

## Appendix A

**Commonwealth of Pennsylvania**  
Pennsylvania Game Commission, Bureau of Wildlife Management  
Wildlife Diversity Section  
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

### **Protocol for Assessing Abandoned Mines/Caves for Bat Surveys**

In general, openings can be dismissed from bat surveys when:

1. There is only one horizontal opening less than 6 inches in diameter and no or very little airflow is detected.
2. Vertical shafts <1 foot in diameter.
3. Passage continues less than 50 feet and terminates with no fissures that bats can access.
4. Mines that are prone to flooding, collapsed shut and completely sealed, or otherwise inaccessible to bats.
5. Openings, which have occurred recently (within 1 year) due to subsidence.

*Additional notes: Bats can access mines via old open buildings such as a fan house. Foliage and other vegetation in front of mine openings do not stop use by bats. They can navigate through foliage. Collapsed entrances with multiple crevices between boulders etc. are accessible to bats and should be sampled. Collapses completely sealed with fine soil are of course inaccessible to bats.*

### **Sampling Dates, Times and Temperature Criteria**

1. Spring sampling will be conducted between: April 10 thru May 10
2. Fall sampling will be conducted between: September 15 thru October 31
3. Sampling will start ½ hour before sunset and continue for at least 5 hours.
4. Weather must provide for:
  - a. Temperatures >50°F (10°C) for first 2 hours of sampling and not fall below 35°F (1.6°C) by midnight.
  - b. At least 3 hours free of heavy rain and thunderstorms.
5. Sampling will be conducted on two evenings. If no captures occur and no bat activity is noted with a bat detector on the first evening during acceptable weather conditions, sampling can be suspended for the site.
6. The shining of lights, and noise will be kept to a minimum with no smoking around the sample site. The use of radios, campfires, running vehicles, punk sticks, citronella candles and other disturbances will not be permitted within 300 feet of site during surveys.
7. Before conducting surveys, local residents and/or law enforcement agencies should be informed of the scheduled nighttime activities.

## **Equipment**

*No equipment, litter or other debris will be left unattended at site that could result in the capture or entanglement of any animals. Any equipment stored at site between sampling sessions will be clearly labeled with contact information.*

**Harp Trap:** Place in front of opening and block surrounding space with plastic sheeting or bird netting. Traps should be tended at least once per hour. When the catch rate is high (>25 bats per hour) or during inclement weather, traps should be tended more frequently.

**Mist Nets:** 50 denier, 38mm mesh. Place in front or around opening. Nets need to be monitored closely and checked at least once every 20 minutes. At sites with a heavy bat swarm, the net may need to be monitored continuously.

**Bat Detector:** A bat detector should be on site to monitor bat activity when trapping or netting. Bat passes should be monitored and tallied for at least one hour after 10pm. Bat tallies should be reported along with the time sampled. Reporting format will be: Start and end time for 1-hour sample period and bat passes for that hour.

**Other:** In situations where it is too dangerous to approach an entrance, bat detectors and/or night vision/infrared recording devices may be used to monitor and record bat activity to determine bat use of the site. Bat activity in or around the entrance can be monitored by counting bat passes with a bat detector, or night vision/infrared video tapes can be made providing actual counts of bats entering the opening. As with trapping, monitoring should be conducted for 5 hours. Reporting format will be: Start and end time for 1-hour sample period and bat passes for that hour.

## **Reporting**

In addition to reports for the client, the Pennsylvania Game Commission requires copies of the report as part of the vendor's permitting requirement. To simplify data entry, mandatory sampling summary forms are also required by the PA Game Commission for bat surveys within the Commonwealth. If the vendor did not receive a copy of the data form with the permit, they can be obtained by contacting the:

Pennsylvania Game Commission  
Bureau of Law Enforcement, Technical Services Division  
2001 Elmerton Avenue, Harrisburg, PA 17110-9797  
717/787-5740

## **INTERIOR WINTER HIBERNACULA SURVEYS**

Sites that are determined to be safe for entry to conduct winter counts (primarily caves & stable hard rock mines) will be coordinated with the PA Game Commission, Wildlife Diversity Section and scheduled for interior surveys between January 1 and March 10. Contact information for the Wildlife Diversity Section is:

PA Game Commission  
Bureau of Wildlife Management, Wildlife Diversity Section  
2001 Elmerton Avenue, Harrisburg, PA 17110-9797  
(717) 787-5529

## Mine Opening Assessment for Bats

1. All mine openings proposed for closure will be evaluated using the attached protocol (Appendix A).
  - a. If a mine opening has one or more characteristics making bat occupation unlikely (as specified in Appendix A), the portal or opening may be closed at any time without further consultation with the Fish and Wildlife Service (USFWS).
  - b. If a mine opening is potentially suitable for bats, the opening will undergo a bat survey in accordance with the specifications detailed in Appendix A. This survey will be done by a Qualified Indiana Bat Surveyor (list available from the Fish and Wildlife Service upon request).
  - c. All results from bat surveys will be submitted to the Pennsylvania Game Commission (PGC) in accordance with the attached reporting requirements (Appendix C). Bat survey results will also be submitted to the Fish and Wildlife Service when an Indiana bat is captured, and when survey results prompt further consultation with the Service (see #2 below).

Appendices A and B will be provided to individuals contracted to conduct bat surveys so they are aware of the bat detection thresholds and necessary actions (see #2 below). Capture results and actions will be identified in their report for all surveyed mine openings.

- d. Given the anticipated impacts of White-nose Syndrome disease on bats, it is recommended that any site where bats are captured be given priority for the installation of bat-friendly gates.
2. Survey results

The action to be taken at a mine opening depends upon the bat survey results, as detailed below, based on the detection method used. The latitude and longitude will be reported for all surveyed mine openings.

**Provide the PGC with the exact location (latitude/longitude) of all mining openings where bat-friendly gates are installed.**

- a. Detection Method 1 – trap placement at mine opening in accordance with Appendix A.

Capture Results / Opening	Action
No bats (of any species)	Close opening at any time.
1 or more Indiana bats	Consult with USFWS.
1 to 3 bats	Install bat friendly gates if at all possible; otherwise, close opening between June 1 and July 31.
4 to 50 bats; 1 to 3 species	Install bat-friendly gates or consult with PGC.
1 or more small-footed bats	Install bat-friendly gates or consult with PGC.
4 to 50 bats; $\geq 4$ species	Consult with USFWS and PGC, or install bat-friendly gates.
$\geq 50$ bats	Install bat-friendly gates.

- b. Detection Method 2 – Use of a bat detector with no trap over the mine opening. This assumes the opening is too dangerous to set up a trap.

<u>Results / Opening</u>	<u>Action</u>
< 5 detected bat passes into/out of mine portal in a 1-hour period	Close opening or install bat-friendly gates
> 5 detected bat passes into/out of mine portal in a 1-hour period	Consult with USFWS and PGC, or install bat-friendly gates

- c. Detection Method 3 – Use of a bat detector, while a trap is in place over the mine opening. This assumes the presence of the trap will cause bats to repeat passes before attempting to enter the mine opening.

<u>Results / Opening</u>	<u>Action</u>
< 50 detected bat passes at mine opening in a 1-hour period	Close opening between June 1 and July 31, or install bat-friendly gates
> 50 detected bat passes at mine opening in a 1-hour period	Discuss with USFWS and PGC, or install bat-friendly gates

## Standard and Minimum Effort Requirements for Qualified Indiana Bat Surveyor Netting within the Commonwealth of Pennsylvania

Mist-net surveys will be carried out in accordance with the U.S. Fish and Wildlife Service's (USFWS) *Indiana Bat Mist Netting Guidelines* and will include effort and measures above and beyond those guidelines as specified in this document as a requirement of the PA Game Commission (PGC) Permit. Accompanying a State Permit are required reporting information and bat White-Nose decontamination protocols. Make certain to review and adhere to the requirements. All field personnel must be familiar with these guidelines.

### Netting Season: May 15 – August 15

**Minimum Net Equipment for Site Sets:** 2 net sets (4 poles) capable of stacking a minimum of 3 (2.6m high) nets to reach canopy/sub-canopy (>7 m / 23 ft). Poles will have a pulley system for efficient bat removal. An additional assortment of poles will also be available for situations where stacked nets can not be used. Nets will be the lowest visibility weights available (50 denier 2-Ply Nylon or 75 denier 2-Ply Polyester) and 38 mm (~1.5 in) mesh. Standard net lengths will be available to cover most travel corridors ranging from 6 m (~19 ft) to 18 m (~59 ft). Nets will be hung in the standard manner to provide bag in panels. Overstretched nets that eliminate panel bagging will not be permitted. Nets should be placed in what is considered Indiana bat habitat and among “clutter” to minimize bat detection. Sites will be monitored quietly; loud noises (other than low volume occasional communication), running engines, campfires and other activities that disturb/alert bats will not be allowed within 300 m of a Site.

**Standard Site Sets:** A minimum of 2 net sets,  $\geq 30$  m (98 ft) apart, will be placed at a net Site. A standard set will consist of 3-stacked nets\*. If triple high sets are not used, a thorough justification must be provided in the comments section of the PGC Bat netting/Trapping Site Survey Record (P-70008-N/T). Should we find that quality netting locations suitable for triple-high net sets are available but that lower net sets were deployed or poor quality netting locations were selected, permits may be revoked and the qualified surveyor may be considered unable to select and set Sites resulting in removal from the Pennsylvania list of qualified surveyors. Each net Site will be sampled for 2 nights beginning at sunset for at least 5 hours (300 minutes). Each net set will be checked ~every 10 minutes. Minimally, one person will monitor a Site at all times.

\*Sites will be selected for prime capture locations in Indiana bat habitat which is often forested travel corridors (streams, trails etc) rather than locations capable of placing triple high net sets (open field). Professional judgment is foremost in site selection and net sets. However, given that Indiana bats are often captured in elevated net sets, they will be considered the standard when conducting surveys in PA and if not used, a justification must be provided.

**Minimum Nightly Effort/Site = 420 Units of Effort (UE):** One unit of effort is equal to  $1\text{m}^2$  of net area in place for 1 hour - (total  $\text{m}^2$  of capture area) x (minutes in place/60).

Each net Site must provide a minimum of 420 UE. For example, 2 sets-each measuring 7 m high by 6 m wide in place for the required 5 hours would meet the minimum effort of 420 UE:

$((7\text{ m} \times 6\text{ m}) + (7\text{ m} \times 6\text{ m})) \times 5\text{ hrs}$ . In the rare situation where stacked nets can't be used, minimum effort must still be met with more nets or net sets at a Site. As of 2008, average effort/Site of companies capturing Indiana bats in PA range from 490 to 680 UE.

### Weather -- Netting will be suspended when:

1. Rain, steady drizzle or heavy fog soaks nets.
2. Temperature falls below 10°C (50°F).
3. Winds result in frequently moving/billowing nets **OR** wind gusts exceed 18 mph (Windy-small trees in canopy sway).

Commonwealth of Pennsylvania, Pennsylvania Game Commission  
**Standard and Minimum Effort Requirements for Qualified Indiana Bat Surveyor Netting within the Commonwealth of Pennsylvania**

**Qualified Indiana Bat Surveyors (QIBS):** A qualified surveyor is one who's credentials and experience have been reviewed by the USFWS, State College Field Office (USFWS-SCO) and the (PGC) and found to have expertise in all the following:

1. Correct identification of bats of the northeast, to species.
2. Collection of biological information on bats of the northeast.
3. Selecting Net Sites and placing Net Sets to maximize bat captures.
4. Attaching radio transmitters, and bat bands.
5. Radio-tracking and mapping behavior gained thru biotelemetry.
6. Identifying, describing, and conducting emergence counts of day roosts.
7. Documenting study information (bats, net sets, portal entrances, etc.) with photography

**A QIBS is responsible for overseeing all aspects of surveys, and is, therefore, required to be at an active project site (including net surveys, telemetry monitoring and roost evaluations). The QIBS will select sites, sets and inspect net sets each night.** QIBS are the individuals who act in the capacity of Principal Investigator (PI), having in-field oversight responsibility for net setup, bat captures, bat identification, telemetry studies, safe handling procedures and adherence to WNS disinfection protocols. They are also the individuals responsible for ensuring bat permitting requirements are met, and ensuring that reports are accurate and complete and submitted to the appropriate agencies. In addition, the QIBS will be in contact (2 way radio and/or cell phones) with site workers, or if not possible the QIBS will visit all sites every hour. The QIBS will verify and photo document captures of *M.sodalis*, *M.leibii*, and other species not regularly found in Pa., and supervise radio tagging and telemetry.

**Bat Identifier (BI):** The QIBS may select experienced personnel capable of identifying northeastern bats and is responsible for BI's qualifications. A list of BI's with documented experience will be provided to the PGC and USFWS-SCO for review and approval. The QIBS and BI may have oversight for the identification of bats at up to 2 net Sites at a time unless travel between sites is >30 minutes in which case only 1 Site can be monitored. Captured bats may not be held more than 1 hour unless outfitting for telemetry or other processing documented in the permit.

**Only QIBS's and BI's are permitted to be bat identifiers (responsible recorder) on PGC Forms: P-70008-NT and P-70008-M. The ratio of net Sites to QIBS's and BI's will be 2:1, except as noted above.**

**Assistants:** Assistants are under the supervision of the QIBS and are only responsible for assisting in site set-up, take-down and removal of bats. All bats must be held until verified by a QIBS or BI and the verification will occur within 1 hour of capture.

Only a QIBS may apply for a permit. The permit will list all QIBS', and BI's for a project. There will be no sub-permittee designations on the permit request. BI's and Assistants that wish to document their bat experience can briefly note these activities in the comment sections of PGC Forms: P-70008-NT and/or P-70008-M. (example: Name identified 2 Indiana bats upon removal from net, measured, banded, attached transmitters and verified by QIBS as acceptable work.). Spelling Name clearly will facilitate future retrieval of this information from the database.

### Contacts

**USFWS State College, PA Field Office** (814) 234-4090  
Carole Copeyon      carole\_copeyon@fws.gov  
Cindy Tibbott        cindy\_tibbott@fws.gov

**PA Game Commission, Wildlife Diversity**  
Cal Butchkoski      (814)667-3685      cbutchkosk@state.pa.us  
Greg Turner          (814)237-1432      grturner@state.pa.us

## COMMONWEALTH OF PENNSYLVANIA

Pennsylvania Game Commission, Bureau of Law Enforcement, Technical Services Division  
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

### **Procedure and format for permittee reports to the PA Game Commission when conducting bat capture surveys within the Commonwealth.**

The report is divided into six sections that include: (1) Cover page, (2) Site Survey Record, (3) Bat Measurement and Capture Data Forms, (4) Roost forms, (5) Maps and (6) Photo Documentation.

#### **Section 1 - Cover**

A separate cover page should be provided for each project with the accompanying data of Sections 2 through 6 contained within. An example is provided.

#### **Section 2\* - Bat Netting/Trapping Site Survey Record**

(FORM P-70008-N/T)

This is a **mandatory** two-page summary of site(s) surveyed and of captures. It should be completed for all sites surveyed, including those with no captures. If a capture technique other than mist netting or harp trapping is used, it should be described in remarks. Complete 1 for each site survey night (If site is trapped twice, 2 site survey records are required, etc.).

#### **Section 3\* - Bat Measurement and Capture Data Form**

(FORM P-70008-M)

Band color restrictions: Yellow- only on *M.sodalis* at Canoe Creek St. Park; Orange- may only be used on *M.sodalis* elsewhere.

This form is **mandatory** for:

1. *Myotis sodalis* captures
2. *Myotis leibii* captures
3. Bats you are banding and all band recaptures (*orange and yellow band colors have restrictions*)
4. All radio-tagged bats (describe transmitter in remarks)
5. Bat species not usually found in Pennsylvania\*.

\* Pennsylvania species: *Myotis lucifugus*, *Myotis septentrionalis*, *Myotis leibii*, *Myotis sodalis*, *Eptesicus fuscus*, *Perimyotis subflavus*, *Lasiurus borealis*, *Lasiurus cinereus*, and *Lasionycteris noctivagans*

The surveyor also has the option to use this form for measuring and reporting all bats. All measurements should follow North American collector standards (Nagorsen, D. W. and R. L. Peterson. 1980. Measurements and Weights. Pp. 22-26 in Mammal Collectors' Manual. Royal Ontario Museum, Publications in Life Sciences). Banded bat information will be maintained in a database and future recaptures of your bands will be reported to you.

#### **Section 4\* – Roost Forms**

When conducting telemetry 2 roost forms are provided: one for describing roosts (WD-DR-02/09) and another for bat emergence data (WD-EM-05/02). It is recommended and often required that *M. sodalis*, *M.leibii*, and *L. noctivagans* be radio-tagged when captured in summer habitats and their roosts located.

**\*Section 2, 3, and 4 forms may not be modified for reporting because they are used for data entry. If necessary, supplemental pages may be added to report unique data.**

#### **Section 5 - Maps**

An example is provided. All survey sites will be reported on a map (preferably a 7.5' USGS Topographic Map) so that locations can be accurately located and coordinates verified.

#### **Section 6 - Photo Documentation**

An example is provided. Photographs (preferably digital) will be taken of identification characteristics of all *M.sodalis*, *M.leibii*, and species not usually found in PA. The photos should be labeled with the site, date and capture number.

**Return reports to address on the heading of this page within 90 days of project completion.**

COMMONWEALTH OF PENNSYLVANIA  
Pennsylvania Game Commission  
Bureau of Law Enforcement, Technical Services Division  
2001 Elmerton Avenue, Harrisburg, PA 17110-9797

**Section 1 - Cover**

PERMITTEE BAT CAPTURE REPORT

Permit Number \_\_\_\_\_

Project Name: \_\_\_\_\_

Company/  
Organization/  
Permittee Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Phone:** (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ **Fax:** (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

**E-Mail:** \_\_\_\_\_

Project Supervisor Name: \_\_\_\_\_

Supervisor Contact: Phone: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

E-Mail: \_\_\_\_\_

If this is contracted work, provide the name & address of the individual/organization work is being performed for:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**BAT NETTING/TRAPPING SITE SURVEY RECORD**

1. Survey Date: \_\_\_\_\_ 2. Company Name: \_\_\_\_\_

3. Bat Identifier: \_\_\_\_\_ 4. Assistants: \_\_\_\_\_  
(Responsible Recorder)

5. Site Name and/or Number: \_\_\_\_\_

6. Site is (circle one): hibernation site          summer habitat

7a. If hibernation site circle one: limestone mine, coal mine, limestone cave, sandstone cave, RR tunnel,  
other structure, describe - \_\_\_\_\_.

7b. If summer habitat, describe area being sampled (e.g. forested stream or forest clearing with stream):  
\_\_\_\_\_

8. County: \_\_\_\_\_ 9. 7.5' Quad.: \_\_\_\_\_

10. Was site GPS'd (required) ?      YES - NO

11. Geographic Coordinates (D-M-S): Latitude: \_\_\_\_°-\_\_\_\_'-\_\_\_\_"N, Longitude: \_\_\_\_°-\_\_\_\_'-\_\_\_\_"W  
Datum (circle one): NAD27 (Preferred), NAD83, WGS84, Other: \_\_\_\_\_

12. Ownership and Access: (Who owns site or controls access? Give name and address.) \_\_\_\_\_  
\_\_\_\_\_

13. Time (military) & Temperature: Start Time \_\_\_\_\_ h Stop Time \_\_\_\_\_ h Total Minutes: \_\_\_\_\_  
Start Temp. \_\_\_\_\_ °C End Temp. \_\_\_\_\_ °C (must stay ≥10°C for summer netting)

14. General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;  
(suspend netting during periods of rain)          Steady Rain; Thunderstorms; Snow; Other: \_\_\_\_\_.

15. General Wind Conditions (circle one): Calm, Breezy (Leaves Rustling), Windy (Trees Swaying).

**16. Capture Setup at Site:**

Set #	Type	Count	Dimensions	Description	TOTAL AREA (m)
1	Nets	4	12m x 2.6m	Stacked over trail	124.8 sq. m

Total Capture Area: \_\_\_\_\_ sq. m

(Site Survey Record – Continued) Site Name/No.: \_\_\_\_\_ Date: \_\_\_\_\_

17. Describe habitat 150 m around site: (topography and vegetation including dominant tree species.)

18. Was reproductive status checked? YES / NO (if “NO” only enter numbers in **Total** columns)

**\*CAPTURE RESULTS**

Species	Number of Adult Females				No. Juv. Fem.	Total No. Fem.	Number of Adult Males		No. Juv. Male	Total No. Males	Species Totals
	NR	PG	L	PL			SCR	NR			
<i>Eptesicus fuscus</i>	2		1			3	2	1	1	4	7
<i>Myotis lucifugus</i>											
<i>Myotis septentrionalis</i>											
<i>Myotis leibii</i>											
<i>Myotis sodalis</i>											
<i>Eptesicus fuscus</i>											
<i>Perimyotis subflavus</i>											
<i>Lasiurus borealis</i>											
<i>Lasiurus cinereus</i>											
<i>Lasionycteris noctivagans</i>											
Other – specify:											
Other – specify:											
Reproductive Status: NR= nonreproductive, PG= pregnant, L= lactating, PL= post lactating, SCR= scrotal/epididymis swollen. <b>*Complete Measurement and Capture Data Form for all:</b> (1) <i>Myotis sodalis</i> , (2) <i>Myotis leibii</i> , (3) bats you are banding or band recaptures, (4) radio-tagged bats and (5) bat species not usually found in PA.										Grand Total	

19. BAT DETECTORS & OTHER MONITORING DEVICES: Tallies of bat passes / hour. One to 5 hours required for Indiana bat hibernacula surveys. Monitor one hour after 22:00 hrs when trapping/netting hibernacula and 5 hours when only monitoring with bat detectors, night vision or infrared device (when site can not be trapped/netted). Describe procedure & equipment used in remarks.

1 <sup>st</sup> hour	2 <sup>nd</sup> hour	3 <sup>rd</sup> hour	4 <sup>th</sup> hour	5 <sup>th</sup> hour
Start Time:				
End Time:				
Tallies:	Tallies:	Tallies:	Tallies:	Tallies:

20. REMARKS:

**Bat Measurement and Capture Data Form**

(Complete for all (1) *Myotis sodalis*, (2) *Myotis leibii*, (3) bats you are banding or band recaptures, (4) radio-tagged bats and (5) bat species not usually found in PA)

Site Name Or Number:				Date:				Set No. Captured In:			Name of Person Identifying the Bat:				*Capture Number:
Height in meters captured above ground surface: _____ m				Body Measurements (grams and millimeters)						Band Information (if banded) (Band Males on bat's RIGHT fa., Females on bat's LEFT fa.)					Transmitter Attached? If so: Frequency (mHz)
<u>Species</u>	<u>Sex</u>	<u>Age</u>	<u>Repro. Condition</u>	<u>Wt. (g)</u>	<u>Ear</u>	<u>Tragus</u>	<u>Fore- arm</u>	<u>Hind Foot</u>		<u>Recapture Yes/No</u>	<u>Band Material</u>	<u>Band Color</u>	<u>Band Inscription</u>	<u>Band on Left/Right</u>	
<u>Time of Capture</u>	<u>Photo Taken</u> Yes / No		<u>WNS Wing Score</u>		<u>Wing Photo ID:</u> Remarks:										
<i>Repro. Condition: NR= nonreproductive, PG= pregnant, L= lactating, PL= post lactating, SCR= scrotal/epididymis swollen</i>															
Site Name Or Number:				Date:				Set No. Captured In:			Name of Person Identifying the Bat:				*Capture Number:
Height in meters captured above ground surface: _____ m				Body Measurements (grams and millimeters)						Band Information (if banded) (Band Males on bat's RIGHT fa., Females on bat's LEFT fa.)					Transmitter Attached? If so: Frequency (mHz)
<u>Species</u>	<u>Sex</u>	<u>Age</u>	<u>Repro. Condition</u>	<u>Wt. (g)</u>	<u>Ear</u>	<u>Tragus</u>	<u>Fore- arm</u>	<u>Hind Foot</u>		<u>Recapture Yes/No</u>	<u>Band Material</u>	<u>Band Color</u>	<u>Band Inscription</u>	<u>Band on Left/Right</u>	
<u>Time of Capture</u>	<u>Photo Taken</u> Yes / No		<u>WNS Wing Score</u>		<u>Wing Photo ID:</u> Remarks:										
<i>Repro. Condition: NR= nonreproductive, PG= pregnant, L= lactating, PL= post lactating, SCR= scrotal/epididymis swollen</i>															
Site Name Or Number:				Date:				Set No. Captured In:			Name of Person Identifying the Bat:				*Capture Number:
Height in meters captured above ground surface: _____ m				Body Measurements (grams and millimeters)						Band Information (if banded) (Band Males on bat's RIGHT fa., Females on bat's LEFT fa.)					Transmitter Attached? If so: Frequency (mHz)
<u>Species</u>	<u>Sex</u>	<u>Age</u>	<u>Repro. Condition</u>	<u>Wt. (g)</u>	<u>Ear</u>	<u>Tragus</u>	<u>Fore- arm</u>	<u>Hind Foot</u>		<u>Recapture Yes/No</u>	<u>Band Material</u>	<u>Band Color</u>	<u>Band Inscription</u>	<u>Band on Left/Right</u>	
<u>Time of Capture</u>	<u>Photo Taken</u> Yes / No		<u>WNS Wing Score</u>		<u>Wing Photo ID:</u> Remarks:										

\*Capture Number = number in sequence by site.

**PA GAME COMMISSION  
Wildlife Diversity Section  
Bat Tree - Day Roost - Data Sheet**

1-

**Landowner:** Name: \_\_\_\_\_ Address: \_\_\_\_\_

Phone: \_\_\_\_\_

**2-BAT INFO**

**Dates on Roost:** \_\_\_\_\_ **Day Roost Number:** \_\_\_\_\_

*(Date = Date bat was on roost; TreeNo. = Bat # & numbered tree, in sequence, for that bat ~ 241PGC-01)*

**Surveyors:** \_\_\_\_\_ **Roost Type:** Tree - Building - Other \_\_\_\_\_

**Bat Species:** \_\_\_\_\_ **Band No.:** \_\_\_\_\_ **Transmitter Frequency:** \_\_\_\_\_

**Ht.(m) bat is roosting off ground:** \_\_\_\_\_ Was Bat Emergence Form Completed? **YES - NO**

**Comments:** *(Where is bat roosting? Under bark? If building-describe)*

**3-LOCATION**

**County:** \_\_\_\_\_ **Quadrangle:** \_\_\_\_\_

**Latitude:** \_\_\_\_\_ (DMS) **Elevation (ft.):** \_\_\_\_\_

**Longitude:** \_\_\_\_\_ (DMS) **%Slope:** \_\_\_\_\_ **Slope Aspect (0-360):** \_\_\_\_\_

**Datum:** Nad27 (preferred) NAD83/WGS84 (circle one)

**4-TREE INFORMATION**

**Species:** \_\_\_\_\_ **DBH (cm):** \_\_\_\_\_ **Is Tree Alive? YES - NO (CIRCLE)**

**Height:** ( %UP \_\_\_\_\_ + %DOWN \_\_\_\_\_ ) X **Dist.(m) to tree** \_\_\_\_\_ = \_\_\_\_\_ m

**1st Branch Ht. ( %UP \_\_\_\_\_ + %DOWN \_\_\_\_\_ ) X Dist.(m) to tree** \_\_\_\_\_ = \_\_\_\_\_ m

**Estimate % Canopy Cover Around Tree:** \_\_\_\_\_

Is suitable roost area on tree exposed to direct sunlight? **YES - NO (circle one)**

If so - estimate # of hours of exposure to direct sun: \_\_\_\_\_

Azimuth of Exposure (which way does exposed part of tree face): \_\_\_\_\_ (0-360)

Exfoliating Bark? **YES - NO** **Estimate % of tree with Exfoliating Bark:** \_\_\_\_\_

Cavities? **YES - NO** If yes - Describe: \_\_\_\_\_

**5-SURROUNDING HABITAT**

**Distance (m) to Water:** \_\_\_\_\_ **Water Type:** \_\_\_\_\_

**Understory Species:** \_\_\_\_\_

**Overstory Species:** \_\_\_\_\_

*On reverse side of form Comment on Overstory Species and Habitat Composition.*

**PA GAME COMMISSION, Wildlife Diversity Section**  
**Bat Emergence Form**

\* It is important to keep lights and noise disturbance to a minimum during the emergence period. \*

**ROOST NO.:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**ROOST TYPE:** Building Tree Other: \_\_\_\_\_

**Surveyors:** \_\_\_\_\_  
\_\_\_\_\_

**Transmitted Bat Band No.:** \_\_\_\_\_ **Transmitter Frequency:** \_\_\_\_\_

**Weather** **Temperature:** \_\_\_\_\_ \*F

**Sky Condition Code:** \_\_\_\_\_ **Wind Scale Code:** \_\_\_\_\_

<b>Sky Conditions</b>	
<u>Code</u>	
<b>0</b>	Clear or a few clouds
<b>1</b>	Partly cloudy/variable sky
<b>2</b>	Cloudy (broken) or overcast
<b>4</b>	Fog or smoke
<b>5</b>	Drizzle
<b>7</b>	Snow
<b>8</b>	Showers

<b>Beaufort Wind Scale</b>	
<u>Code</u>	<u>MPH</u> <u>Indicators</u>
<b>0</b>	<1 Smoke rises vertically
<b>1</b>	1-3 mph Smoke Drift shows wind direction
<b>2</b>	4 - 7 mph Wind felt on face/leaves rustle
<b>3</b>	8 - 12 mph Leaves&sm.twigs in constant motion
<b>4</b>	13 - 18 mph Raises dust & loose paper
<b>5</b>	19 - 24 mph Small trees in leave sway

Night Vision Equipment Used? **YES - NO**

Bat Detector Used? **YES - NO**

Telemetry Equipment Present? **YES - NO**

**Time Surveyors arrived at Roost :** \_\_\_\_\_ *(use 24 hour clock for times)*

**Time First Bat Seen Flying:** \_\_\_\_\_

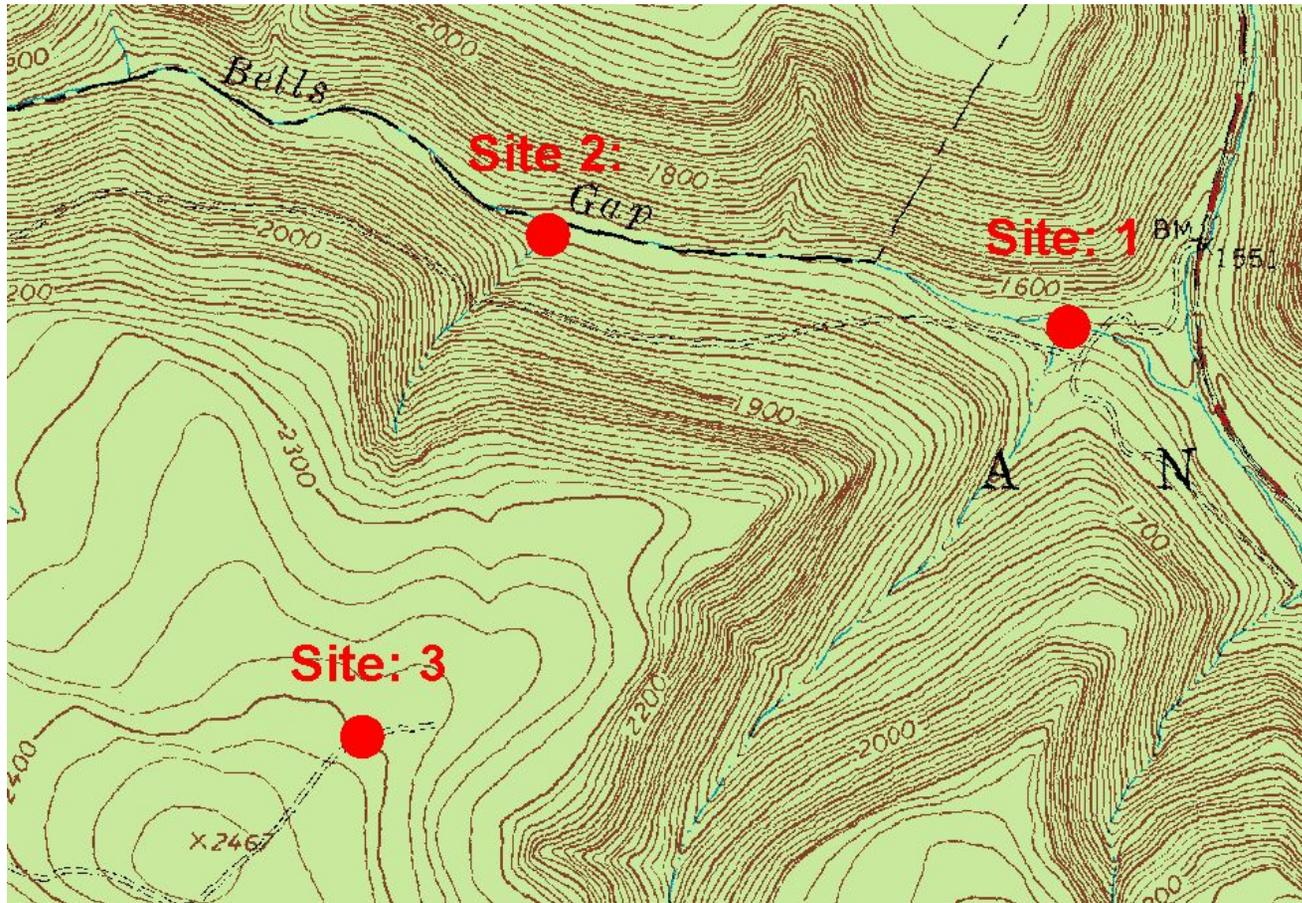
**Time Transmitted Bat Emerged:** \_\_\_\_\_ **And Azimuth Last Detected:** \_\_\_\_\_

**Time Last Bat Seen Emerging:** \_\_\_\_\_ **Total Emergence Count:** \_\_\_\_\_

**Comments:** *(include other emergence observations, weather, bat behavior, etc.)*

**Section 5 - Maps** (example)

Blair Co., Blandburg Quadrangle, Bells Gap Area.  
Location of Sites 1, 2, and 3 for Project PA-24



**Section 6 - Photos** (example)

Male *Myotis sodalis* captured at **Site 1**

Capture date: **7/18/01**

Capture Number: **06**

Portrait



Keeled Calcar

