TERR 12 SPECIAL-STATUS BAT SPECIES

1.0 EXECUTIVE SUMMARY

In 2003, 54 Big Creek ALP facilities and recreation facilities were visited to assess current and potential use of those facilities by bats. Eleven of these structures, six of which were adits, showed some level of use by bat species. The remaining 43 structures were deemed unsuitable for bat use or showed no evidence of bat use at the time of survey. The six adits that showed bat use may support special-status species but acoustic identification to the species level was not possible. Three structures had definitive use by special-status bat species: the Storage Yard Garage at the Eastwood School Site and Adits 5 and 7 on Tunnel 2, Powerhouse 2. Two special-status bat species were detected, including Townsend's big-eared bat (*Corynorhinus townsendii*) in the Storage Yard and the long-eared myotis (*Myotis evotis*) in both adits. There were no maternal roosts of special-status bat species detected in any of the facilities surveyed, although some maternal roost activity may be present in the adits.

Mist-netting and acoustic surveys were used when species could not be determined from the roost surveys. Mist-netting and bat capturing was conducted at the Storage Yard Garage and the Mammoth Pool Reservoir Maintenance Cabin to identify bat species using these structures. Six adits and the Storage Yard were monitored acoustically using an Anabat II® bat detector system (Titley Electronics). Long-eared myotis, fringed myotis (*Myotis thysanodes*), western pipistrelle (*Pipistrellus hesperus*), Mexican free-tailed bat (*Tadarida brasiliensis*), and western mastiff bat (*Eumops perotis*) were detected acoustically. Three groups of bats were detected but are not able to be distinguished to species acoustically and are instead grouped together with those species whose acoustic signals are similar: Yuma myotis (*Myotis yumanensis*) and California myotis (*Myotis californicus*) as the 50 kHz *Myotis* group; little brown bat (*Myotis lucifugus*), long-legged myotis (*Myotis volans*), and western small-footed myotis (*Myotis ciliolabrum*) as the 40 kHz *Myotis* group; and big brown bat (*Eptesicus fuscus*), Mexican free-tailed bat (*Tadarida brasiliensis*), and silver-haired bat (*Lasionycteris noctivagans*) as the Q25 kHz group.

2.0 STUDY OBJECTIVES

Determine the location of any active bat roosts or maternal roosts on or near Project facilities and Project-related recreational facilities not surveyed in 2002. If roosts are found, determine what species are present.

2.1 STUDY IMPLEMENTATION

2.1.1 STUDY ELEMENTS COMPLETED

- Conducted focused roost surveys at or near Project facilities and recreational facilities (not surveyed in 2002) during the summer of 2003. Facilities that could not be thoroughly searched were monitored at emergence time.

- If an active roost was identified at a facility, mist-netting and acoustic surveys were conducted to determine which species were present.

2.1.2 OUTSTANDING STUDY ELEMENTS

- Complete bat study at additional Project facilities in 2004.

2.2 STUDY METHODOLOGY

Roost surveys were conducted to determine where bats were roosting on or near Project facilities. When species could not be detected during roost surveys, mist-netting and acoustic surveys were conducted to determine bat species in or near the Project facilities. Each of the available survey methods for bats (mist-netting, acoustic, and roost surveys) has inherent biases and different detection likelihood for individual bat species (Kalko et al. 1996; Pierson et al. 1996; Pierson and Rainey 1996; and Simmons and Voss 1998).

2.2.1 ROOST SURVEYS

Roost surveys were conducted in June and September of 2003 during the reproductive season of most bat species in the Sierra Nevada when maternity colonies would potentially be present. A complete list of the Project facilities where roost surveys were conducted in 2003 is included in Appendix A. Roost surveys were focused on Project-related structures that were not surveyed in 2002, including gaging stations, adits, boreholes, and diversion dams. Refer to the 2002 TERR 12, Special-status Bats Technical Study Report (TSR) for a complete description of the methodology for roost surveys. Facilities that were not suitable for bat roosting were not surveyed. Facilities that are not suitable for bat roosting include roads, transmission lines, trails, streams, etc. Discussions with SCE prior to the surveys eliminated some facilities from surveys (Mark Newquist and Wayne Allen, Personal Communication).

2.2.2 MIST-NETTING SURVEYS

Mist-netting was conducted on September 7, 2003 at the Storage Yard Garage at the Eastwood School Site to determine the species using the garage building as a day roost. Bats were also captured at the Mammoth Pool Reservoir Maintenance Cabin on September 8, 2003. Refer to the 2002 TERR 12, Special-status Bats TSR for a complete description of the methodology for mist-netting surveys.

2.2.3 ACOUSTIC SURVEYS

Acoustic sampling was conducted at six adits and the Storage Yard Site in September 2003. Refer to the 2002 TERR 12, Special-status Bats TSR for a complete description of the methodology for acoustic surveys. Acoustic units (Anabat bat detector and storage z-caim) were placed in front of adit entrances and near the Storage Yard Garage to collect bat calls. The acoustic data was used to determine whether cryptic roosting bats were using the adit structures as day roosts or night roosts. High levels of activity at dusk and dawn were interpreted as day roosting bats exiting and entering the

structure at levels of more than approximately 40 individuals. Acoustic activity throughout the night was interpreted as bats using the structure as a night roost.

Some bat species have unique echolocation signatures and are easily identifiable. Other species have call characteristics that are indistinguishable from other species. In particular, there are three groups of species where identifying to species is difficult. The first group includes two myotis species, the California myotis and the Yuma myotis. Both of these species have base frequencies ending in 50kHz and therefore are grouped into a 50kHz *Myotis* phonic group. Likewise, three *Myotis* species, the long-legged myotis, little brown myotis, and the western-small footed myotis, have base frequencies of 40kHz and similar call shapes and patterns. These species are grouped into a 40kHz *Myotis* phonic group. Finally, the big brown bat, silver-haired bat, and the Mexican free-tailed bat can have similar echolocation calls and are grouped into the Q25kHz phonic group.

2.3 STUDY RESULTS AND ANALYSIS

2.3.1 ROOST SURVEY RESULTS

Eleven Project facilities showed signs of bat use (Figure TERR 12-1 and Appendix B). Six of these facilities were adits. Four of the adits (Adits 5, 6, and 7 of Powerhouse No. 2, Tunnel 2 and Adit 1 of Powerhouse No. 8, Tunnel 8) showed high levels of bat acoustic activity at dusk and dawn and throughout the night. Due to water accumulation on the floor of these adits (which conceals guano accumulation) and the cryptic nature of the roost sites, no bats were visually observed using the adits during the day. Adits 5 and 7 had distinctive echolocation calls of the long-eared myotis, a special-status species. Acoustic analysis does not allow for identification of species for all special-status bats. It is likely that these adits provide roosting habitat for special-status bat species. In addition to these four adits, the other two adits (Adits 1 and 2 of Powerhouse No. 2, Tunnel 2) had low levels of night roost activity. A solitary Townsend's big-eared bat, a special-status bat species, was observed day roosting in the Storage Yard Garage. In addition, the garage building had a maternity colony of California myotis, a common bat species. The other bat roost observed was a maternity colony of the Yuma myotis roosting in the Mammoth Pool Maintenance Cabin. Finally, two structures (Powerhouse No. 1 Upper 84" Valve House Below Huntington Lake and the Lower 84" Valve House at the Top of Powerhouse No. 1 Penstock) had low night roosting activity evident from scarce guano scatter inside the structures. Low activity represents infrequent use, approximately less than 15 detections. High activity represents frequent use, approximately more than 15 detections.

- **Powerhouse No. 1, Upper 84" Valve House Below Huntington Lake:** Low night roost activity in the interior of the building.

- **Powerhouse No. 1, Lower 84" Valve House at the Top of Powerhouse No. 1 Penstock:** Low night roost activity in the interior of the building.

- **Powerhouse No. 2, Adit 1, Tunnel 2:** There was a low level of acoustic activity at this adit. Low levels of acoustic activity are approximately less than 15 detections. The pattern of acoustic activity indicated that there was a low level of night roost activity at this adit of 50kHz *Myotis* species (i.e., California myotis and/or Yuma myotis) and 40 kHz *Myotis* species (i.e., long-legged myotis, little brown bat, and/or western small-footed myotis).

- **Powerhouse No. 2, Adit 2, Tunnel 2:** There was a low level of acoustic activity at this adit. The pattern of acoustic activity was indicative of night roost activity by 50kHz *Myotis* species.

- **Powerhouse No. 2, Adit 5, Tunnel 2:** This adit had a high level of acoustic activity, both during dusk and dawn and throughout the entire night. The pattern of activity suggests that the adit is used as a day roost by both 50kHz *Myotis* species and 40kHz *Myotis* species. It is also used as a night roost by these species. Although the acoustic data suggest this adit was used as a day roost, no bats were seen during visual surveys of the adit during the day. Bats are likely roosting in cryptic locations within the adit, not observable by humans. Guano deposition was obscured by water on the adit floor.

- **Powerhouse No. 2, Adit 6, Tunnel 2:** This adit had similar acoustic patterns as Adit 5. There were high levels of acoustic activity occuring at times suggesting both day roosting and night roosting of 50kHz and 40kHz *Myotis* species. Again, although the acoustic data suggest this adit was used as a day roost, no bats were seen during visual surveys of the adit during the day. Bats are likely roosting in cryptic locations within the adit, not observable by humans. Guano deposition was obscured by water on the adit floor.

- **Powerhouse No. 2, Adit 7, Tunnel 2:** This adit had similar acoustic and visual observation patterns as Adits 5 and 6. High levels of acoustic activity occurred at times suggestive of both day and night roosting activity of 50kHz and 40kHz *Myotis* species. No bats were observed during visual surveys. Some guano was observed along the pipe that runs inside the adit, but water obscured most of the adit floor.

- **Powerhouse No. 8, Adit 1, Tunnel 8:** This adit also had high levels of acoustic activity and a pattern of activity suggestive of day and night roost activity of 50kHz and 40kHz *Myotis* species. No bats were observed during visual surveys. Some guano was observed in dry areas of the adit floor, but water obscured most of the adit floor.

- **Shaver Lake Dam:** There was bat access and a low level of guano accumulation of night roosting *Myotis* spp. in the upper reach of the access tunnel of the dam. Also, the exfoliating granite on the face of the dam is suitable for crevice roosting bats, but was inaccessible for surveying.

- **Storage Yard Garage at Eastwood School Site:** Maternity/day roost of California myotis in roof/attic of building. Colony size is approximately 20 individuals. Solitary Townsend's big eared bat observed day roosting in structure.

- **Mammoth Pool Reservoir Maintenance Cabin:** Day roosting of Yuma myotis in external eave gaps and in the interior of the building. Colony size in the interior was approximately 10 individuals and colony size on the exterior eave gaps was approximately 10 individuals.

2.3.2 ACOUSTIC SURVEY RESULTS

Acoustic monitoring detected *Myotis* species at Adits 1, 2, 5, 6, and 7 of Powerhouse No. 2; Tunnel 2 and Adit 1 of Powerhouse No. 8; and Tunnel 8 (Appendix C and Figure TERR 12-2). In addition, the long-eared myotis was detected at Adits 5 and 6 of Powerhouse No. 2, Tunnel 2. An acoustic detector near the Storage Yard Garage at Eastwood School Site detected fringed myotis, western pipistrelle, Mexican free-tailed bat, 40 kHz and 50kHz *Myotis* species, and bats in the Q25kHz phonic group.

2.3.3 MIST-NETTING SURVEY RESULTS

Four California myotis bats were captured inside the Storage Yard Garage at the Eastwood School Site (Appendix D and Figure TERR 12-3). The capture of a post-lactating female and a juvenile male indicate the colony is a maternity roost. Seven Yuma myotis bats were captured at the Mammoth Pool Reservoir Maintenance Cabin. The presence of both post-lactating females and juveniles indicates that this is a maternity colony.

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FIGURES

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APPENDIX A

List of Project Facilities Where Roost Surveys Were Conducted for Special-status Bat Species.

Appendix A. List of Project Facilities Where Roost Surveys Were Conducted for Special-status Bat Species

Facility	Habitat Feature	Map Name	Survey Date	Survey Type*	Notes
Gaging Station, Middle Fork Balsam Creek below Balsam Meadows Forebay	Gaging Station Building	Musick Mountain	6/10/2003	ST	Peeled metal roof feature is suitable, no bat use
Huntington-Pitman-Shaver Conduit, Gate 3 Outlet to Balsam Forebay	Building	Musick Mountain	6/10/2003	ST	Metal flashing feature is suitable, no bat use
Powerhouse No. 1, Upper 60" Valve House below Huntington Lake	Building	Huntington Lake	6/11/2003	ST	Not suitable
Powerhouse No. 1, Upper 84" Valve House below Huntington Lake	Building	Huntington Lake	6/11/2003	ST	Bat access and sign
Powerhouse No. 1, Lower 60" Valve House at top of PH No. 1 Penstock	Building	Huntington Lake	6/11/2003	ST	No bat access, not suitable
Powerhouse No. 1, Lower 84" Valve House at top of PH No. 1 Penstock	Building	Huntington Lake	6/11/2003	ST	Bat access and sign
Powerhouse No. 1, 42" Valve House at top of PH No. 1 Penstock	Building	Huntington Lake	6/11/2003	ST	Metal roof features are suitable; interior has no bat access; no bat use
Powerhouse No. 1, Intake Gate House at Huntington Lake - Dam 1	Building	Huntington Lake	6/11/2003	ST	Not suitable
Powerhouse No. 1, Incline Adit	Building	Huntington	6/11/2003	ST	Suitable, no bat use
Powerhouse No. 2, Adit 3, Tunnel 2	Adit	Musick Mountain	6/12/2003	ST	Collapsed, no entrance found
Powerhouse No. 2, Adit 4, Tunnel 2	Adit	Musick	6/12/2003	ST	Collapsed, no entrance
Powerhouse No. 2, Adit 2, Tunnel 2	Adit	Musick Mountain	6/12/03 9/07/03	ST, AC	Bat use
Powerhouse No. 2, Adit 1, Tunnel 2	Adit	Musick Mountain	6/12/03 9/07/03	ST, AC	Bat use
Portal Powerhouse, Inlet Structure at Portal	Building	Mount Givens	6/13/2003	ST	Not suitable
Ward Tunnel, E&W Camp 61 Diversion Borehole (Portal Project)	Borehole	Mount Givens	6/13/2003	ST	Not suitable
Ward Tunnel, Bolsillo Creek Borehole	Borehole	Mount Givens	6/13/2003	ST	Not suitable
Gaging Station, Bolsillo Creek above Intake	Gaging Station Building	Mount Givens	6/13/2003	ST	Not suitable
Gaging Station, Bolsillo Creek below Diversion Dam	Gaging Station Building	Mount Givens	6/13/2003	ST	Not suitable

Appendix A. List of Project Facilities Where Roost Surveys Were Conducted for Special-status Bat Species

Facility	Habitat Feature	Map Name	Survey Date	Survey Type*	Notes
Gaging Station, South Fork San Joaquin River near Florence Lake	Gaging Station Building	Florence Lake	6/13/2003	ST	Suitable, no bat use
Gaging Station, Chinquapin Creek at Diversion Dam	Gaging Station Building	Florence Lake	6/13/2003	ST	Relocated, not suitable based on personal communication with Wayne Allen and Mark
Gaging Station, Mono-Bear Conduit (flow meter near Camp 62)	Gaging Station Building	Florence Lake	6/14/2003	ST	Not suitable
Gaging Station, Mono Creek below Diversion Dam	Gaging Station Building	Florence Lake	6/14/2003	ST	Suitable, no bat use
Gaging Station, Mono Creek Conduit at Diversion Dam	Dam and buildings	Florence Lake	6/14/2003	ST	Suitable for night roost, no bat use
Gaging Station, Mono Creek below Lake Thomas Edison (with cable crossing) (Vermilion Project)	Gaging Station Building	Florence Lake	6/14/2003	ST	Not suitable
Gaging Station, Bear Creek Conduit at Diversion Dam	Adit	Florence Lake	6/14/2003	ST	Not suitable; narrow opening, filled with water
Gaging Station, Bear Creek upstream of Diversion Dam (with cable crossing)	Gaging Station Building	Florence Lake	6/14/2003	ST	Not suitable
Powerhouse No. 2, Adit 5, Tunnel 2	Adit	Musick Mountain	6/19/03 9/06/03	ST, AC	Bat use
Powerhouse No. 2, Adit 6, Tunnel 2	Adit	Musick Mountain	6/19/03 9/06/03	ST, AC	Bat use
Powerhouse No. 2, Adit 7, Tunnel 2	Adit	Musick Mountain	6/19/03 9/06/03	ST, AC	Bat use
Powerhouse No. 2, Adit 7 1/2, Tunnel 2	Adit	Musick Mountain	6/19/2003	ST	Marginal suitability; no evidence of bat use
Powerhouse No. 2, Adit 8, Tunnel 2	Adit	Musick Mountain	6/19/2003	ST	Not suitable; metal door blocking entrance
Moderate Diversion Dam, Balsam	Diversion dam	Musick Mountain	6/19/2003	ST	Not suitable
Powerhouse No. 2, Balsam Creek Diversion Piping (Adit 3)	Piping	Musick Mountain	6/19/2003	ST	Not suitable

Appendix A. List of Project Facilities Where Roost Surveys Were Conducted for Special-status Bat Species

Facility	Habitat Feature	Map Name	Survey Date	Survey Type*	Notes
Small Diversion, Ely Creek	Diversion dam	Musick Mountain	6/19/2003	ST	Not suitable
Powerhouse No. 2, Ely Creek Diversion Piping (Adit 6)	Piping	Musick Mountain	6/19/2003	ST	Not suitable
Diversion Shaft, Bulkhead and Drain Valve at Adit 8	Diversion dam and piping	Musick Mountain	6/19/2003	ST	Not suitable
Fish Hatchery	Buildings	Musick	6/20/2003	ST	Suitable, no bat use
Powerhouse No. 2, Inlet Structure at Dam 4	Buildings	Musick	6/20/2003	ST	Not suitable
Large Dam, Shaver Lake	Dam	Musick Mountain	6/20/2003	ST	Bat access and use, exfoliating granite on the face of the dam is suitable for crevice-roosting bats
Eastwood Power Station, Inlet Structure (Gate 4)	Building	Musick	6/20/2003	ST	No bat access
Storage Yard, Eastwood School Site	Building	Musick Mountain	6/21/03 9/03/03	ST, AC, MN	Bat use
Powerhouse No. 8, Adit 1, Tunnel 8	Building	Musick Mountain	6/21/03 9/07/03	ST, AC	Bat use
Gaging Station, Big Creek below Dam 5 (with cable crossing)	Gaging Station Building	Musick Mountain	8/6/2002	ST	Not suitable
Water Supply/Treatment, Big Creek Powerhouse No. 1	Building	Cascade	6/21/2003	ST	Suitable, no bat use
Gaging Station, Stevenson Creek below Shaver Lake	Gaging Station Building	Musick Mountain	9/7/2003	ST	Not suitable
Gaging Station, North Fork Stevenson Creek at Perimeter Rd.	Gaging Station Building	Musick Mountain	9/7/2003	ST	Not suitable
Powerhouse No. 2A, Adit 1, Tunnel 5	Adit	Musick Mountain	9/7/2003	ST	Deemed unsuitable from picture and personal communication with Mark Newquist
Gaging Station, Pitman Creek Above Diversion (total flow)	Gaging Station Building	Huntington Lake	9/7/2003	ST	Not suitable

Appendix A. List of Project Facilities Where Roost Surveys Were Conducted for Special-status Bat Species

Facility	Habitat Feature	Map Name	Survey Date	Survey Type*	Notes
Gaging Station, Pitman Creek below Diversion (minimum release)	Gaging Station Building	Huntington Lake	9/7/2003	ST	Suitable, no bat use
Huntington-Pitman-Shaver, Vent Valve House	Building	Huntington	9/7/2003	ST	Suitable, no bat use
Mammoth Pool Powerhouse, Intake Gate House	Building	Mammoth Pool	9/8/2003	ST	Not suitable
Cabin, Mammoth Pool Reservoir Maintenance	Building	Mammoth Pool	9/8/2003	ST, MN	Suitable, bat use
Mammoth Pool Powerhouse, Mammoth Tunnel	Tunnels	Mammoth Pool	9/8/2003	ST	Not suitable
Gaging Station, Mammoth Pool Dam	Gaging Station Building	Mammoth Pool	9/9/2003	ST	Not suitable

* ST = Structure survey
MN = Mistnet survey
AC = Acoustic survey (with Anabat)
NR = Night roost survey (subset of ST)

APPENDIX B

Special-status Bat Roost Survey Results

Appendix B. Special-status Bat Roost Survey Results

Facility	Date	Species	Map Name	Roost Type*	Level of Use**
Powerhouse No. 1, Upper 84" Valve House below Huntington Lake	06/11/03	*Myotis spp.*	Huntington Lake	NR	low night roost guano in building interior, no bats present at time of survey
Powerhouse No. 1, Lower 84" Valve House at top of PH No. 1 Penstock	06/11/03	*Myotis spp.*	Huntington Lake	NR	low night roost guano in building interior, no bats present at time of survey
Powerhouse No. 2, Adit 2, Tunnel 2	6/12/03 9/07/03	*Myotis spp.*	Musick Mountain	NR	low level of acoustic activity; some night roost activity of 50K *Myotis*
Powerhouse No. 2, Adit 1, Tunnel 2	6/12/03 9/07/03	*Myotis spp.*	Musick Mountain	NR	low level of acoustic activity; some night roost activity of 40K *Myotis* and 50K *Myotis*
Powerhouse No. 2, Adit 5, Tunnel 2	6/19/03 9/06/03	*Myotis evotis, Myotis spp.*	Musick Mountain	DR, NR	high level of acoustic activity; day roosting and night roosting activity by 50K *Myotis* and 40K *Myotis*
Powerhouse No. 2, Adit 6, Tunnel 2	6/19/03 9/06/03	*Myotis spp.*	Musick Mountain	DR, NR	high level of acoustic activity; day roosting and night roosting activity by 50K *Myotis* and 40K *Myotis*
Powerhouse No. 2, Adit 7, Tunnel 2	6/19/03 9/06/03	*Myotis evotis, Myotis spp.*	Musick Mountain	DR, NR	high level of acoustic activity; day roosting and night roosting activity by 50K *Myotis* and 40K *Myotis*
Powerhouse No. 8, Adit 1, Tunnel 8	6/21/03 9/07/03	*Myotis spp.*	Musick Mountain	DR, NR	high level of acoustic activity; day roosting and night roosting activity by 50K *Myotis* and 40K *Myotis*
Large Dam, Shaver Lake	6/20/2003	*Myotis spp.*	Musick Mountain	NR	Low level of guano accumulation in the upper reach of the access tunnel of the dam
Storage Yard, Eastwood School Site	6/21/03 9/07/03	*Myotis californicus; Corynorhinus townsendii*	Musick Mountain	DR	high (approx. 20) *M. californicus* day roost; solitary *C. townsendii* (probably male) day roost
Cabin, Mammoth Pool Reservoir Maintenance	09/08/03	*Myotis yumanensis*	Mammoth Pool	DR	approx. 10 *M. yumanensis* in external eve gaps; approx. 9 *M. yumanensis* in interior

* NR = Night Roost
DR = Day Roost

** low = infrequent use, approximately less than 15 detections
high = approximately more than 15 detections

APPENDIX C

Special-status Bat Mist-netting Survey Results

Appendix C. Special-status Bat Mist-netting Survey Results

Location / Date / Species	Adult							Juvenile			Age Unknown	Total
	Male	Female										
		Lc	Pl	Nl	Par	Un	Preg 2	M	F	Un		
Storage Yard, Eastwood School Site												
09/07/03 California myotis (*Myotis californicus*)	1	-	1	1	-	-	-	1	-	-	-	4
Cabin, Mammoth Pool Reservoir Maintenance												
09/08/03 Yuma myotis (*Myotis yumanensis*)	1	-	2	1	-	-	-	2	1	-	-	7

Code: Lc = Lactating; Pl = Post lactating; Nl = Nulliparous; Par = Parous; Un = Unknown;
M = Male; F = Female; Preg 2 = Pregnant 2nd trimester; Preg 3 = Pregnant 3rd trimester

APPENDIX D

Special-status Bat Acoustic Survey Results

Appendix D. Special-status Bat Acoustic Survey Results

DATE	Map Name	Site Description	ANPA	EPFU	EUMA	EUPE	LACI	MYEV	MYTH	PIHE	TABR	MY40	MY50	Q25
09/06/03	Musick Mountain	Powerhouse 2, Adit 5, Tunnel 2						x				x	x	
09/06/03	Musick Mountain	Powerhouse 2, Adit 6, Tunnel 2										x	x	x
09/06/03	Musick Mountain	Powerhouse 2, Adit 7, Tunnel 2						x				x	x	
09/07/03	Musick Mountain	Powerhouse 2, Adit 2, Tunnel 2											x	
09/07/03	Musick Mountain	Powerhouse 2, Adit 1, Tunnel 2										x	x	
09/07/03	Musick Mountain	Powerhouse 8, Adit 1, Tunnel 8										x	x	x
09/07/03	Musick Mountain	Storage Yard, Eastwood School Site							x	x	x	x	x	x

Key:

ANPA *Antrozous pallidus* - Pallid Bat
EPFU *Eptesicus fuscus* - Big Brown Bat
EUMA *Euderma maculatum* - Spotted Bat
EUPE *Eumops perotis* - Western Mastiff Bat
LACI *Lasiurus cinereus* - Hoary Bat
MYEV *Myotis evotis* - Long-eared Myotis
MYTH *Myotis thysanodes* - Fringed Myotis
PIHE *Pipistrellus hesperus* - Western Pipistrelle
TABR *Tadarida brasiliensis* - Mexican Free-tailed Bat
MY4O Acoustic group including Western Small-footed Myotis *(Myotis ciliolabrum)* , Long-legged Myotis *(M. volans)* , and Little Brown Myotis *(M. lucifugus)*
MY50 Acoustic group including California Myotis *(Myotis californicus)* and Yuma Myotis *(M. yumanensis)*
Q25 Acoustic group including Silver-haired Bat *(Lasionycteris noctivagans)* , Big Brown Bat *(Eptesicus fuscus),* and Mexican Free-tailed Bat *(Tadarida brasiliensis)*