City of Austin, Austin Water Utility,

Wildland Conservation Division,

Balcones Canyonlands Preserve

# Initial Assessment of Pipeline Cave, Travis County, Texas

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Flowstone in the East Room

## Introduction

Pipeline Cave is located just north of Slaughter Creek and west of Mopac in Travis County. It is one of the 62 caves covered by the Balcones Canyonlands Conservation Plan (BCCP), a regional 10(a)1(B) permit issued by the U.S. Fish and Wildlife Service (USFWS) to the City of Austin (COA) and Travis County (TC) in May 1996 (USFWS 1996a). It received BCCP protection due to the presence of a rare species of cave millipede (Russel 1997). The property where it is located is privately owned, but through talks with Tim League (Founder/CEO of Alamo Drafthouse) and Melissa Beatty (Property Manager, Whitestone REIT) we have been given access to the site. An agreement is being developed to allow us to do the management work on their site including faunal surveys, cricket exit counts, fire ant treatment, and trash removal.

## Description

The cave entrance is in a clump of trees just to the west of the Alamo Draft House. Pipeline Cave was gated by Mie Warton in 2011. The gate is in good shape. We removed the old lock and added a new lock (Figure1). The Entrance Room is approximately 20 by 15 feet with 3 to 4 foot ceiling heights, with various stalactites, stalagmites and flowstone formations (See map: Figure 3). The cave was used as a ranch trash dump in the past, so the floor of the entrance room is covered in bottles, degraded metal cans that form a kind of rust soil, and other assorted trash mostly from the 50s and 60s (Figure 2). On the east side of the Entrance Room at floor level there is an opening in the flowstone that leads to the lower level. It is a bit of a corkscrew squeeze that I would recommend entering feet first. Before the gate was installed, the large amount of trash hiding this squeeze may have protected the lower level from visitation (Russel 1997). After the squeeze there is a climb down and then you reach the well decorated East Room with lots of flowstone formations and a mud floor. There is lots of trash and bottles mixed with the mud that has washed down from the upper level. The middle of the East Room has 10ft ceiling heights and the eastern and southern portions have much lower ceiling heights that require crawling. At the southern end of the East Room is a small opening at floor level that has considerable airflow, and you can see 15 feet or so to the east. It is currently blocked by mud and trash, but hand excavation could open more passage in the future. If you go to the north end of the East Room, you can crawl up a flowstone incline into the West Room. The West room is about 20 feet long, and tall enough to stand in parts of it. The floor is composed of medium sized rocks scattered on a solid stone floor. This area is elevated above most of the water flow, so is relatively pristine with no mud or trash accumulation.

## Soft Tick Survey

Some caves in the Austin area are home to soft ticks (Family Argasidae) which are a vector for Tick-Borne Relapsing Fever TBRF. TBRF is treatable with antibiotics, but the symptoms are very unpleasant, and some people may have stronger reactions than others. Caves with large numbers of soft ticks are to be avoided and only entered if necessary using proper protective clothing. The ticks live in mammal nests and burrows, so caves with large numbers of mammals such as mice, raccoons and porcupines are more likely to have high numbers of soft ticks. The soft ticks are attracted to CO2, so to assess if ticks are present we set C02 traps that will draw them out if they are present. Traps consist of a Tupperware container dug into the floor so that the lip is level with the ground. Then a block of dry ice is placed on an inverted paper cup. The trap is left for an hour or so and then examined. Ticks, if present, will be in the Tupperware or along the edges.

Two CO2 traps were set by Colin Strickland and left for 1 hour and 20 minutes. When checked, no ticks were found in either trap. This doesn't mean there are no ticks, but if there are, the numbers are low enough to be of little risk.

Faunal Survey

A faunal survey was preformed by Colin Strickland, Drew Thompson and Mark Sanders. Three representative zones of the cave were surveyed. Zone 1 was the Entrance room, Zone 2 was the East Room, and Zone 3 was the West Room (Figure 3). The survey procedure is to look under every rock, and on all surfaces, floors, walls and ceiling, counting the number of individuals of each species encountered. The results are shown in Tables 1 through 3.

Previous to this survey, there was only one documented species of concern known from this cave (*Speodesmus* n.sp. 5). The survey results show that there are now two additional species of concern (*Rhadine austinica*, and *Cicurina bandida*), plus we were able to document two other troglobitic species (*Tayshaneta* sp., and *Texoreddellia* sp.).



Figure 1. Pipeline Cave gate. Successful old lock removal. Photo by Colin Strickland.



Figure 2. Ranch trash in Entrance Room. Photo by Colin Strickland.

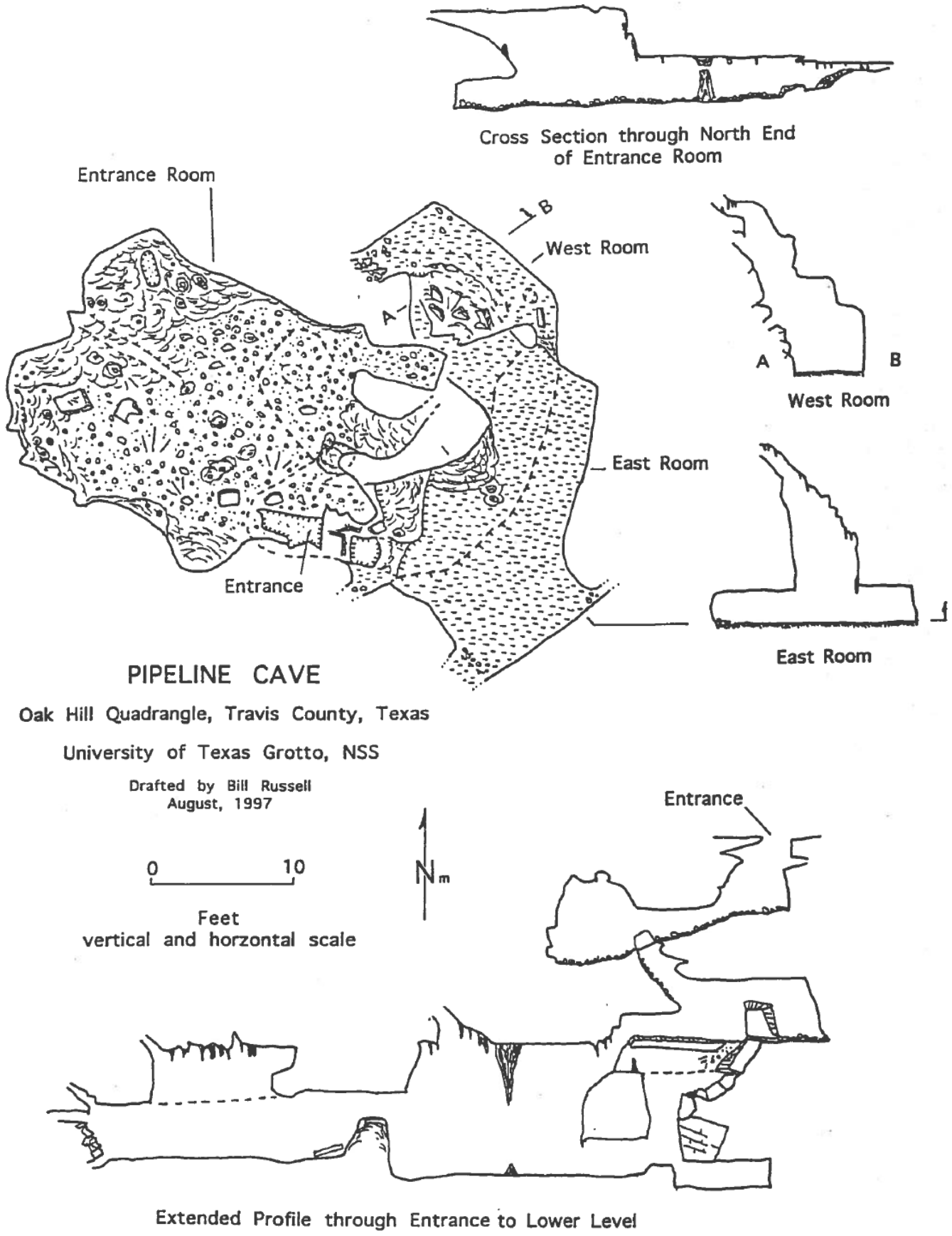



Figure 3. Map of Pipeline Cave. Drafted by Bill Russel (Russel 1997)

| Zone 1 | | |
|---|---|---|
| **Scientific Name** | **Common Name** | **Count** |
| *Ceuthophilus secretus* | Texas cave cricket | ~650 |
| *Ceuthophilus cunicularis* | N/A (type of cave cricket) | 3 |
| *Ceuthophilus* (Undescribed) | N/A (Species B) | 2 |
| *Ceuthophilus* subadults | N/A (cave cricket subadult) | 58 |
| *Ceuthophilus* nymphs | N/A (cave cricket nymph) | 33 |
| *Leiobunum townsendi* | Harvestmen | ~220 |
| ***Cicurina bandida**** | **Bandit Cave Meshweaver spider** | 1 |
| *Cicurina varians* | Meshweaver Spider | 10 |
| *Cryptachaea porteri* | Cobweb spider | 1 |
| *Eidmannella* sp. | Scafold web spider | 1 |
| ***Cambala speobia*** | **N/A (type of cave millipede)** | 1 |
| Armadillidiidae | Pill bug | 3 |
| Oniscidae | Sow bug | 77 |
| *Pseudosinella violenta* | Slender springtail | ~205 |
| Psocoptera | Book lice | 1 |
| Diplura | Two-pronged bristletail | 1 |
| Staphylinidae | Rove beetle | 1 |
| Mycetophilidae | Fungus gnat | 2 |
| Lepidoptera | Moth | 3 |
| *Eleutherodactylus marnockii* | Cliff chirping frog | 3 |

Table 1. Zone 1 (Entrance Room) faunal survey results.
~ indicates approximate counts, **Bold** Species are troglobitic (cave obligate), * indicate BCCP permit Species of concern.

| Zone 2 | | |
|---|---|---|
| **Scientific Name** | **Common Name** | **Count** |
| *Ceuthophilus secretus* | Texas cave cricket | 118 |
| *Ceuthophilus (*Undescribed) | N/A (Species B) | 11 |
| *Ceuthophilus* subadults | N/A (cave cricket subadult) | 28 |
| *Ceuthophilus* nymphs | N/A (cave cricket nymph) | 30 |
| ***Cicurina bandida**** | **Bandit Cave Meshweaver spider** | 44 |
| *Eidmannella* sp. | Scaffold web spider | 1 |
| *Pseudouroctonus reddelli* | Texas cave scorpion | 1 |
| ***Speodesmus* n.sp. 5*** | Cave millipede | 30 |
| ***Cambala speobia*** | **N/A (type of cave millipede)** | 4 |
| *Batrisodes* | Mold beetle | 1 |
| ***Rhadine austinica**** | **Troglobitic ground beetle** | 2 |
| Staphylinidae | Rove beetle | 1 |
| ***Texoredellia* sp.** | **Subterranean silverfish** | 3 |
| *Pseudosinella violenta* | Slender springtail | 41 |
| Mycetophilidae | Fungus gnat | 1 |
| *Helicodiscus eigenmanni* | N/A (type of land snail) | 11 |
| *Haplotaxidae* | Earth worm | 2 |
| *Plethodon albagula* | Western slimy salamander | 5 |

Table 2. Zone 2 (East Room) faunal survey results.
~ indicates approximate counts, **Bold** Species are troglobitic (cave obligate), * indicate BCCP permit Species of concern.

| Zone 3 | | |
|---|---|---|
| **Scientific Name** | **Common Name** | **Count** |
| *Ceuthophilus secretus* | Texas cave cricket | 30 |
| *Ceuthophilus* (Undescribed) | N/A (Species B) | 10 |
| *Ceuthophilus* subadults | N/A (cave cricket subadult) | 17 |
| *Ceuthophilus n*ymphs | N/A (cave cricket nymph) | 15 |
| ***Texella mulaiki*** | N/A (Type of troglobitic harvestman) | 5 |
| ***Cicurina bandida**** | **Bandit Cave Meshweaver spider** | 15 |
| ***Tayshaneta* sp.** | **N/A (Troglobitic Spider in family Leptonetidae)** | 2 |
| ***Speodesmus* n.sp. 5*** | **Cave millipede** | 9 |
| ***Cambala speobia*** | **N/A (type of cave millipede)** | 4 |
| ***Texoredellia* sp.** | **Subterranean silverfish** | 2 |
| *Pseudosinella violenta* | Slender springtail | 7 |
| Mycetophilidae | Fungus gnat | 2 |
| Lepidoptera | Moth | 2 |
| *Helicodiscus eigenmanni* | N/A (type of land snail) | 29 |
| *Plethodon albagula* | Western slimy salamander | 2 |

Table 3. Zone 3 (West Room) faunal survey results.
~ indicates approximate counts, **Bold** Species are troglobitic (cave obligate), * indicate BCCP permit Species of concern.

Photos



Figure 4. Entrance Room trash. Photo by Colin Strickland.



Figure 5. *Ceuthophilus secretus* (Texas cave cricket) on ceiling of Entrance Room. Photo by Colin Strickland.



Figure 6. *Speodesmus* sp. (Cave millipede) on wall in East Room. Photo by Colin Strickland.



Figure 7. *Cicurina bandida* (Bandit Cave Meshweaver spider) in East Room. Photo by Colin Strickland.



Figure 8. *Helicodiscus eigenmanni* (Land snail) in West Room. Photo by Colin Strickland.



Figure 9. *Texella mulaiki* (troglobitic harvestman) in West Room. Photo by Colin Strickland.



Figure 10. *Tayshaneta* sp. (Troglobitic spider in family Leptonetidae) in West Room. Photo by Colin Strickland.



Figure 11. Drew Thompson at beginning of East Room. Photo by Colin Strickland.

Literature Cited

Russell, William H. Pipeline Cave, A report to the BCP Karst Management Committee. Texas Cave Management Association, 1997.

U.S. Fish and Wildlife Service. 1996a. Federal Fish and Wildlife Permit No. PRT-788841.