

0098

Canyon Fuel Company, LLC  
Dugout Canyon Mine  
P.O. Box 1029  
Wellington, Utah 84542



August 18, 2005

Ms. Pamela Grubaugh-Littig  
Utah Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
Salt Lake City, UT 84114-5801

*Incoming  
C/007/039  
Copy Jerriann*

RE: Incorporation of Bat Survey of Pace Canyon into Appendix 3-3.  
Dugout Canyon Mine, Canyon Fuel Company, LLC, C/007/039, Carbon County, Utah

Dear Ms. Grubaugh-Littig:

Attached please find four copies of the bat survey performed in Pace Canyon per commitments in Chapter 3 of the M&RP.

A copy of this amendment has been delivered to the Price Field Office.

Thank you for your assistance and if you have any questions please call me at (435) 636-2869.

Sincerely yours,

*Vicky S. Miller*

Vicky S. Miller

cc: Dave Spillman  
Pete Hess

RECEIVED

AUG 18 2005

DIV. OF OIL, GAS & MINING

# APPLICATION FOR COAL PERMIT PROCESSING

Permit Change  New Permit  Renewal  Exploration  Bond Release  Transfer

**Permittee:** Canyon Fuel Company, LLC

**Mine:** Dugout Canyon Mine

**Permit Number:** C/007/039

**Title:** Incorporation of Bat Survey for Pace Canyon

**Description,** Include reason for application and timing required to implement:

**Instructions:** If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

- Yes  No 1. Change in the size of the Permit Area? Acres: \_\_\_\_\_ Disturbed Area: \_\_\_\_\_  increase  decrease.
- Yes  No 2. Is the application submitted as a result of a Division Order? DO# \_\_\_\_\_
- Yes  No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- Yes  No 4. Does the application include operations in hydrologic basins other than as currently approved?
- Yes  No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- Yes  No 6. Does the application require or include public notice publication?
- Yes  No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
- Yes  No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- Yes  No 9. Is the application submitted as a result of a Violation? NOV # \_\_\_\_\_
- Yes  No 10. Is the application submitted as a result of other laws or regulations or policies?  
*Explain:* \_\_\_\_\_
- Yes  No 11. Does the application affect the surface landowner or change the post mining land use?
- Yes  No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- Yes  No 13. Does the application require or include collection and reporting of any baseline information?
- Yes  No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- Yes  No 15. Does the application require or include soil removal, storage or placement?
- Yes  No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- Yes  No 17. Does the application require or include construction, modification, or removal of surface facilities?
- Yes  No 18. Does the application require or include water monitoring, sediment or drainage control measures?
- Yes  No 19. Does the application require or include certified designs, maps or calculation?
- Yes  No 20. Does the application require or include subsidence control or monitoring?
- Yes  No 21. Have reclamation costs for bonding been provided?
- Yes  No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- Yes  No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

**Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you.** (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein

David Spillman  
Print Name

David Spillman, Engineering Manager  
Sign Name, Position, Date

Subscribed and sworn to before me this 18 day of AUGUST, 2005

Vicky Sue Muller  
Notary Public

My commission Expires: 1-5, 2008 }  
Attest: State of UTAH } ss:  
County of CARBON



<b>For Office Use Only:</b>	<b>Assigned Tracking Number:</b>	<b>Received by Oil, Gas &amp; Mining</b>  <div style="font-size: 2em; color: red; font-weight: bold;">RECEIVED</div> <div style="font-size: 1.5em; color: red; font-weight: bold;">AUG 18 2005</div> <div style="color: red; font-weight: bold;">DIV. OF OIL, GAS &amp; MINING</div>
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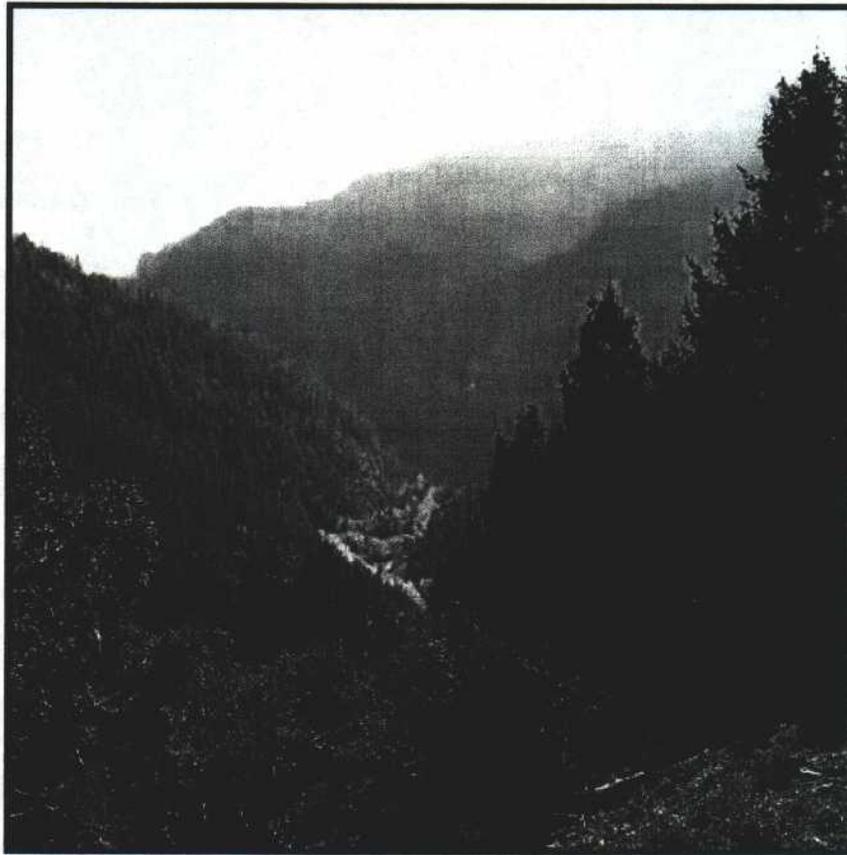


**APPENDIX 3-3**

Fish and Wildlife Data

Add to the back of existing data.

**Bat Survey Report  
Canyon Fuel Company  
Dugout Mine  
Pace Creek Canyon**



**Prepared by:  
JBR Environmental Consultants  
8160 South Highland Drive  
Sandy, Utah 84093  
801-943-4144**

**June 2005**

## Introduction

On the nights of 17 - 22 May 2005, JBR Environmental Consultants Inc. (JBR) conducted bat surveys within the Pace Creek Canyon area, Carbon County, Utah (**Figure 1**). These surveys were conducted as required under an existing Utah Division of Oil, Gas, and Mining permit, due to the potential for subsidence in the area as a result of activities at Canyon Fuel Company's Dugout Mine operation.

## Inventory Area

The Inventory Area lies between 7,150 – 8,200 feet elevation and is characterized by steep sided canyon walls consisting of exposed rock outcrops (see photo). The vegetative community is dominated by mixed-age stands of pinyon, juniper, Douglas-fir, and aspen. Shrub species include mountain mahogany, maple, serviceberry, and sagebrush.

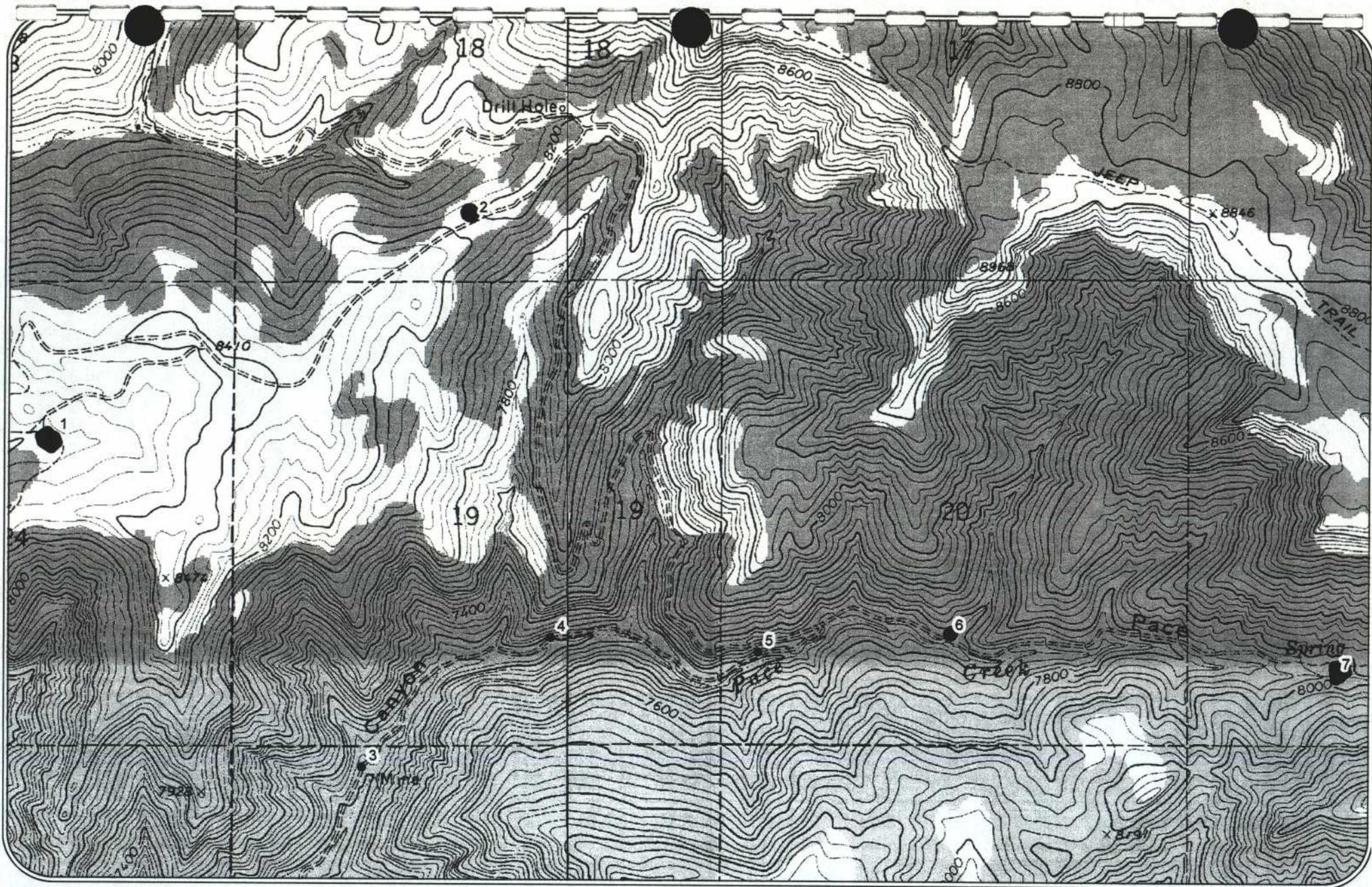
As a function of the vast expanses of rock outcrops and associated fissures and cracks, the Inventory Area appears to contain a virtually unlimited potential for day and night bat roosting sites. Snag habitat is also available. No known caves, open mine shafts, adits, or other man made structures that might provide additional habitats are



known to exist in the Inventory Area. Perhaps the only habitat feature limiting bat presence within the Inventory Area is the availability of water for drinking and foraging. However, Several ponds with standing water were located within the Inventory Area (**Figure 1**) and Pace Creek was running at high flows during the survey.

## Results

During the six nights of recording bat calls, 4,414 call files (each of which may contain data from more than one bat) were produced. Only one bat call was recorded over nine hours on 17 May – 18 May (night 1), when conditions were relatively cold. From night 2 through night 5, when conditions were warmer and recordings were made throughout the night, the number of recorded files ranged from 420 on night 5 to 1,162 on night 3. The average number of recordings during peak activity on these four nights was 172 calls per hour; indicating a relatively high abundance of bats. In general, bat activity (# of bat call files recorded per hour) peaked each night between 10 pm and 1 am and then steadily declined until sunrise (6 – 6:10 am).



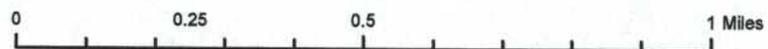
**Figure 1. AnaBat Survey Locations.**

Base: Mount Bartles and Pine Canyon, Utah - 1:24,000 (USGS)

T13S R12E Section 24

T13S R13E Sections 18, 19, 20, 21, 30

1:17,400



- Stop
- Pond



Of the 4,414 call files, 1,168 files contained only noise or had too few calls to be useful for identification. These files were excluded from analysis. Each of the 3,246 remaining call files were examined for the presence of spotted bat calls, and then another pass through all the files was made to look for Townsend's big-eared calls. No calls of either species were detected. JBR did not attempt to identify all bat calls that were recorded because of the large number of files and the amount of time that would be required. However, no calls for the western red bat (*Lasiurus blossevillii*), Allen's big-eared bat (*Idionycteris phyllotis*), or the big free-tailed bat (*Nyctinomops macrotis*), additional Utah sensitive species, were recorded. It appears that the greatest majority of the recorded bat calls were big brown bats (*Eptesicus fuscus*). It is possible that some of the calls identified as big brown bats could have been Brazilian free-tailed bats (*Tadarida brasiliensis*) or silver-haired bats (*Lasionycteris noctivagans*) because calls of these species sometimes look very similar. Other frequently recorded calls were identified as long-eared myotis (*Myotis evotis*), little brown bat (*M. lucifugus*), and the fringed myotis (*M. thysanodes*), a Utah sensitive species. Infrequently recorded calls included those of the pallid bat (*Antrozous pallidus*), hoary bat (*Lasiurus cinereus*), and either Yuma or California myotis (whose calls are difficult to distinguish).

**Table 1 Bat species recorded within the Inventory Area.**

Species	Relative Frequency of Detections	Abundance In Utah <sup>1</sup>	Classification In Utah <sup>2</sup>
<i>Eptesicus fuscus</i> (Big Brown Bat)	Most frequent	Abundant	
<i>Myotis evotis</i> (Long-eared Myotis)	Frequent	Common	
<i>Myotis lucifugus</i> (Little Brown Bat)	Frequent	Common	
<i>Myotis thysanodes</i> (Fringed Myotis)	Frequent	Uncommon	Sensitive
<i>Antrozous pallidus</i> (Pallid Bat)	Infrequent	Common	
<i>Lasiurus cinereus</i> (Hoary Bat)	Infrequent	Uncommon	
<i>Myotis sp.</i> (Yuma or California)	Infrequent	Common- Uncommon	
<i>Lasionycteris noctivagans</i> (Silver-haired Bat)	Possible?	Common	
<i>Tadarida brasiliensis</i> (Brazilian Free-tailed Bat)	Possible?	Abundant	

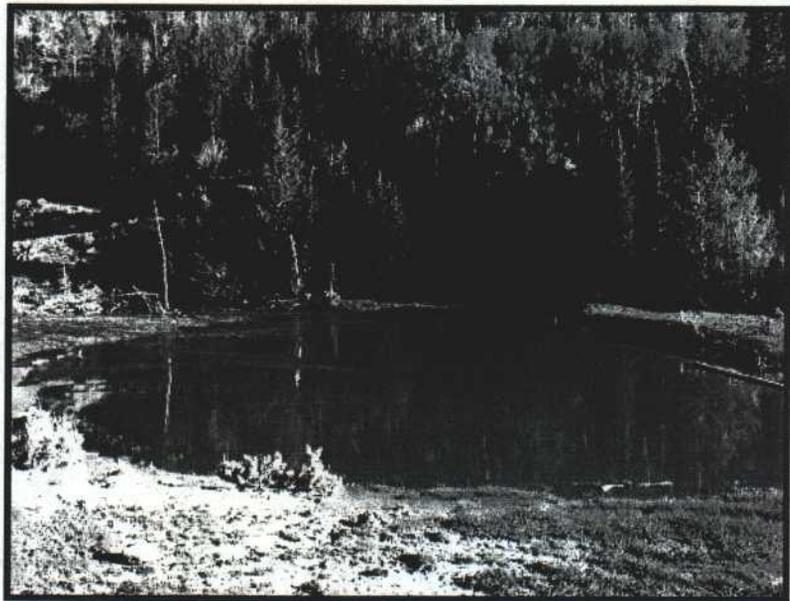
? Calls of this species are very similar to that of the big brown bat.

1. Oliver, G. V. 2000. The bats of Utah, a literature review. Utah Division of Wildlife Resources. Publication Number 00-14.

2. Utah Division of Wildlife Resources, Utah Sensitive Species, 8 February 2005.

Concerning the fringed myotis, of the 3,246 recordings, 10 were identified as showing nearly conclusive patterns to that known for the species. Several other recordings could also have belonged to the fringed myotis, but the recordings either were too short or contained too much noise in order to identify the species with confidence. The 10 good recordings occurred over 3 consecutive nights (19-21 May) at Station 7, located at the

eastern edge of the Inventory Area. This station is a relatively large pond that would attract foraging bats from various surrounding locations and from various, unknown distances. It is thus unknown if the species actually utilizes the Inventory Area for roosting, or if it just visits the pond for foraging.



The fringed myotis is a small bat that occurs in most of the western United States, as well as in much of Mexico and part of southwestern Canada.

Concerning its habitat, the species has been recorded in many habitats in Utah, from lowland riparian and desert shrub to montane forest and at elevations ranging from 2,400 to 8,900 feet (Oliver 2000). Bosworth (2003) states that populations tend to be associated with areas having rocky outcroppings, cliffs, and canyons. In Utah, maternity colonies have been observed in attics of abandoned buildings and possibly caves. Wintering habits in Utah are unknown (Oliver 2000), but Burt and Grossenheider (1980) indicate that the species hibernates during the cold months of winter.

Based on GIS data provided by the Utah Conservation Data Center, the species has been recorded in areas throughout the state, with most observation occurring in the southern portion of Utah. However, these data also contain 2 unique records of the species approximately 13 – 24 miles north of the study area. Oliver (2000) described its abundance in Utah as uncommon, but indicates that its abundance varies locally. He further notes that in some areas in Utah it is the most abundant species and concurs with others that the species is probably much more common in Utah than the records indicate. Population size and trend is, however, unknown, and threats to populations are poorly understood (Bosworth 2003). Water sources and riparian areas are important for this bat species, and disturbance or destruction of these habitat elements could affect habitat suitability. Human disturbance of roosts in caves, mines, and buildings, especially maternity colonies, is a potential threat to populations (Bosworth 2003).

### **Methodology**

To record bat activity, JBR used an ANABAT II Bat Detector and an ANABAT CF Storage Zero Crossing Analysis Interface Module (ZCAIM) manufactured by Titley Electronics, Ltd., Ballina, NSW, Australia. Between the hours of approximately 20:30 – 00:30 on 17/18 and 22/23 May, JBR biologists ran the ANABAT at each of seven stops (Figure 1) for approximately 15 – 45 minutes, depending upon activity.

In addition to the above surveys, the ANABAT was situated at stop #7, which contained a large pond (see photo), from 18 - 22 May (4 nights). When left unattended, the bat detector and ZCAIM were enclosed in a weatherproof container. The bat detector's ultrasound transducer was positioned at a 45-degree angle to an acrylic reflector plate. This arrangement allowed the transducer to remain dry while recording bat calls unattended. Bat calls were recorded automatically; the equipment was programmed to turn on at 9:00 pm and to turn off at 6:00 am.

The ANABAT system records bat echolocation calls and stores them as digital format computer files. The file names specify the date and time the files were recorded. The recorded files were analyzed on a desktop computer using Analook software. The call identification process consists of visually comparing time-frequency displays of recorded call sequences against reference files (provided with the ANABAT system), which were recorded from known species that were hand released under controlled conditions. The analysis is somewhat subjective because it depends on making a visual comparison. The training and experience of the biologist doing the analysis is also important. At present, there is no objective, standardized procedure that can be used to analyze and identify the recorded calls. For this reason, JBR will provide upon request the recorded files so that they may be archived for future reference or analyzed by other biologists experienced with the ANABAT hardware and software.

The ability of the ANABAT system to detect bat calls depends on factors such as the bat species, the call frequency, air temperature, relative humidity, distance from the bat, and orientation of the detector's transducer. Bat activity at a given location is known to be highly variable, both from one night to the next and at different times



during the night. Because JBR recorded bat calls on two evenings in seven different locations in addition to four nights at one location in the Inventory Area, the recordings should be a good representation of bat activity at the site.

The purpose of the bat investigation was to identify which species of bats utilize Pace Creek Canyon, especially the Utah sensitive species Townsend's big-eared bat (*Corynorhinus townsendii*) and spotted bat (*Euderma maculatum*), and to estimate relative abundance of bats in the area. Spotted bat calls are easily recognized because they are generally between 7 and 12 kHz, which is relatively low compared to other bats and still within the range of human hearing. Townsend's bat calls are not as distinctive but have one character that allows them to be identified with some confidence. Although bat calls normally consist of a fundamental frequency and one or more harmonics, the ANABAT system records only the most dominant frequency component. In Townsend's bat calls, the dominant frequency

often switches between the fundamental and second harmonic, a character not usually observed in other species' calls.

Unfortunately, the calls of both spotted bats and Townsend's bats are more difficult to detect with the ANABAT system than most other species. Townsend's bats have relatively low intensity calls, which means that the bat must be closer to the equipment to be detected. Spotted bats are reported to forage at higher elevations than most species, and the ANABAT ultrasound transducer is not as sensitive to their low-frequency calls. Placing the ANABAT system near a pond where bat activity is concentrated maximized the likelihood of detecting these two species.

### **Summary**

The Pace Creek Canyon area provides habitat for and is used by numerous bat species. The nearly constant bat activity at the Stop #7 pond suggests that this water feature is an important resource for bats in terms of both water and feeding. During the four nights that complete recordings were made, at least seven different species of bats were detected within the Inventory Area. All seven species are previously known to occur within Utah and none are protected under the Endangered Species Act. The fringed myotis was recorded and is considered a Utah sensitive species. The fringed myotis is a short-distance migrant, although northern populations may hibernate. Females form maternity colonies in caves, mines, buildings, and crevices.

### **References**

- Bosworth, W. R., III. 2003. Vertebrate information compiled by the Utah natural heritage program: a progress report. Publication Number 03-45. Utah Division of Wildlife Resources, Salt Lake City, Utah.
- Burt, W. H. and R. P. Grossenheider. 1980. A field guide to the mammals. Houghton Mifflin Company, Boston.
- Oliver, G. V. 2000. The bats of Utah, a literature review. Publication Number 00-14. Utah Division of Wildlife Resources, Salt Lake City, Utah.