association with ephemeral drainages, Rancho Rio Creek, and Queen Creek.

Surface water within the Parcel is limited to stock water impoundments, and snow melt and storm water flows in the ephemeral washes. Water also collects in boulder pools and tinajas in the drainage bottoms. The stock ponds and reservoirs contain water seasonally. There are no confirmed perennial water sources within the Parcel. One small segment of Queen Creek runs across a corner on the north side of the Parcel. This reach of Queen Creek, the Drill Road Stock Tank 3, and the Oak Flat Reservoir are intermittent in nature while all of the remaining reservoirs, ponds, and stock tanks within the Parcel are ephemeral. Additional information and descriptions of water features on the Parcel can be found in the *Baseline Biology and Land Use Report* (WestLand, 2003).

1.4 SUMMARY OF PREVIOUS SURVEYS CONDUCTED IN THE PARCEL VICINITY

WestLand prepared a *Baseline Biology and Land Use Report* (2003a) and a *Federal Lands Biological Assessment and Evaluation* (2003b) describing biological resources associated with the Parcel. In 2003, WestLand conducted ranid surveys of the parcel following USFWS-recommended survey protocols within portions of Queen Creek and several of its tributaries, as well as several scattered reservoirs, ponds, and stock tanks. Ranid frog surveys occurred on April 16; May 14, 15, and 16; May 30 and 31; and June 9 and 10, 2003. At the time of 2003 field visits, the drainages within the Parcel contained isolated pools of water within tinajas. The stock tanks and small tinajas that maintained surface water through June were the features where most amphibian individuals were observed. It is believed that

amphibians occur within all reaches of Queen Creek where sufficient surface water or moisture is present.

No leopard frogs were noted within the Parcel during previous survey efforts; however, lowland leopard frogs were noted by a WestLand biologist along Devils Canyon, just east of the Parcel in September 2003. Canyon tree frogs (larvae and adults) and a red spotted toad were noted within only one ephemeral drainage on the Parcel in 2003. Canyon tree frog larvae were also noted within Queen Creek just west of the Parcel boundary. In general, canyon tree frogs were noted in areas that contained pools set in water-polished bedrock providing relatively safe haven from predators.

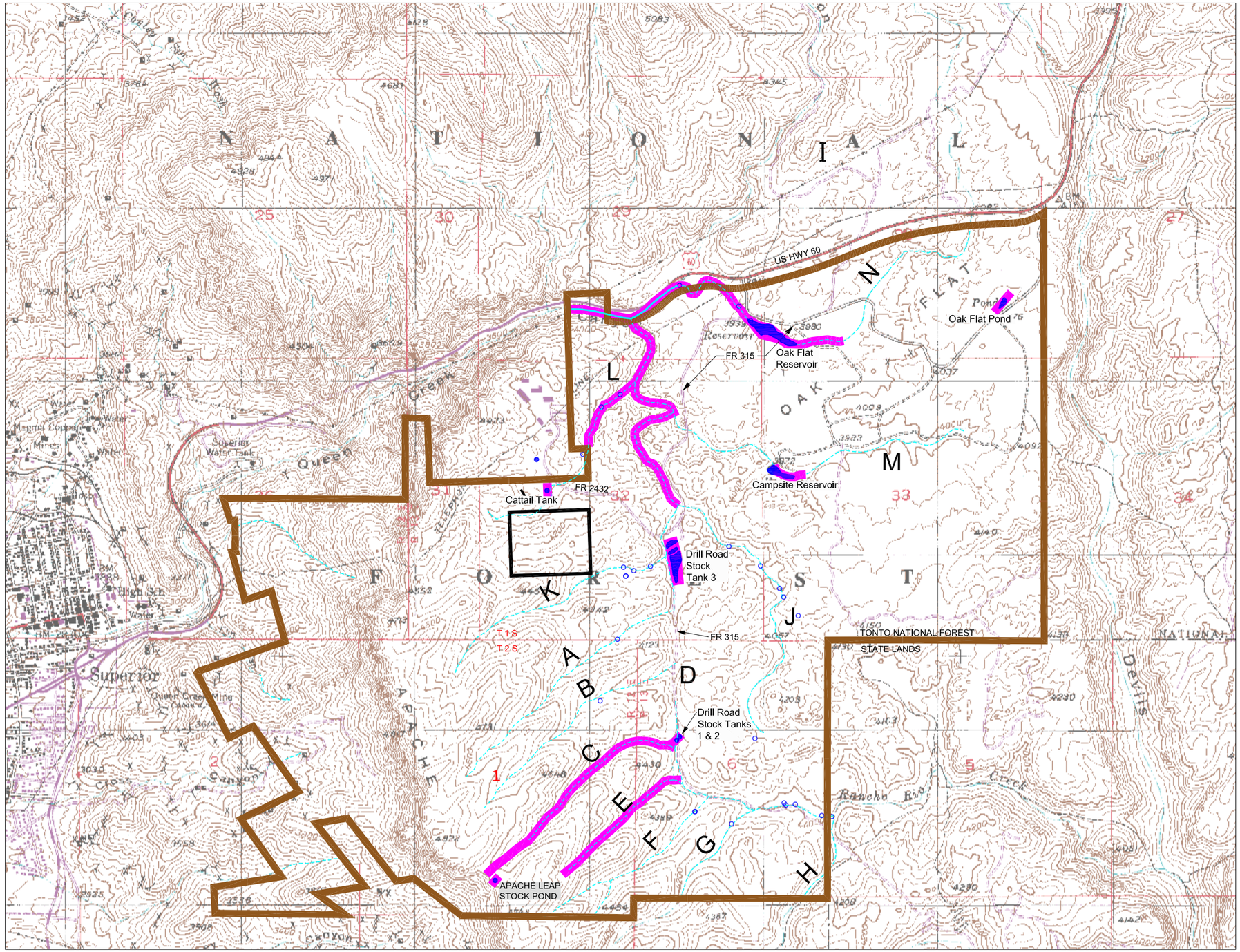
The seasonal stock ponds on the Parcel are home primarily to the introduced Arizona tiger salamander (*Ambystoma tigrinum nebulosum*, a known predator of ranid tadpoles), which apparently are stocked and seined each year and sold as bait. Tiger salamander larvae were noted within the Drill Road Stock Tank 3 and Oak Flat Reservoir. No canyon tree frogs were observed within water features where tiger salamander larvae were present, presumably due to the fact that tiger salamander larvae predate upon amphibian egg masses and larvae.

Reptiles that were noted during 2003 field reconnaissance of the Parcel include collared lizard (*Crotaphytus collaris*), greater earless lizard (*Holbrookia texana*), zebra-tailed lizard (*Callisaurus draconoides*), desert spiny lizard (*Sceloporus magister*), tree lizard (*Urosaurus* sp.), side-blotched lizard (*Uta stansburiana*), regal horned lizard (*Phrynosoma solare*), western whiptail (*Cnemidophorus tigris*), black-necked garter snake, gopher snake (*Pituophis melanoleucus*), western diamondback rattlesnake (*Crotalus atrox*), and tiger rattlesnake (*Crotalus tigris*).

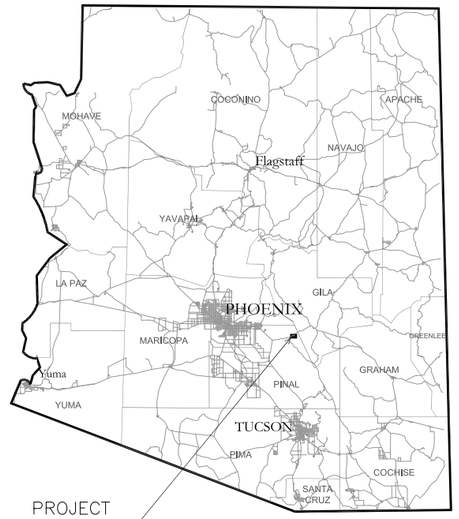
2. METHODS

Prior to conducting the 2004 fieldwork, WestLand conducted a review of available literature to obtain the most recent information about the Chiricahua leopard frog and lowland leopard frog habitat, life history, and known range in Arizona. Amphibian surveys, in general, involved visual observation at surface water sources, capture, and in-hand identification. Surveys for Chiricahua leopard frog and lowland leopard frog within the Parcel followed the Visual Encounter Survey protocol developed by the USFWS (USFWS, March 2003). The Chiricahua leopard frog Visual Encounter Survey form was used in collecting locality data, site and visit conditions, and herpetofauna observations for all known surface water features on the Parcel (Figure 2). Surface water features that were clearly too small or otherwise deemed unsuitable habitat were noted, and data collection forms were not filled out for these features. Field surveys for amphibians were scheduled and conducted to coincide with the active season for ranids and were conducted when water temperatures reached 14°C or above (per USFWS protocol).

Focused ranid surveys within the Parcel were conducted by two WestLand biologists along portions of Queen Creek, tributaries to Queen Creek, and the reservoirs and stock tanks that occur on the Parcel. Surveys were conducted on August 16 through 18, 2004. Figure 2 shows the surface water features where surveys were conducted in 2004.



CONTEXT MAP



LEGEND

- Parcel Boundary
- Private In-holding Boundary
- Ephemeral Drainage
- Intermittent Stream
- 2004 Amphibian Survey Areas
- Pond, Reservoir or Stock Tank
- Known Pool or Tinaja
- K — Drainage Identification
- FR — FOREST ROAD

0 300 600 M

Scale 1" = 600 Meters

Pinal County, Arizona
Superior, 1:24000 USGS Maps

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2004 AMPHIBIAN SURVEY, FEDERAL PARCEL

2004 AMPHIBIAN SURVEY MAP

Figure 2

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For lotic systems, surveys were conducted by walking the drainages in a zigzag fashion. A search was conducted surrounding any vegetation that was present along surface water, under rocks, downed branches, undercut banks, and any other places frogs might find cover. Dip nets were used to flush any frog that may be present and to catch specimens of tadpoles, aquatic organisms, and other fauna for proper identification.

For lentic systems, a search was conducted through binoculars before approaching the site. Once the visual assessment was completed, the perimeter of the site was surveyed. Dip nets were used to flush any frogs that might be present along the banks and to catch any other aquatic organisms.

Data that were collected at each site includes site name, UTM coordinates, elevation, date, observers, time of survey start and stop, time spent actively searching for herpetofauna, level of effort (i.e., partial or full coverage of the site), any voucher specimens taken, water class, water type, search methods, water pH, air and water temperature, habitat characteristics, weather conditions, land use, sign of potential predators, and any herpetofauna observations. The Visual Encounter Survey forms that were completed for the 2004 survey effort are included in Appendix A.

The on-site water features that were surveyed for the 2004 amphibian survey effort are highlighted in Figure 2 and include the following:

Lotic Systems	Lentic Systems
Drainage E	Oak Flat Pond
Drainage C	Cattail Tank
Lower portions of Drainage L	Drill Road Stock Tanks 1, 2, and 3
Lower portions of Drainage M	Campsite Reservoir
Queen Creek (on-site reach only)	Apache Leap Stock Pond
Lower portions of Drainage J	Oak Flat Reservoir

Similar to amphibian surveys, surveys for reptiles involved visual observation and identification, and were completed in conjunction with other biological surveys conducted as part of the baseline biological inventory. Reptile surveys were conducted contemporaneously with field reconnaissance for other biological surveys. Reptiles are routinely observed "sunning" on rocks or open ground during early morning hours and moving across roads at night.

3. RESULTS AND DISCUSSION

3.1 Site Conditions During 2004 Reptile and Amphibian Survey

At the time of 2004 field visits more surface water was noted within the lotic systems (the ephemeral drainages) on the Parcel and less surface water was noted within the lentic systems (stock ponds and reservoirs) on the Parcel than what had been noted in the 2003 survey effort, which was conducted earlier in the year. The 2003 survey effort preceded the "monsoon season" whereas the 2004 survey effort was conducted well into the monsoon season. The Oak Flat Pond, which was previously thought to hold

water year-round, held no surface water during the 2004 site visit. This observation may suggest that the summer monsoon contributes more surface water to the lotic systems and winter rains contribute more surface water to the lentic systems on the Parcel.

The Parcel and its vicinity received a significant amount of rain on the first afternoon and evening of survey, August 16, 2004 (this storm event contributed an estimated 4.0 centimeters [1.6 inches] of precipitation to the Superior area). The night of this storm event was spent driving along the roadways through the Parcel to note any reptiles or amphibians that may be active during this time. Four red-spotted toads and two canyon tree frogs were caught and identified along Forest Road 315 (FR 315) at this time. The toads and frogs were particularly plentiful along the road where it intersected Drainages L, K, and J (Figure 2). Other species noted included a banded gecko and jumping spiders.

3.2 Results of 2004 Reptile and Amphibian Survey

3.2.1 Amphibian Observations

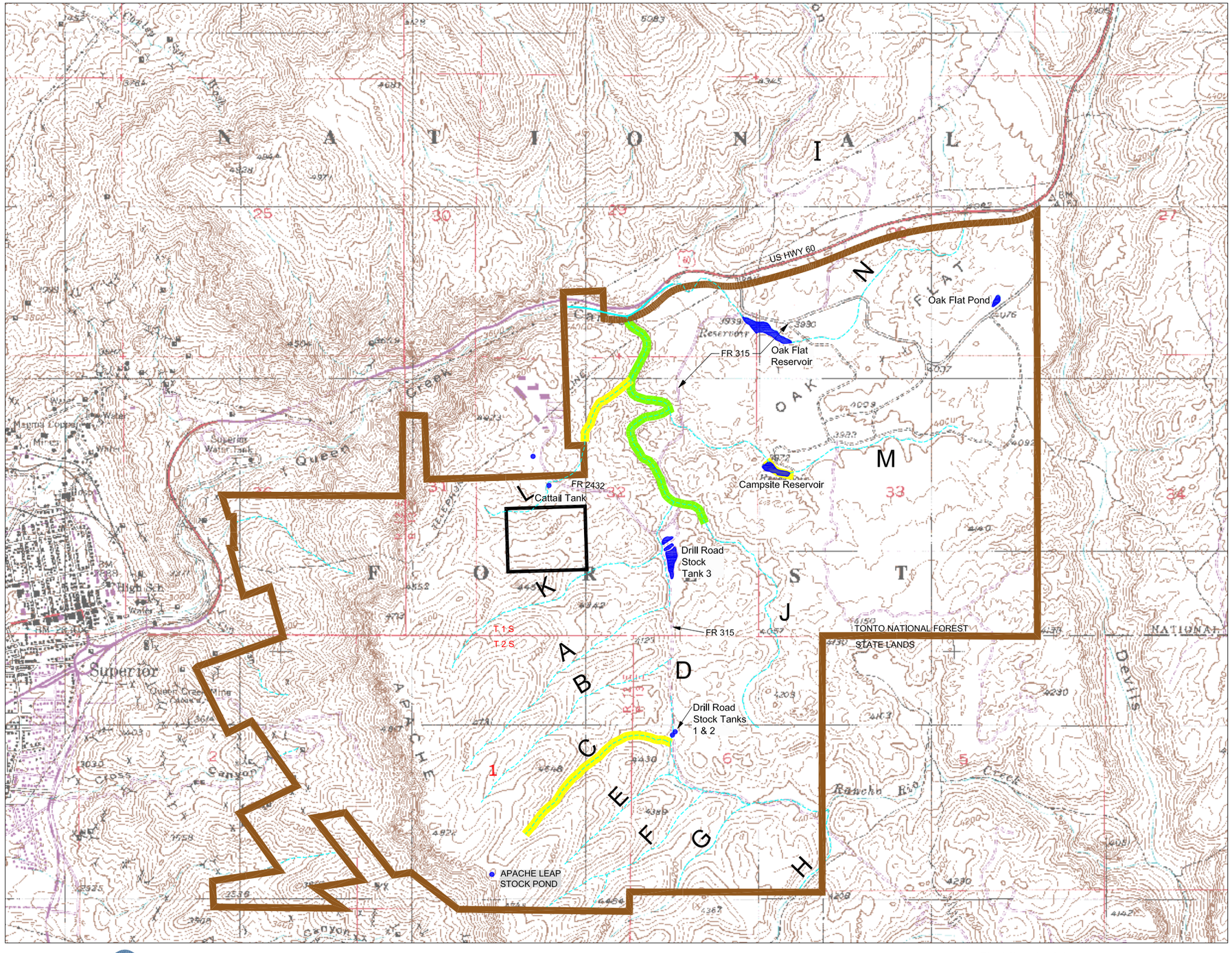
This section discusses findings of the 2004 amphibian survey by location. Visual Encounter Survey forms completed for the following surface water features are included in Appendix A. Selected photographs of the surface water features are included in Appendix B. Figure 3 shows surface water features surveyed and the distribution of red-spotted toads and canyon tree frogs that were observed during this survey effort.

Drainage E

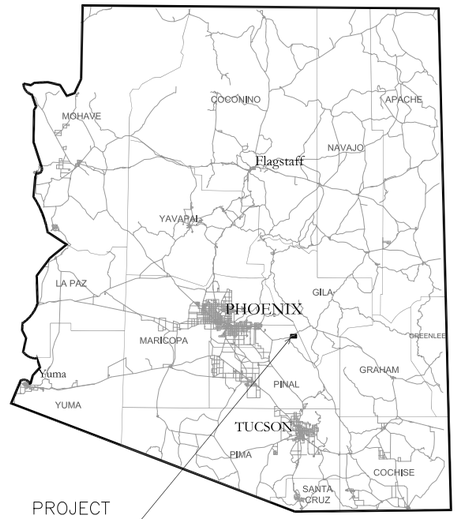
Drainage E is located southwest of the FR 315, east of Apache Leap, along the southern boundary of the Parcel (Figure 2). Most of this drainage was dry; however, it was holding some water in a few tinajas higher up near Apache Leap. More water was noted in 2004 than what had been noted during surveys completed the previous year in May. No herpetofauna were noted within Drainage E. Although no ranids were observed, a Visual Encounter Survey form was completed for this drainage and is included in Appendix A. Photograph 1 shows pooling along Drainage E looking downstream from just below Apache Leap.

Drainage C

Drainage C occurs downstream from the Apache Leap Stock Pond (Figure 2). This drainage supported sporadic pooling in tinajas during this site visit. A black-necked garter snake and numerous (200 plus) tadpoles (Photograph 2) were noted in one of these pools. No adult or juvenile frogs or toads were noted along this drainage. All the tadpoles appeared to be the same species, which was later identified as red-spotted toad. A Visual Encounter Survey form was completed for this drainage and is included in Appendix A.



CONTEXT MAP



LEGEND

- Parcel Boundary
- Private In-holding Boundary
- Ephemeral Drainage
- Intermittent Stream
- Known Canyon tree frog and Red-spotted toad distribution
- Known Red-spotted toad distribution
- Pond, Reservoir or Stock Tank
- K — Drainage Identification
- FR — FOREST ROAD

0 300 600 M

Scale 1" = 600 Meters

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2004 AMPHIBIAN SURVEY, FEDERAL PARCEL

AMPHIBIAN DISTRIBUTION MAP

Figure 3

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Oak Flat Reservoir Drainage

The Oak Flat Reservoir and associated drainage was surveyed from the drainage's confluence with Queen Creek to approximately 300 m (1,000 feet) upstream from the Oak Flat Reservoir (Figure 2). Photograph 3 shows the dry Oak Flat Reservoir. Photograph 4 shows red-spotted toad eggs and very small (approximately 4 cm [1.5 inches] long) tadpoles that were observed in the drainage downstream from the dry reservoir. A Visual Encounter Survey form was completed for this drainage and is included in Appendix A.

Queen Creek

A reach of Queen Creek that occurs west of the Parcel was surveyed in 2003 and found to support canyon tree frog tadpoles. Queen Creek within the Parcel was dry in the 2004 survey effort except for a few shallow pools, which were obviously a result of rain the previous night. No herpetofauna were noted. Photograph 5 was taken at the western Parcel boundary along Queen Creek looking upstream. Although no ranids were observed, a Visual Encounter Survey form was completed for this drainage and is included in Appendix A.

Drainage L

Drainage L is located south of Queen Creek east and southeast of the mining facilities along the north western boundary of the Parcel (Figure 2). Drainage L was surveyed in June 2003 and at that time supported canyon tree frogs and red-spotted toads. In 2004, we surveyed this drainage from Queen Creek to where the drainage intersects Oak Flat Reservoir. Again, in 2004, both red-spotted toad and canyon tree frog tadpoles were noted along Drainage L. Immediately upstream from Queen Creek there were pools containing red-spotted toad and canyon tree frog tadpoles. The canyon tree frog tadpoles had begun growing legs and were easily identified as canyon tree frog because of the yellow hindquarters and the toe pads. Photograph 6 was taken of the pools where canyon tree frog tadpoles were observed. Also, a black-necked garter snake (Photograph 7) was observed eating tadpoles in this area. Additionally, where this drainage and Drainage J cross FR 315, numerous red-spotted toads and canyon tree frogs were observed crossing the road during nighttime surveys on August 16, 2004, at which time it was raining steadily. At this time four red-spotted toads and two canyon tree frogs were captured and identified. Due to their stature and movement characteristics it was easily determined that the majority of the species hopping across the road were red-spotted toads. Two Visual Encounter Survey forms were completed for this drainage and are included in Appendix A.

Drainage M

Drainage M was surveyed from its confluence with Drainage L to its confluence with Drainage J (Figure 2). Significant pooling was noted along Drainage M just upstream from its confluence with Drainage L. No tadpoles were noted in these pools; they are deeper and cooler than those located in Drainage L. No Visual Encounter Survey form was completed for Drainage M.

Drainage J

Drainage J was surveyed from its confluence with Drainage M to where it intersects FR 315 (Figure 2). Shallow pooling occurs along this drainage just upstream from Drainage M but the drainage becomes dry approaching FR 315. The shallow pools occurring along this drainage supported red-spotted toad tadpoles (Photograph 8). As is the case with Drainage L, numerous red-spotted toads and a few canyon tree frogs were observed crossing FR 315 in the vicinity of this drainage. A Visual Encounter Survey form was completed for this drainage and is included in Appendix A.

Apache Leap Stock Pond

The Apache Leap Stock Pond is located immediately upstream from Drainage C along the Apache Leap in southwestern portion of the Parcel (Figure 2). The stock pond was not holding as much water as was noted in May 2003 and no herpetofauna were noted in our survey efforts. Photograph 9 shows the pond. There were many dead snails noted floating on the surface of the pond. No evidence to the possible cause of the snail die-off was noted. Although no ranids were observed, a Visual Encounter Survey form was completed for this pond and is included in Appendix A.

Cattail Tank

The Cattail Tank is located just south of FR 2432 immediately upstream of Drainage L (Figure 2). This tank was visited on August 16, 2004 and again on August 18, 2004 due to the rainfall event that occurred on the afternoon and evening of August 16, 2004. Photograph 10 shows the tank after the rainfall event. This tank held red-spotted toad tadpoles when it was visited in June 2003. No herpetofauna were noted in or around the tank in 2004. On August 18, the tank did support some surface water, probably as a result of the storm event, but no herpetofauna were noted in or around the tank. Two Visual Encounter Survey forms were completed for this tank and are included in Appendix A.

Drill Road Stock Tanks 1 and 2

Drill Road Stock Tanks 1and 2 (southern most tanks along FR 315) supported more water in 2003 than in 2004. Photographs 11 and 12 show Drill Road Stock Tanks 1 and 2, respectively. The banks of these tanks were heavily impacted from their use by cattle. No herpetofauna were noted during survey of these tanks. Although no ranids were encountered, a Visual Encounter Survey form was completed for each tank and are both included in Appendix A.

Drill Road Stock Tank 3

Drill Road Stock Tank 3 is the largest of the stock tanks along FR 315. In 2003 there were numerous Arizona tiger salamander noted in this tank as well as dead crayfish. This year, no Arizona tiger salamander were noted but there were numerous dead crayfish. Additionally, a great blue heron was noted foraging along the bank of the tank. Two surveys were conducted on this tank, on August 16 and on August 18, 2004. There was a light, intermittent rain during survey of this tank on August 16. This

tank was holding considerably less water than during site visits in 2003. No herpetofauna were noted in or around the tank. No photographs were taken of the tank. Although no ranids were encountered, two Visual Encounter Survey forms were completed for this tank and are included in Appendix A.

Oak Flat Pond

The Oak Flat Pond, which was completely dry during site visits in 2003, was holding surface water during the 2004 survey effort. Photograph 13 shows the pond. No herpetofauna were noted. Although no ranids were encountered, a Visual Encounter Survey form was completed for this pond and is included in Appendix A.

Campsite Reservoir

Campsite Reservoir is located along Drainage M just below Oak Flat Campground (Figure 2). This reservoir was dry during site visits in 2003; however, during the 2004 survey effort the reservoir supported surface water and red-spotted toad tadpoles (Photograph 14). A Visual Encounter Survey form was completed for the reservoir and is included in Appendix A.

3.2.2 Reptile Observations

In addition to the focused amphibian survey, opportunistic observation of reptiles were also conducted. Reptiles that were noted on the Parcel during the 2004 survey effort are listed in Table 1.

Table 1. Reptiles noted on Resolution Parcel in 2004.

Common Name	Scientific Name
banded gecko	*Coleonyx variegatus*
whiptail lizard species	*Cnemidophorus* sp.
Arizona black rattlesnake	*Crotalus viridis cerberus*
western diamondback rattlesnake	*Crotalus atrox*
black-tailed rattlesnake	*Crotalus molossus*
collared lizard	*Crotaphytus collaris*
lesser earless lizard	*Holbrookia maculata*
gopher snake	*Pituophis melanoleucus*
chuckwalla	*Sauromalus obesus*
spiney lizard	*Sceloporus* sp.
black-necked garter snake	*Thamnophis cyrtopsis*

4. CONCLUSIONS

Neither Chiricahua leopard frog nor lowland leopard frog were detected during focused survey of the Parcel in 2004. The habitats found within the Parcel would be considered marginal to poor for these

species. These species require a reliable source of surface water, which has not been noted within the Parcel. Predatory species (i.e., crayfish and tiger salamander) that have been associated with decreasing ranid populations in Arizona occur within the on-site surface water seasonal features. The seasonal stock ponds on the Parcel are home primarily to the introduced Arizona tiger salamander (a known predator of ranid tadpoles), which apparently are stocked and seined each year and sold as bait. Although the Parcel occurs within the elevation range and potentially supports habitat for the Chiricahua leopard frog, there are no known populations or historical records for Chiricahua leopard frog from Pinal County. Based upon the species-specific surveys that have been conducted to date and the current condition of aquatic habitats within the Parcel, we do not expect Chiricahua leopard frog or lowland leopard frog to occur on the Parcel.

Red-spotted toad and canyon tree frog occur throughout the Parcel within lotic systems where surface water is present. The known distribution of red-spotted toad and canyon tree frog throughout the Parcel is shown in Figure 3. Portions of the Parcel that were not surveyed but that likely also support these two amphibians include the reach of Drainage J southeast of FR 315 and Drainage K. No red-spotted toads or canyon tree frogs were noted in lentic systems.

The Interior Chaparral habitat biotic community dominates the Parcel and the reptile relationships within chaparral are generally ill-defined (Brown, 1994). Essentially, every habitat type within the Parcel can be utilized by reptiles, and the presence of the rock and boulder formations on the Parcel provide numerous opportunities for reptile shelter. As listed in Table 1, 11 reptile species were observed on the Parcel during the 2004 survey effort.

5. REFERENCES

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APPENDIX A
CHIRICAHUA LEOPARD FROG VISUAL ENCOUNTER SURVEY DATA SHEETS

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unnamed Drainage E

SITE AT:

use by central data repository only: NEW SITE Y N NUM

*UTM ZONE: 11 (12) 13

*EASTING: 494503

*NORTHING: 3682750

*ELEV: 4240 m (ft)

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ -- PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 06 16 2004

*START TIME: 1000

*STOP TIME: 1200

*SEARCH TIME: 30 min

*OBSERVERS: L. Barnes A. Bist

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | (Both Banks)

* VOUCHERS: Specimen Photo 00 Habitat Photo 01

Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: (Lentic) (Lotic)

*H_2O TYPE: Canal Plant outflow (Riverine) Wetland Stock tank Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap (Hand exploration) Snorkel Boat Call playback Other

TDS: 110 ppm µs

pH: 6.2

REL. HUM. %

*T_{AIR}: 28.5 °C F

*T_{WATER}: 31.1 °C F

WATER CLARITY: (Extremely clear) Moderately clear Extremely heavily turbid

*LENTIC LENGTH: m

*LENTIC WIDTH: m

*LOTIC WIDTH: (0-2m) 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m (3-5 m) 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt (Sand) (Gravel) Cobble (Boulder) Bedrock

*WIND: < 1 mph (1-3 mph) 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING	0	
SUBMERGED	0	
EMERGENT	0	
PERIMETER	40	Bermuda grass
CANOPY	30	mountain mahogany

*PREDATORS: (include scat and tracks)

Leeches (Boatmen) (Backswimmers) (Dragonflies)

Belostomatids Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: photo #1 looking downstream 494104; 3682405
no herpetofauna noted

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Locality Data

*SITE: unnamed Drainage C | SITE AT:

For use by central data repository only: NEW SITE Y N | *NUM

*UTM ZONE: 11 12 13 | *EASTING 4939941 | *NORTHING 3682935 | *ELEV 4135 m

*QUAD: Superior | *MIN: 7.5 15 | *YEAR: 1981 | *COUNTY: AZ---PINAL

DIRECTIONS: Apache Leap pond drainage

Site and Visit Conditions

*DATE: m m d d y y y y 08/16/2004 | *START TIME 1245 | *STOP TIME 1405 | *SEARCH TIME 5 min | *OBSERVERS: K Barnes, A Best

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | Both Banks

* VOUCHERS: Specimen Photo 09 | Habitat Photo 03 | Specimen(s): Y N | Specimen #s: 1

*H_2O CLASS: Lentic Lotic

*H_2O TYPE: Canal | Plant outflow | Riverine | Wetland | Stock tank | Lake | Reservoir | Small metal/concrete tanks or drinkers

* SEARCH METHODS: Dip net | Seine | Trap | Hand exploration | Snorkel | Boat | Call playback | Other

TDS: 100 ppm | pH: 8

REL. HUM. % | *T_{AIR}: 33 °C F | *T_{WATER}: 34.8 °C F

WATER CLARITY: Extremely clear | Moderately clear | Extremely heavily turbid

*LENTIC LENGTH: m | *LENTIC WIDTH: m

*LOTIC WIDTH: 0-2m | 3-5m | 6-10m | 11-20m | 21-50m | 51-100m | >100m

*RIPARIAN WIDTH: 0-2 m | 3-5 m | 6-10 m | 11-20 m | 21-50 m | >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt | Sand | Gravel | Cobble | Boulder | Bedrock

*WIND: < 1 mph | 1-3 mph | 4-7 mph | 8-12 mph | 13-18 mph | 19-24 mph | >24 mph

*CLOUD COVER: 0-20% | 21-40% | 41-60% | 61-80% | 81-100%

PRECIPITATION: None | Intermittent | Steady & Light | Steady & Heavy | Snow/Sleet

DRY SITE: Y N

VEGETATION	%	PROMINENT SPECIES
FLOATING	0	
SUBMERGED	0	
EMERGENT	10	eleocharis sp.
PERIMETER	30	bermuda
CANOPY	0	

*PREDATORS: (include scat and tracks)

Leeches | Boatmen/Backswimmers | Dragonflies | Belostomatids | Beetles | Warm water fish | Cold water fish | Tiger salamanders | Bullfrogs | Mud turtles | Garter snakes | Wading birds | Blackhawk | Mammals | Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES:

photo 6, 7, 8 black-necked garter
photo 9 tadpoles
photo 10, 11, 12 pool

493994; 3682751

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
RACA	Uncertain Certain	Egg Larvae Juvenile Adult	200+	
BUPU	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: Reservoir Drainage

SITE AT:

For use by central data repository only: NEW SITE Y N NUM

*UTM ZONE: 11 12 13

*EASTING: 494814

*NORTHING: 3685510

*ELEV: 3872 m (ft)

*QUAD: Superior

*MIN: 7.5 15

*YEAR: 1981

*COUNTY: AZ-PLNA

DIRECTIONS: ephemeral drainage b/t magma mine Reservoir and Queen Creek

Site and Visit Conditions

*DATE: m m d d y y y y: 08 18 2004

*START TIME: 1030

*STOP TIME: 1120

*SEARCH TIME: 20 min

*OBSERVERS: K. Barnes A. Best

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | Both Banks

*VOUCHERS: Specimen Photo: __ __ Habitat Photo: __ __ Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: Lentic (Lotic)

*H_2O TYPE: Canal Plant outflow (Riverine) Wetland Stock tank Lake Reservoir Small metal/concrete tanks or drinkers

*SEARCH METHODS: (Dip net) Seine Trap (Hand exploration) Snorkel Boat Call playback Other

TDS: 600 ppm pH: 7

REL. HUM. %

*T_{AIR}: 30.3 (C) F

*T_{WATER}: 24.4 (C) F

WATER CLARITY: (Extremely clear) Moderately clear Extremely heavily turbid

*LENTIC LENGTH: m

*LENTIC WIDTH: m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt Sand Gravel (Cobble) (Boulder) (Bedrock)

*WIND: < 1 mph 1-3 mph (4-7 mph) 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING		
SUBMERGED		
EMERGENT		
PERIMETER		
CANOPY		

*PREDATORS: (include scat and tracks)

(Leeches) (Boatmen/Backswimmers) Dragonflies

Belostomatids (Beetles) Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES:

photo 42 dry magma mine Reservoir; photo 43 from drainage point

Continued on Back (Y/N)

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
BUPU	Uncertain (Certain)	(Egg) Larvae Juvenile Adult		
BUPU	Uncertain (Certain)	Egg (Larvae) Juvenile Adult	5	very small ~4cm long
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: Queen Creek

SITE AT:

For use by central data repository only: NEW SITE Y N NUM

*UTM ZONE: 11 (12) 13

*EASTING: 493958

*NORTHING: 3685410

*ELEV: ~3997 ft m

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ--PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 08 17 2004

*START TIME: 0850

*STOP TIME: 0945

*SEARCH TIME: 5 min

*OBSERVERS: L. Barnes, A. Best

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | (Both Banks)

* VOUCHERS: Specimen Photo 00 Habitat Photo 01

Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: Lentic (Lotic)

*H_2O TYPE: Canal Plant outflow (Riverine) Wetland Stock tank Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap (Hand exploration) Snorkel Boat Call playback Other

TDS: 100 ppm µS

pH: 6.8

REL. HUM. %

*T_{AIR}: 27.2 (C) F

*T_{WATER}: 23 (C) F

WATER CLARITY: Extremely clear (Moderately clear) Extremely heavily turbid

*LENTIC LENGTH: m

*LENTIC WIDTH: m

*LOTIC WIDTH: (0-2m) 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m (21-50 m) >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt Sand Gravel (Cobble) (Boulder) (Bedrock)

*WIND: (< 1 mph) 1-3 mph 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: (Y) N

VEGETATION	%	PROMINENT SPECIES
FLOATING	0	
SUBMERGED	0	
EMERGENT	0	
PERIMETER		Tobosa
CANOPY	30	cottonwood / sycamore

*PREDATORS: (include scat and tracks)

Leeches Boatmen/Backswimmers Dragonflies
Belostomatids Beetles Warm water fish
Cold water fish Tiger salamanders Bullfrogs
Mud turtles Garter snakes Wading birds
Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: A few tinajas had water probably from last nights storm event (estimated 1.6")
photo #16 @ 493958; 3685410

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unnamed Drainage L

SITE AT:

For use by central data repository only: NEW SITE Y N NUM

*UTM ZONE: 11 (12) 13

*EASTING: 493974

*NORTHING: 3684576

*ELEV: m ft

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ-PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y

*START TIME: 1510

*STOP TIME: 1530

*SEARCH TIME: 5 min

*OBSERVERS: K Barnes A Bost

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | Both Banks

* VOUCHERS: Specimen Photo: 00 Habitat Photo: 01

Specimen(s): (Y) N Specimen #s: 2

*H_2O CLASS: Lentic Lotic

*H_2O TYPE: Canal Plant outflow (Riverine) Wetland Stock tank Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap Hand exploration Snorkel Boat Call playback Other

TDS: 60 µs

pH: 7

REL. HUM. %

*T_{AIR}: 30 °C F

*T_{WATER}: 36.0 °C F

WATER CLARITY: Extremely clear Moderately clear (Extremely heavily turbid)

*LENTIC LENGTH: m

*LENTIC WIDTH: m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt Sand (Gravel) (Cobble) (Boulder) Bedrock

*WIND: < 1 mph 1-3 mph (4-7 mph) 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: 0-20% 21-40% (41-60%) 61-80% 81-100%

PRECIPITATION: None Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING	15	algae
SUBMERGED	—	
EMERGENT	—	
PERIMETER	—	
CANOPY	5	Emory oak

*PREDATORS: (include scat and tracks)

Leeches (Boatmen/Backswimmers) (Dragonflies) (Belostomatids) Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: 493974; 3684576 — photo 15

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	(Uncertain) Certain	Egg (Larvae) Juvenile Adult	100+	493974; 3684516
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Locality Data

*SITE: unnamed Drainage L

SITE AT:

For use by central data repository only: NEW SITE Y N; NUM

*UTM ZONE: 11 (12) 13

*EASTING: 494241 *NORTHING: 3685338

*ELEV: ~3905 m ft

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ-PIMA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 08 17 2004

*START TIME: 1000

*STOP TIME: 1240

*SEARCH TIME: min

*OBSERVERS: K. Barnes, A. Best

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | (Both Banks)

* VOUCHERS: Specimen Photo: __ __ Habitat Photo: __ __ Specimen(s): Y N Specimen #s:

*H_2O CLASS: Lentic (Lotic)

*H_2O TYPE: Canal Plant outflow Riverine Wetland Stock tank Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap (Hand exploration) Snorkel Boat Call playback Other

TDS: 90 ppm pH: 6

REL. HUM. %

*T_{AIR}: 33.3 °C °F

*T_{WATER}: 24.0 °C °F

WATER CLARITY: Extremely clear (Moderately clear) Extremely heavily turbid

*LENTIC LENGTH: m

*LENTIC WIDTH: m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt (Sand) Gravel Cobble (Boulder) Bedrock

*WIND: < 1 mph (1-3 mph) 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING		
SUBMERGED		
EMERGENT		
PERIMETER		
CANOPY		

*PREDATORS: (include scat and tracks)
Leeches (Boatmen/Backswimmers) (Dragonflies) (Belostomatids) Beetles Warm water fish
Cold water fish Tiger salamanders Bullfrogs
Mud turtles (Garter snakes) Wading birds
Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: pools begin @ confluence w/ Queen creek

photo #17 @ start point. photo 18 @ pool w/ canyon tree frog larva
photo #19 pools below tree frog (many tadpoles)

Continued on back Y (N)

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain (Certain)	Egg (Larvae) Juvenile Adult	13+	
	(Uncertain) Certain	Egg (Larvae) Juvenile Adult		suspected red-spotted toads
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unmarked Apache Cap Tank

SITE AT:

For use by central data repository only: NEW SITE Y N; NUM

*UTM ZONE: 11 (12) 13

*EASTING: 493550

*NORTHING: 3682284

*ELEV: 4565 (ft) m

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ-PLNA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 08 16 2004

*START TIME: 1220

*STOP TIME: 1240

*SEARCH TIME: 15 min

*OBSERVERS: K. Barnes, A. Best

*EFFORT: (Total Perimeter) Partial Perimeter Left Bank Right Bank Both Banks; meters

* VOUCHERS: Specimen Photo 00 Habitat Photo 0_2; Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: (Lentic) Lotic

*H_2O TYPE: Canal Plant outflow Riverine Wetland (Stock tank) Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap (Hand exploration) Snorkel Boat Call playback Other

TDS: 120 ppm pH: 6

REL. HUM. %

*T_{AIR}: 31 (°C) °F

*T_{WATER}: 32 (°C) °F

WATER CLARITY: Extremely clear Moderately clear (Extremely heavily turbid)

*LENTIC LENGTH: 10 m

*LENTIC WIDTH: 5 m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m (6-10 m) 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): (Mud/Silt) Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph 1-3 mph (4-7 mph) 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: 0-20% (21-40%) 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING	10	algae
SUBMERGED	—	
EMERGENT	—	
PERIMETER	—	
CANOPY	—	

*PREDATORS: (include scat and tracks)

(Leeches) Boatmen/Backswimmers (Dragonflies)

Belostomatids Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES:

large snail die-off; no herpetofauna observed

photo 4,5 - Habitat

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unmarked cattail tank

SITE AT:

For use by central data repository only: NEW SITE Y N NUM

*UTM ZONE: 11 12 13

*EASTING: 493796

*NORTHING: 3684388

*ELEV: m ~4238 ft

*QUAD: Superior

*MIN: 7.5 15

*YEAR: 1981

*COUNTY: AZ --- PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: mm dd yyyy: 08 16 2004

*START TIME: 1435

*STOP TIME: 1450

*SEARCH TIME: 5 min

*OBSERVERS: K Barnes, A. Bust

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | Both Banks

* VOUCHERS: Specimen Photo: __ __ Habitat Photo: __ __ Specimen(s): Y N Specimen #s:

*H_2O CLASS: Lentic Lotic

*H_2O TYPE: Canal Plant outflow Riverine Wetland Stock tank Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: Dip net Seine Trap Hand exploration Snorkel Boat Call playback Other

TDS: µs

pH:

REL. HUM. %

*T_{AIR}: °C F

*T_{WATER}: °C F

WATER CLARITY: Extremely clear Moderately clear Extremely heavily turbid

*LENTIC LENGTH: m

*LENTIC WIDTH: m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph 1-3 mph 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: 0-20% 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: None Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: (Y) N

VEGETATION	%	PROMINENT SPECIES
FLOATING		
SUBMERGED		
EMERGENT		
PERIMETER		
CANOPY		

*PREDATORS: (include scat and tracks)

Leeches Boatmen/Backswimmers Dragonflies
Belostomatids Beetles Warm water fish
Cold water fish Tiger salamanders Bullfrogs
Mud turtles Garter snakes Wading birds
Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: dry stock tank (last year - red spotted toads) photos 13, 14

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unnamed cattail tank *SITE AT:

For use by central data repository only: NEW SITE Y N NUM

*UTM ZONE: 11 (12) 13 *EASTING 4 9 3 7 9 6 *NORTHING 3 6 8 4 3 8 3 *ELEV m 4238 (ft)

*QUAD: Superior *MIN: (7.5) 15 *YEAR: 1981 *COUNTY: AZ--PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y 08 18 2004 *START TIME: 0930 *STOP TIME: 0950 *SEARCH TIME: 5 min *OBSERVERS: K. Barnes, A. Bist

*EFFORT: (Total Perimeter) Partial Perimeter Left Bank Right Bank Both Banks meters

* VOUCHERS: Specimen Photo: ___ Habitat Photo: 02 Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: (Lentic) Lotic

*H_2O TYPE: Canal Plant outflow Riverine Wetland (Stock tank) Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: Dip net Seine Trap (Hand exploration) Snorkel Boat Call playback Other

TDS: 430 ppm pH: 6

REL. HUM. % *T_{AIR}: 30.6 °C F *T_{WATER}: 27.3 °C F

WATER CLARITY: Extremely clear (Moderately clear) Extremely heavily turbid

*LENTIC LENGTH: 12m *LENTIC WIDTH: 10m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m (11-20 m) 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): (Mud/Silt) Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph (1-3 mph) 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING	0	
SUBMERGED	0	
EMERGENT	25	
PERIMETER	30	
CANOPY	0	

*PREDATORS: (include scat and tracks)

Leeches (Boatmen/Backswimmers) (Dragonflies)
Belostomatids Beetles Warm water fish
Cold water fish Tiger salamanders Bullfrogs
Mud turtles Garter snakes Wading birds
Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: dry 2 days ago; standing water is result of rain on 8/16 pm.

photo 90, 40 Habitat

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unmarked Drill Road Tank 1

SITE AT:

For use by central data repository only: NEW SITE Y N | NUM

*UTM ZONE: 11 12 13

*EASTING: 4 9 4 5 0 9

*NORTHING: 3 6 8 2 9 4 2

*ELEV: 4136 m (ft)

*QUAD: Superior

*MIN: 7.5 15

*YEAR: 1981

*COUNTY: AZ---PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 08 19 2004

*START TIME: 1520

*STOP TIME: 1530

*SEARCH TIME: 5 min

*OBSERVERS:

*EFFORT: Total Perimeter meters | Partial Perimeter | Left Bank | Right Bank | Both Banks

* VOUCHERS: Specimen Photo: __ __ Habitat Photo: 0 1

Specimen(s): Y N Specimen #s:

*H_2O CLASS: Lentic Lotic

*H_2O TYPE: Canal Plant outflow Riverine Wetland Stock tank Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: Dip net Seine Trap Hand exploration Snorkel Boat Call playback Other

TDS: 150 us

pH: 7

REL. HUM. %

*T_{AIR}: 34,5 °C F

*T_{WATER}: 31,5 °C F

WATER CLARITY: Extremely clear Moderately clear Extremely heavily turbid

*LENTIC LENGTH: 8 m

*LENTIC WIDTH: 5 m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph 1-3 mph 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: 0-20% 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: None Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y N

VEGETATION	%	PROMINENT SPECIES
FLOATING	0	
SUBMERGED		
EMERGENT	0	
PERIMETER		
CANOPY	0	

*PREDATORS: (include scat and tracks)

Leeches Boatmen/Backswimmers Dragonflies

Belostomatids Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: recently used tank; cattle sign

photo 35 Habitat Photo photos 37, 38, 38 Aquatic walk stick

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unmarked Drill Road Tank 2

SITE AT:

For use by central data repository only: NEW SITE Y N NUM

*UTM ZONE: 11 (12) 13

*EASTING: 4 9 4 5 1 0

*NORTHING: 3 6 8 0 0 0 5

*ELEV: 4136 m (ft)

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ---PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 08 17 2004

*START TIME: 1535

*STOP TIME: 1545

*SEARCH TIME: 5 min

*OBSERVERS:

*EFFORT: (Total Perimeter) Partial Perimeter Left Bank Right Bank Both Banks

meters

* VOUCHERS: Specimen Photo: __ __ Habitat Photo: 01

Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: Lentic Lotic

*H_2O TYPE: Canal Plant outflow Riverine Wetland (Stock tank) Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap Hand exploration Snorkel Boat Call playback Other

TDS: 110 µs

pH: 7

REL. HUM. %

*T_{AIR}: 34.5 °C F

*T_{WATER}: 35.1 °C F

WATER CLARITY: Extremely clear Moderately clear (Extremely heavily turbid)

*LENTIC LENGTH: 10 m

*LENTIC WIDTH: 10 m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): Mud/Silt Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph 1-3 mph 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: None Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y N

VEGETATION	%	PROMINENT SPECIES
FLOATING		
SUBMERGED		
EMERGENT	5	SEDGE
PERIMETER	5	BERMUDA GRASS & SEDGE
CANOPY		

*PREDATORS: (include scat and tracks)

Leeches (Boatmen/Backswimmers) Dragonflies

Belostomatids Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals Crayfish

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: RECENT USE BY CATTLE

photo 36 Habitat Photo

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unmarked Dirt Road Lerma STOCK TANK (#3)

SITE AT:

For use by central data repository only: NEW SITE? Y N NUM

*UTM ZONE: 11 (12) 13

*EASTING: 494496

*NORTHING: 3683995

*ELEV: ~3493 m (ft)

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ--PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 08/16/2004

*START TIME: 1815

*STOP TIME: 1845

*SEARCH TIME: 20 min

*OBSERVERS: K Barnes, A. Bust

*EFFORT: (Total Perimeter) Partial Perimeter Left Bank Right Bank Both Banks

meters

* VOUCHERS: Specimen Photo: 00 Habitat Photo 0 0

Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: (Lentic) (Lotic)

*H_2O TYPE: Canal Plant outflow Riverine Wetland (Stock tank) Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap Hand exploration Snorkel Boat Call playback Other

TDS 140 ppm pH: 7

REL. HUM. %

*T_{AIR}: 20 (°C) F

*T_{WATER}: 27 (°C) F

WATER CLARITY: Extremely clear Moderately clear (Extremely heavily turbid)

*LENTIC LENGTH: m

*LENTIC WIDTH: m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): (Mud/Silt) Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph (1-3 mph) 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: 0-20% 21-40% 41-60% (61-80%) 81-100%

PRECIPITATION: None (Intermittent) Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING		algae
SUBMERGED		
EMERGENT		
PERIMETER		
CANOPY		

*PREDATORS: (include scat and tracks)

(Leeches) (Boatmen/Backswimmers) Dragonflies

(Belostomatids) Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes (Wading birds)

Blackhawk Mammals (Crayfish)

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: many dead crayfish (great blue heron seen at this site earlier today) this tank is much smaller (holding less water than last year)

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Attachment 2: Chiricahua Leopard Frog Visual Encounter Survey

March 2003

Locality Data

*SITE: unnamed Large Drill Road STOCK TANK 3

SITE AT:

For use by central data repository only: NEW SITE Y N *NUM

*UTM ZONE: 11 (12) 13

*EASTING: 4 9 4 4 9 6

*NORTHING: 3 6 8 3 9 9 5

*ELEV: ~3993 m ft

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ--PINAL

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y: 08 17 2004

*START TIME: 1550

*STOP TIME: 1610

*SEARCH TIME: 15 min

*OBSERVERS: K Barnes, A. Best

*EFFORT: (Total Perimeter) Partial Perimeter Left Bank Right Bank Both Banks — meters

* VOUCHERS: Specimen Photo 00 Habitat Photo 00 Specimen(s): Y (N) Specimen #s:

*H_2O CLASS: (Lentic) Lotic

*H_2O TYPE: Canal Plant outflow Riverine Wetland (Stock tank) Lake Reservoir Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap Hand exploration Snorkel Boat Call playback Other

TDS: 140 ppm pH: 7

REL. HUM. %

*T_{AIR}: 30.1 °C (F)

*T_{WATER}: 25 °C (F)

WATER CLARITY: Extremely clear Moderately clear (Extremely heavily turbid)

*LENTIC LENGTH: 70 m

*LENTIC WIDTH: 25 m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): (Mud/Silt) Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph 1-3 mph (4-7 mph) 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: None Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y N

VEGETATION	%	PROMINENT SPECIES
FLOATING	60	algae
SUBMERGED	0	
EMERGENT	5	sedge
PERIMETER	35	sedge
CANOPY	0	

*PREDATORS: (include scat and tracks)

(Leeches) Boatmen/Backswimmers (Dragonflies)

Belostomatids Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals (Crayfish)

*OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES:

18 dead crayfish noted

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Locality Data

*SITE: unnamed Oak Flat Pond

SITE AT:

For use by central data repository only: NEW SITE Y N NUM:

*UTM ZONE: 11 (12) 13

*EASTING: 4961383

*NORTHING: 3685427

*ELEV: ~4109 m ft

*QUAD: Superior

*MIN: (7.5) 15

*YEAR: 1981

*COUNTY: AZ --- PINAL

DIRECTIONS:

Site and Visit Conditions

DATE: m m d d y y y y: 08 17 2004

*START TIME: 1300

*STOP TIME: 1320

*SEARCH TIME: 10 min

*OBSERVERS: K Barnes, A-Best

EFFORT: (Total Perimeter) Partial Perimeter Left Bank Right Bank Both Banks

meters

* VOUCHERS: Specimen Photo: 00 Habitat Photo: 02

Specimen(s): Y N Specimen #s:

*H_2O CLASS: (Lentic) Lotic

*H_2O TYPE: Canal Plant outflow Riverine Wetland (Stock tank) Lake Reservoir Small metal/concrete tanks or drinkers

SEARCH METHODS: (Dip net) Seine Trap Hand exploration Snorkel Boat Call playback Other

TDS: 30 ppm

pH: 7

REL. HUM. %

*T_{AIR}: 32.0 (°C) °F

*T_{WATER}: 35.9 °C °F

WATER CLARITY: Extremely clear Moderately clear (Extremely heavily turbid)

*LENTIC LENGTH: 50 m

*LENTIC WIDTH: 15 m

*LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m 11-20 m 21-50 m >50 m

*PRIMARY SUBSTRATE (mark 1-3): (Mud/Silt) Sand Gravel Cobble Boulder Bedrock

WIND: < 1 mph 1-3 mph (4-7 mph) 8-12 mph 13-18 mph 19-24 mph >24 mph

*CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet

DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING	10	
SUBMERGED	0	
EMERGENT	40	Eleocharis sp.
PERIMETER	0	
CANOPY	0	

*PREDATORS: (include scat and tracks)

Leeches Boatmen/Backswimmers (Dragonflies)

Belostomatids Beetles Warm water fish

Cold water fish Tiger salamanders Bullfrogs

Mud turtles Garter snakes Wading birds

Blackhawk Mammals Crayfish

OTHER ORGANISMS:

OTHER ORG. NOTES:

SITE / SURVEY NOTES: This pond was completely dry during survey last year. many rabbit pellets & deer scat noted photos 30, 31 Habitat photos

Continued on back? Y N

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

Locality Data

*SITE: unnamed campsite Reservoir | SITE AT:

For use by central data repository only: NEW SITE Y N | NUM

*UTM ZONE: 11 (12) 13 | *EASTING 495060 | *NORTHING 3684528 | *ELEV 3936 m (ft)

*QUAD: Superior | *MIN: 7.5 (15) | *YEAR: 1981 | *COUNTY: AZ—PINA

DIRECTIONS:

Site and Visit Conditions

*DATE: m m d d y y y y 08/17/2004 | *START TIME 1345 | *STOP TIME | *SEARCH TIME min | *OBSERVERS: C. Barnes, A. Best

*EFFORT: (Total Perimeter) Partial Perimeter Left Bank Right Bank Both Banks meters | * VOUCHERS: Specimen Photo: 01 Habitat Photo: 02 Specimen(s): Y N Specimen #s:

*H_2O CLASS: (Lentic) Lotic | *H_2O TYPE: Canal Plant outflow Riverine Wetland Stock tank Lake (Reservoir) Small metal/concrete tanks or drinkers

* SEARCH METHODS: (Dip net) Seine Trap Hand exploration Snorkel Boat Call playback Other | TDS: 40 ppm | pH: 6

REL. HUM: % | *T_{AIR}: 39.7 °C °F | *T_{WATER}: 37.0 °C °F | WATER CLARITY: Extremely clear (Moderately clear) Extremely heavily turbid

*LENTIC LENGTH: m | *LENTIC WIDTH: m | *LOTIC WIDTH: 0-2m 3-5m 6-10m 11-20m 21-50m 51-100m >100m

*RIPARIAN WIDTH: 0-2 m 3-5 m 6-10 m (1-20 m) 21-50 m >50 m | *PRIMARY SUBSTRATE (mark 1-3): (Mud/Silt) Sand Gravel Cobble Boulder Bedrock

*WIND: < 1 mph (1-3 mph) 4-7 mph 8-12 mph 13-18 mph 19-24 mph >24 mph | *CLOUD COVER: (0-20%) 21-40% 41-60% 61-80% 81-100%

PRECIPITATION: (None) Intermittent Steady & Light Steady & Heavy Snow/Sleet | DRY SITE: Y (N)

VEGETATION	%	PROMINENT SPECIES
FLOATING		
SUBMERGED		
EMERGENT		
PERIMETER		
CANOPY		

*PREDATORS: (include scat and tracks)
Leeches Boatmen/Backswimmers Dragonflies
Belostomatids Beetles Warm water fish
Cold water fish Tiger salamanders Bullfrogs
Mud turtles Garter snakes Wading birds
Blackhawk Mammals Crayfish

*OTHER ORGANISMS: | OTHER ORG. NOTES:

SITE / SURVEY NOTES:

photos 32 ~~tadpoles~~ photos 33, 34 Habitat ↑ @ reservoir then ↓ (Continued on back? Y N)

Herpetofauna Observations

*SPECIES	CERTAINTY	LIFE STAGE	#	NOTES
	Uncertain (Certain)	Egg (Larvae) Juvenile Adult	30-50	
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		
	Uncertain Certain	Egg Larvae Juvenile Adult		

APPENDIX B

PHOTOGRAPHIC DOCUMENTATION OF 2004 AMPHIBIAN SURVEY

Photo 1. View of Drainage E from Apache Leap looking downstream.

Photo 2. View of red-spotted toad tadpoles in pool along Drainage C.

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Photo 3. View of dry Oak Flat Reservoir.

Photo 4. View of amphibian egg masses (suspected red-spotted toad) in the Oak Flat Reservoir drainage.

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Photo 5. View of Queen Creek looking upstream from western Parcel boundary.

Photo 6. View of pools that support canyon tree frog and red-spotted toad tadpoles along Drainage L.

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Photo 7. Black-necked garter snake found eating tadpoles along Drainage L.

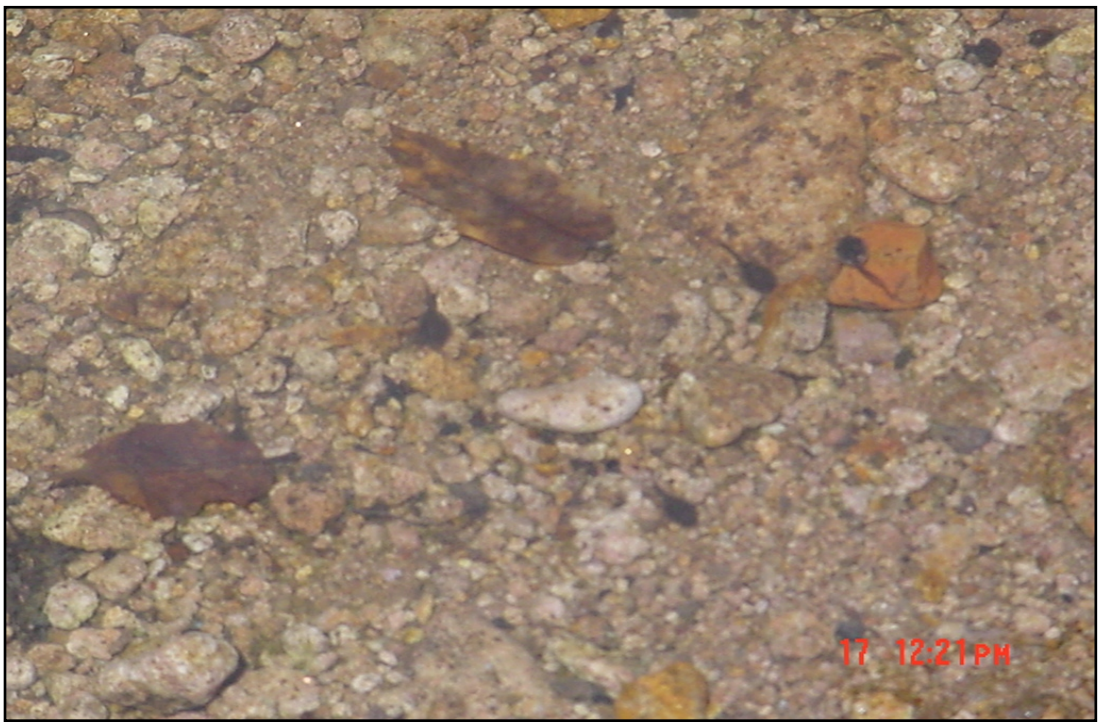

Photo 8. Red-spotted toad tadpoles in pool along Drainage J.

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Photo 9. Apache Leap Pond. Note the dead snails floating on water surface.

Photo 10. View of Cattail Tank after storm event. This tank was dry previous to rain event.

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Photo 11. View of Drill Road Stock Tank 1.

Photo 12. View of Drill Road Stock Tank 2.

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Photo 13. View of Oak Flat Pond.

Photo 14. View of red-spotted toad tadpoles noted within the Campsite Reservoir.

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