

2012

Canyon Mine

Acoustical Bat Baseline



CANYON MINE

ACOUSTICAL BAT BASELINE

Introduction

Canyon Mine is a uranium mine on the Tusayan Ranger District of the Kaibab National Forest. Operations at the mine have been in standby status since 1992 at the request of the operator. Canyon Mine is owned by Denison Mines. Denison Mines has notified the Kaibab National Forest of its intention to resume operations at Canyon Mine. (http://www.fs.usda.gov/detail/kaibab/home/?cid=FSM91_050263).

Based on the fact that there was similar bat work being done in this area it was determined that we would gather some baseline bat data for this area prior to operations starting up again. This will allow for future comparisons to be made if questions arise.

2012 Baseline Methodology

The most appropriate site suitable for acoustical monitoring areas was identified based on topography, slope and potential sound clutter or echoes and proximity to the available water within the fence. Once identified, a Song Meter II (SM2BAT+ Terrestrial Ultrasonic, Wildlife Acoustics Inc., Concord, MA, USA) (SM2) unit with a 3m microphone cable and SMX-US omnidirectional ultrasonic microphone was attached to the fence facing the water, which was located roughly 100m west of the unit. The microphone was extended up on a platform attached to a 4m extension pole. Acoustical equipment was pre-programmed to record for four hours total; 30 minutes prior to sunset, 90 minutes after sunset, 90 minutes prior to sunrise, and 30 minutes after sunrise and left on site for three days providing six separate “observations” This time frame was selected to target bats exiting or entering a roost and minimize potential bat foraging recordings.

SM2 recordings were analyzed using SonoBat acoustical analysis software (SonoBat v3.1.1, Arcata, CA, USA) to determine species. This was based on 60 acoustical comparison points using the SonoBatch function of the software and comparing to western bat references. Trained field staff also reviewed recordings to verify SonoBat findings which was programmed to accept results above the 0.90 as a decision threshold or visually analyze those files the program was not certain of species because they fell below the acceptable threshold.

CANYON MINE ACOUSTICAL BAT BASELINE

Canyon Uranium Mine Analysis

Location: Tusayan

Elevation: 1977m

General habitat: Lots of old growth Ponderosa Pine, with about 50% shrub layer (Big Sage and Rubber Rabbit Paintbrush). Ground cover predominantly woody and grass.

2012 Baseline Summary 08/24/12pm—8/27/12am.

We detected nine species and suspected another, see table below. Thus during the timeframe we recorded it appears this area has significant species diversity.

Species	Common Name	Status
<i>Antrozous pallidus</i>	Pallid bat	Suspected
<i>Eptesicus fuscus</i>	Big brown bat	Detected
<i>Lasiurus cinereus</i>	Hoary bat	Detected
<i>Lasionycteris noctivagans</i>	Silver-haired bat	Detected
<i>Myotis californicus</i>	California myotis	Detected
<i>Myotis ciliolabrum</i>	Western small-footed myotis	Detected
<i>Myotis occultus</i>	Arizona myotis	Detected
<i>Myotis yumanensis</i>	Yuma myotis	Detected
<i>Pipistrellus hesperus</i>	Western Pipistrelle	Detected
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat	Detected

Raw acoustical data and habitat/species analysis document “Canyon Uranium Mine” can be found at: O:\NFS\Kaibab\Program\2600WildlifeMgmt\2600Wildlife\Mammals\Bats\Canyon Mine Baseline

Recommendation: The acoustical work was done prior to any significant human disturbances in the area. We would recommend that future surveys be done and for comparison to see work impacts on the bat species diversity.