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A SURVEY OF BATS AT SHILOH NATIONAL MILITARY PARK

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FINAL REPORT



Prepared for:

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National Park Service
Shiloh National Military Park
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PREPARED FOR:

**SHILOH NATIONAL MILITARY PARK,
NATIONAL PARK SERVICE,
DEPARTMENT OF THE INTERIOR**

**Michael L. Kennedy
The University of Memphis**

MAY 2002

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A SURVEY OF BATS AT SHILOH NATIONAL MILITARY PARK

ABSTRACT: A survey of the bat fauna of Shiloh National Military Park (Park), Hardin Co., Tennessee, was conducted over a 6-month period (May to October) 2001. Bats were captured using mist nets placed across dry and wet sites. During the study, 567 mist-net nights (mist-net night = one net set for one night) were employed. One hundred twenty-one bats were captured during the investigation. Species richness (total number of species on the site) was seven. These included the red bat (Lasiurus borealis), southeastern myotis (Myotis austroriparius), evening bat (Nycticeius humeralis), eastern pipistrelle (Pipistrellus subflavus), Gray bat (Myotis grisescens), and silvered haired bat (Lasionycteris noctivagans), and little brown bat (M. lucifugus). Species abundance distributions (the number of individuals belonging to each of the species represented on the area) were greatest for red bats and southeastern myotis and least for gray bats, silver-haired bats, and little brown bats. Measures of species evenness (the degree to which relative abundance of individuals among different species are similar) were typical for forested communities. Biodiversity was found to be higher at wet sites than dry sites. One endangered species (one gray bat) was taken during the study; one rare species (southeastern myotis) was recorded at several sites on the Park. All areas of the Park were found to provide suitable habitat for bats. Demographic information (sex, age, weight, and forearm length) were recorded. Management considerations are given.

INTRODUCTION

Populations of bats have declined drastically in recent years, world-wide. A number of bat species are already extinct, and others are near extinction (Schmidly, 1991). Because of their intriguing (and in many ways unique) biological properties, their role in ecosystem composition, and the fact that they are highly beneficial to man, the decline in bat populations has caused much concern among the general public and scientific community and has fostered conservation efforts targeted toward this group of mammals. Yet, before conservation plans and management recommendations can be formulated for bats, studies must be conducted to obtain pertinent data concerning distribution, status, and ecology (Harvey et al. 1999). Meffe et al. (1997) pointed out that an understanding of demographic processes for organisms is essential in developing practical theories of population ecology that can aid in conserving biological diversity. At present, basic natural history information for populations of bats are lacking and in need of investigation in many regions.

One region in which bats have not been studied in detail is western Tennessee. In this region, caves (restricted to the Tennessee River Valley), trees, and buildings provide the primary roost sites. A concern for the welfare of populations in the region and a desire to properly manage these mammals has led the National Park Service (Department of the Interior) in an initiative to inventory the status and distribution of bats at Shiloh National Military Park (hereafter, Park). The Park has remained a relatively undisturbed island of land in western Tennessee since its acquisition by the National Park Service in 1933. Surrounding private lands have been impacted heavily by human activities which in general have had a negative influence on habitat quality within some areas of the Park.

Additionally, surrounding habitats have been impacted by agricultural practices, clear-cutting, erosion, and other sources associated with human activities. However, the Park's location in the Tennessee River Valley and the unique older age class forest found on the site provides habitat suitable for a number of species of bats. At present, the status and distribution of bats on the Park remains unclear. However, given that two endangered species (gray bat, Myotis grisescens; Indiana bat, M. sodalis) and others (e.g., Rafinesque's big-eared bat, Corynorhinus rafinesquei; southeastern myotis, M. austroriparius) deemed in need of management (Kennedy and Harvey, 1984) could occur at the Park, there is need to better understand the natural history of bats on the site in order that future conservation and management plans might be best developed.

The purpose of the present study was to study the natural history of bats at Shiloh National Military Park. Specifically, species richness (total number of species on the site), species evenness (the degree to which relative abundance of individuals among different species are similar), and species abundance distribution (the number of individuals belonging to each of the species represented on the area) at dry and wet sites were assessed. Additionally, distributional data for all species captured and comments regarding the status of endangered and rare species, which likely occur on the Park, are provided.

STUDY AREA

The Park was located in Hardin Co. and consisted of about 1,619 ha (see Fig. 1). Much of the eastern boundary of the Park overlooked the Tennessee River (Fig. 2). The Park was characterized by upland forest associated with the Tennessee River Valley and bottomland forest associated with the Tennessee River, Owl Creek, and tributaries of these waterways. Two small

(permanent) ponds (Bloody Pond and Water Oaks Pond) occurred in upland habitats, and several beaver ponds were found in the bottomlands. Additionally, numerous mowed areas and large agricultural fields (comprising 10-15% of the total study site) were present in uplands. Topography of uplands consisted of alternating ridge tops and hollows with steep slopes, and small streams were present in most hollows; bottomlands were generally flat. Examples of maintained areas, uplands, and wet sites are given in Figs. 3-5.

Dominant canopy species of uplands included oak (Quercus spp.), hickory (Carva spp.), maple (Acer spp.), sweetgum (Liquidambar stryaciflua), and juniper (Juniperus virginiana) on ridge tops and beech (Fagus grandifolia) and yellow poplar (Liriodendron tulipifera) in hollows. Oak, hickory, sweetgum, maple, green ash (Fraxinus pennsylvanica), sycamore (Platanus occidentalis), and cottonwood (Populus deltoides) were dominant canopy species in bottomlands. Most of the forest was mature with many trees 70 years old or greater. Numerous trees with shagbark (e.g., oak, hickory), which potentially could be used by bats as roost sites, were present in both uplands and bottomlands.

MATERIALS AND METHODS

Bats were captured using 2.6 x 6.0 m and 2.6 x 9.0 m mist nets made of 50-denier nylon with 4-cm mesh. Mist-netting sites were grouped for analyses. This resulted in 14 localities (each representing a dry and wet site) selectively sampled throughout the Park (Fig. 6). Dry sites were on forest trails or secondary roads (without water); wet sites were over streams, sloughs, or ponds. Each locality contained 10 or more net locations that are given in Fig. 6. Each of the capture sites was netted multiple times (n = 2 to 6). Nets were placed across roads, trails,

streams, ponds, and sloughs where bats would likely fly. On one occasion, an Anabat system (using acoustic identification) was employed to verify general abundance and species presence.

Bats were captured over a 6-month period (May to October) during 2001. Approximately 567 net nights (one net night being one net set for one night) were employed during 66 nights of study. There were 326 net nights for dry sites and 241 for wet sites. Generally, nets were set three to four nights per week at varying locations yielding a maximum of 40 net nights per week. A list of the number of nets by night and netting locations is given as Appendix I. The netting strategy was varied during the investigation. In some cases, nets were move daily; in others, we netted consecutive nights in order to thoroughly sample sites. There was extensive effort at both dry and wet sites. Nets were open within about a 1/2 hour of sunset and taken down or closed within about 1 hour of sunrise.

Upon capture, bats were identified and species, sex, weight, forearm length, age class, and habitat type (dry or wet) recorded. Sex was determined from external genitalia. Weight was taken to the nearest g using spring scales, and forearm length measured in mm with a plastic ruler. Age was determined as adult or juvenile following Schwartz and Schwartz (1981).

Species richness, species evenness, and species abundance distributions were determined for dry and wet sites as well as for total or combined sites. Species richness and abundance distributions were determined by a total count of the species and individuals within species. The Shannon Weiner index (Smith, 1986) was used to calculate an index of biodiversity and species evenness. A chi-square analysis was used to determine statistical differences between numbers of captures and dry versus wet habitats. Species considered endangered or rare followed Kennedy and

Harvey (in press). Except for endangered species and species taken only once during the study, voucher specimens for taxa captured are deposited in the mammal collection at The University of Memphis.

RESULTS

One hundred twenty-one bats were captured during the study (Table 1). Maps showing locations of captures on the study site are given in Figs. 7-11. GPS locations for individual captures are given as Appendix I. Area and site of capture, date of capture, band number, age, sex, weight, and forearm length for individual bats are given in Appendix II.

Species richness was seven (Tables 1). Species abundance distributions (Table 1; Fig. 12) were greatest for red bats (Lasiurus borealis; Fig. 13) and southeastern myotis (Myotis austroriparius; Fig. 14) and least for gray bats (M. grisescens; Fig. 15), silver-haired bats (Lasionycteris noctivagans; 16), and little brown bats (M. lucifugus; Fig. 17). The evening bat (Nycticeius humeralis; Fig. 18) and eastern pipistrelle (Pipistrellus subflavus; Fig. 19) occurred in intermediate numbers.

Diversity measures by habitat type (dry, wet) are given in Table 2. Greatest biodiversity, species abundance, species richness, and species evenness were found at wet sites. Overall, diversity measures with habitats grouped are given in Table 2. Eighty-six bats were captured at wet sites and 35 at dry sites. The number of captures for wet sites versus dry sites differed significantly (chi-square, 9.85). Means and ranges for weight and forearm length (all sites combined) for each species are given in Tables 3-5. Acoustic identification revealed the presence of probably three N. humeralis during one night which reflected the same (relatively low) level of abundance and species presence as sampling by mist nets during mid-October sampling.

One endangered species (M. grisescens; Fig. 15) and one rare species (M. austroriparius; Fig. 14) were found on the site. Species abundance distributions are given in Table 1. The only capture site for M. grisescens was over Owl Creek on the western edge of the Park (Fig. 2). M. austroriparius was captured more widely on the Park (Fig. 2), but the greatest number of captures was over or near Owl Creek.

Voucher specimens for common red bats, evening bats, and eastern pipistrelles were taken. These are deposited in the mammal collection at The University of Memphis.

DISCUSSION

Comparative data reflecting biodiversity measures of bat populations in Tennessee and adjacent states are limited. We recorded a species richness of seven in the present study. Kennedy (1991) reported 13 species of bats known to occur in western Tennessee. Sixteen species are known from Kentucky (Barbour and Davis, 1974), 15 from Arkansas (Sealander and Heidt, 1990), and 14 from Mississippi (Kennedy et al., 1974). Species richness would likely increase with additional study at the site. Kennedy (1984) reported 10 species of bats to occur on the Park. All species captured during 2002 were recorded by Kennedy (1984). The northern myotis (M. septentrionalis), seminole bat (Lasiurus seminolus), and hoary bat (Lasiurus cinereus) were species reported in the 1984 survey that were not collected in 2002. These bats likely occur on the Park in small numbers. Kennedy (1991) reported all three of the species as uncommon in the region. However, all are known to have wide distributions (see Barbour and Davis, 1974; Schwartz and Schwartz, 1981) and are known from other areas of western Tennessee (Graves and Harvey, 1974; Kennedy and Harvey 1984). Other species known from the region (Indiana myotis, M. sodalis; small-footed myotis, M.

leibii; big brown bat, Eptesicus fuscus) also likely occur on the site (see Barbour and Davis, 1974; Graves and Harvey, 1974; Kennedy, 1991) in small numbers.

In regard to species abundance distribution, our results follow those of Graves and Harvey (1974) in that L. borealis appears to be the most common bat in the region. Graves and Harvey (1974) also found southeastern myotis, evening bats, and eastern pipistrelles to occur in greater numbers than silver-haired bats and little brown bats. They reported gray bats from several localities in the region.

Comparisons of capture success between dry and wet components of the habitat has received little formal study. However, results of the present study followed the conclusions of Seidman and Zabel (2001) in that greatest activity of bats was associated with wet sites rather than dry.

Demographic information (sex ratios, weights, and forearm lengths) varied somewhat in the present study. However, these results are within the ranges reported for the species (see Watkins, 1972; Barbour and Davis, 1974; Fenton and Barclay, 1980; Schwartz and Schwartz, 1981; Kunz, 1982; Shump and Shump, 1982; Fujita and Kunz, 1984; Decher and Choate, 1995).

The location of the Park places it within proximity to known populations of endangered species (M. grisescens; M. sodalis) and species in need management (M. austroriparius; C. rafinesquii). Graves and Harvey (1974), Hall (1981), and Kennedy (1991) provide distributional records or comments concerning distributions of bats in western Tennessee. For endangered species, results collected during the present study are similar to those reported by Kennedy (1984). The gray bat probably forages over most of the Park. However, because suitable roosting habitat (caves or cave-like structures) is lacking, it is not likely that the Park serves this species in other manner than as a foraging site. However, this is significant.

Because this species is known to forage primarily over open water (Barbour and Davis, 1974; Decher and Choate, 1995), the Tennessee River adjacent to the Park likely represent significant foraging habitat for this species. Additionally, from the present study, it was documented that this species forages over Owl Creek at least occasionally. Other areas on the Park with permanent water (e.g., Bloody Pond and Water Oak Pond) likely provide habitat for this species as well. Protected feeding areas are important to this species.

As in the earlier survey (Kennedy, 1984), no M. sodalis was not collected during the work in 2001. Much of the habitat on the Park is similar to that used by females in rearing young (Barbour and Davis, 1974). However, these habitats were sampled extensively and resulted in no capture of the species. Because records of Indiana bats are known from other parts of the region, it is likely that the Park could get occasional use by this species. Monitoring for the occurrence of this bat could be important.

M. austroriparius is a rare species captured in the 1984 survey (Kennedy, 1984). However, it was taken more frequently in the present investigation than in the earlier survey. It appears that this species has increased its utilization of the Park since 1984. The species is usually associated with water (Barbour and Davis, 1974; Jones and Manning, 1989). Not a great deal is known about this bat in forested habitats. Greatest number of captures for this species was over Owl Creek. Monitoring for the occurrence of this bat could be important as well.

C. rafinesquii also is a rare species known to occur in western Tennessee (Kennedy, 1991). This species was not taken in the 1984 survey (Kennedy, 1984) or in the present survey. However, it is a bat of the forested regions of the South (Barbour and Davis, 1974), and habitat on the Park appears suitable for the species. It is likely that this species uses

the Park occasionally. It is known from adjacent McNairy Co. (see voucher specimen in the mammal collection at The University of Memphis). This bat brings the total to 14 species that likely occurs on the Park at some time.

In general, the mature forest and numerous wet habitats (rivers, ponds, sloughs,) within the Park provides excellent habitat for bats. Large trees with loose and shaggy bark provide numerous roosting sites for bats. The Park represents some of the finest habitat for bats in the region. In the present study, bats were most frequently captured in habitats associated with water. Large, shag bark trees in proximity to wet habitats probably serve as important roosting sites.

MANAGEMENT CONSIDERATIONS

For western Tennessee, the Park maintains a bat fauna rather rich in biodiversity. Seven species were documented in the present study and 10 in the 1984 survey (Kennedy, 1984). The species evenness is what would be expected in a natural forested community. A few species (e.g., red bats, southeastern myotis, and evening bats) occur in considerable abundance while other species (e.g., gray bats, silver-haired bats, and little brown bats) are present in fewer numbers.

Red bats, southeastern myotis, evening bats, and eastern pipistrelles are the most common bats on the site. Silvered-haired bats, little brown bats, and gray bats also were documented on the Park during the present study. Additionally, the Indiana bat, northern myotis, small-footed myotis, big brown bat, seminole bat, hoary bat, and Rafinesque's big-eared bat could occur on the site based on the survey of Kennedy (1984) and reports of Graves and Harvey (1974) and Kennedy (1991). The total number of bats that likely occurs on the Park at some level is 14. Habitats associated with the Tennessee River, Owl Creek, Shiloh Branch, Rae Springs, Dill Branch,

Tlghman Branch, Bloody Pond, and Water Oaks Pond appeared to be the most important habitats for bats, but, overall, the bat fauna appeared to be distributed throughout the Park.

Given the small number of M. grisescens captured on the site, no specific recommendation is presented for the management of this endangered species other than continued protection of foraging habitat. Protection of habitat also is the most significant measure to be directed toward conservation and management of the southeastern myotis. Because the Park is subject to impact from sources outside its boundaries, a periodic monitoring of populations of bats should be conducted to continue to understand the status and distribution of bats on the Park.

ACKNOWLEDGMENTS

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TABLES

Table 1.--Number of species captured (species richness) and number of individuals of within species (species abundance distribution) by sex and age collected during a study of bats at Shiloh National Military Park in Hardin Co., Tennessee, from May through October 2001.

Number of individuals captured					
Species captured	Total	Sex		Age	
		Male	Female	Adult	Juvenile
<i>Lasiurus borealis</i>	59	21	38	48	11
<i>Myotis austroriparius</i>	25	7	18	24	1
<i>Nycticeius humeralis</i>	18	13	5	18	0
<i>Pipistrellus subflavus</i>	16	11	5	15	1
<i>Myotis grisescens</i>	1	1	0	1	0
<i>Lasionycteris noctivagans</i>	1	1	0	1	0
<i>Myotis lucifugus</i>	1	0	1	1	0
Total	121	53	67	107	13

Table 2.--Comparison of bat abundance and biodiversity measures in two habitat types at Shiloh National Military Park in Hardin County, Tennessee, from May through October 2001.

Habitat	Biodiversity index (H')	Abundance	Richness	Evenness
Dry	0.8041	35	4	0.5800
Wet	1.4437	86	7	0.7419
Combined	1.3429	121	7	0.6901

Table 3.--Mean weights (g) for adult bats caught at Shiloh National Military Park in Hardin Co., Tennessee, from May through October 2001.

Species	Males			Females		
	n	Mean	Range	n	Mean	Range
<i>Lasiurus borealis</i>	14	11.3	7.0-17.5	33	14.2	10.5-19.5
<i>Myotis grisescens</i>	1	10.5				
<i>Lasionycteris noctivagans</i>	1	10.0				
<i>Nycticeius humeralis</i>	12	9.2	5.5-13.75	5	9.45	7.0-12.75
<i>Myotis austroriparius</i>	6	7.7	6.0-11.0	18	8.5	6.0-10.0
<i>Pipistrellus subflavus</i>	5	6.4	5.0-9.0	10	6.3	5.5-7.5
<i>Myotis lucifugus</i>				1	8.25	

Table 4.--Mean weights (g) for juvenile bats caught at Shiloh National Military Park in Hardin Co., Tennessee, from May through October 2001.

Species	Males			Females		
	n	Mean	Range	n	Mean	Range
<i>Lasionycteris noctivagans</i>						
<i>Lasiurus borealis</i>	6	8.7	7.0-10.0	5	9.1	8.0-1.025
<i>Myotis austroriparius</i>	1	4.0				
<i>Myotis grisescens</i>						
<i>Myotis lucifugus</i>						
<i>Nycticeius humeralis</i>						
<i>Pipistrellus subflavus</i>				1	5.0	

Table 5.--Forearm lengths for bats caught at Shiloh National Military Park in Hardin Co., Tennessee, from May through October 2001.

Species	Mean forearm length (mm)			
	Adult	n	Juvenile	n
<i>Lasionycteris noctivagans</i>	42.0	1		
<i>Myotis grisescens</i>	42.0	1		
<i>Lasiurus borealis</i>	41.3	45	38.9	11
<i>Myotis austroriparius</i>	39.1	23	33.0	1
<i>Myotis lucifugus</i>	39.0	1		
<i>Nycticeius humeralis</i>	35.5	13		
<i>Pipistrellus subflavus</i>	34.7	15	34.0	1

FIGURES

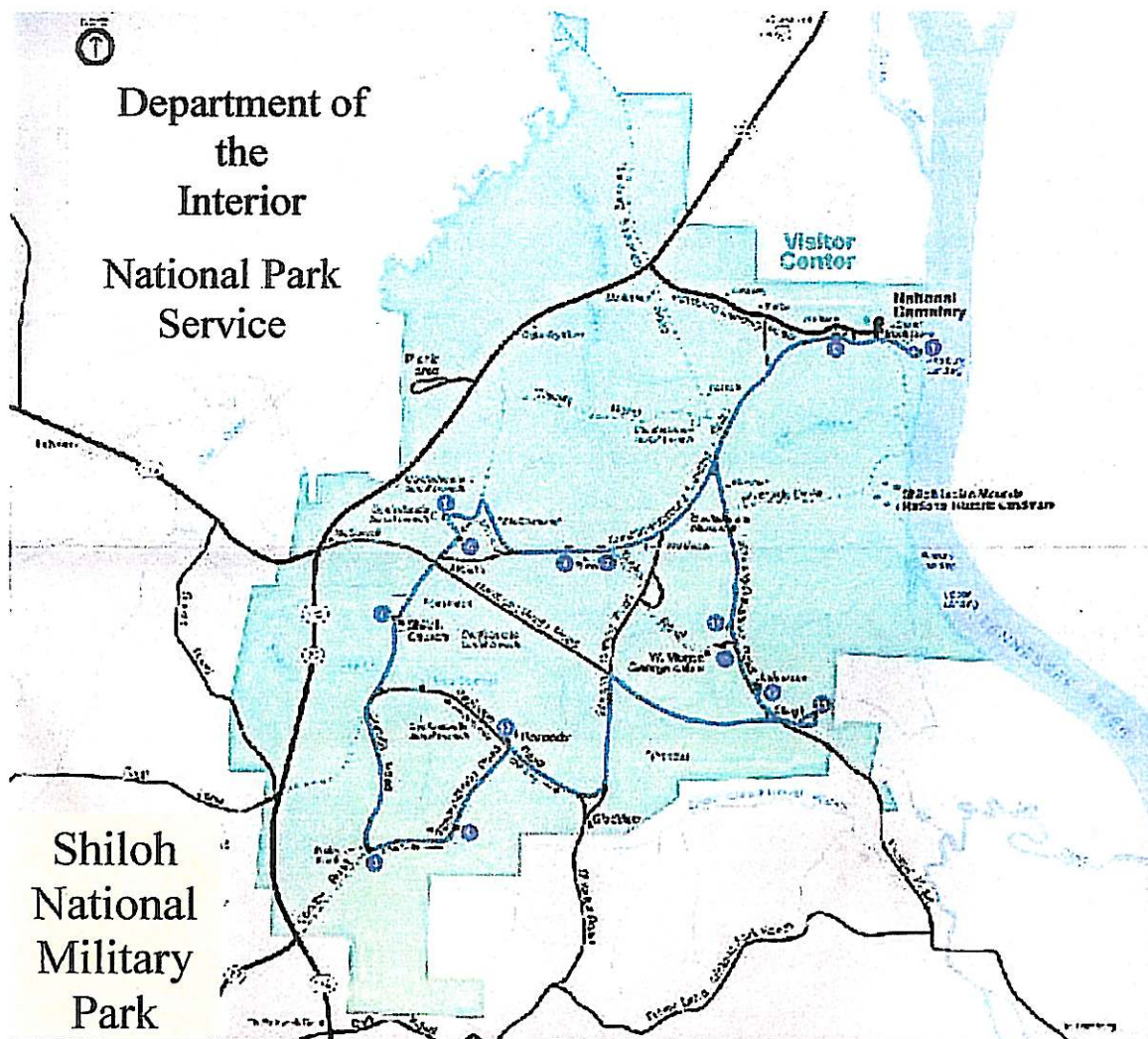


Fig. 1.--Map showing (in green) Shiloh National Military Park (site of survey of bats during May through October 2001) in Hardin Co., Tennessee.

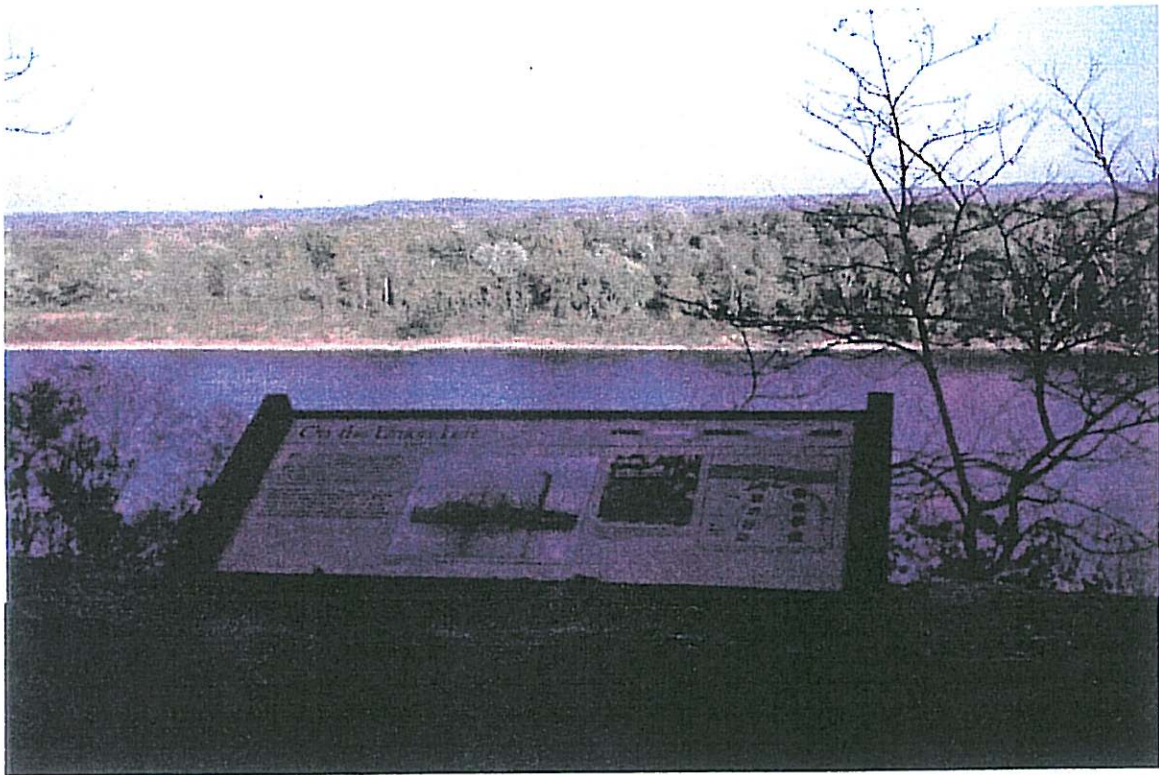


Fig. 2.--View of the Tennessee River from Shiloh National Military Park in Hardin Co., Tennessee.



Fig. 3.--Representative maintained areas of Shiloh National Military Park in Hardin Co., Tennessee.



Fig. 4.--Representative upland-forested areas of Shiloh National Military Park in Hardin Co., Tennessee.



Fig. 5.--Representative wet habitats at Shiloh National Military Park in Hardin Co., Tennessee.

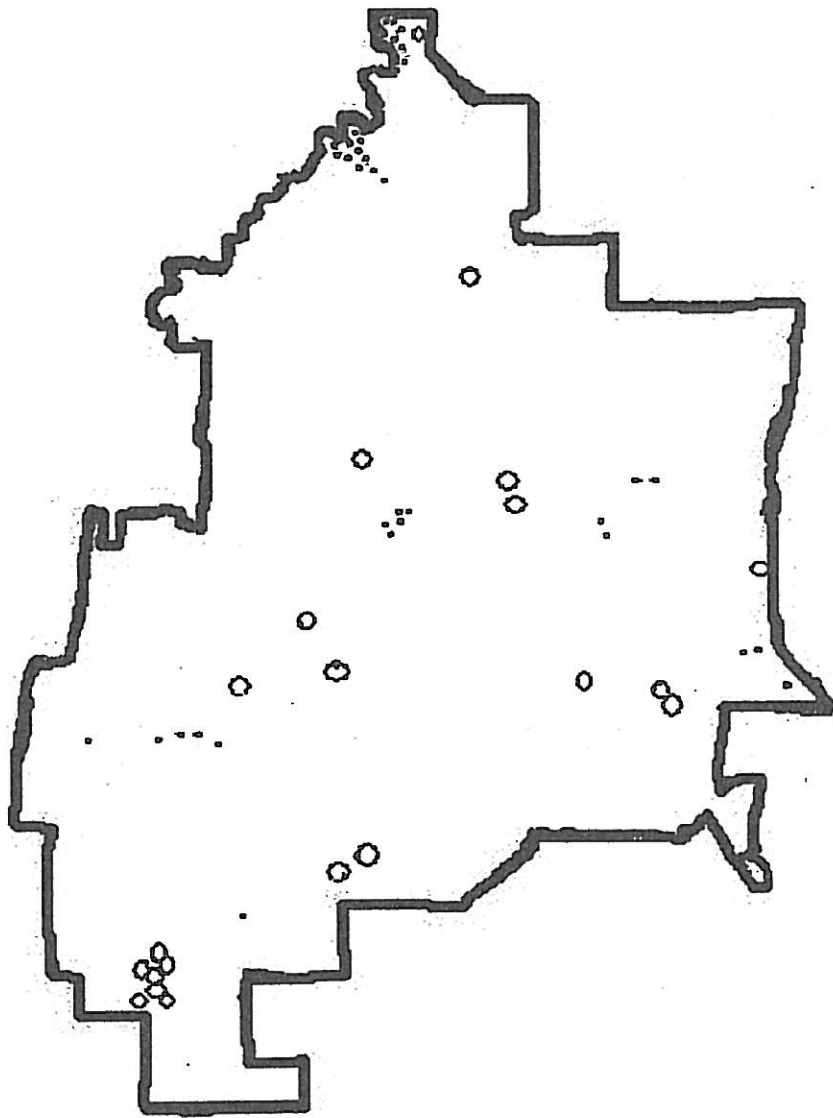


Fig. 7.--Capture sites for red bats (*Lasiurus borealis*) at Shiloh National Military Park in Hardin County, Tennessee, from May through October 2001. Open circles represent dry sites; small solid squares represent wet sites.

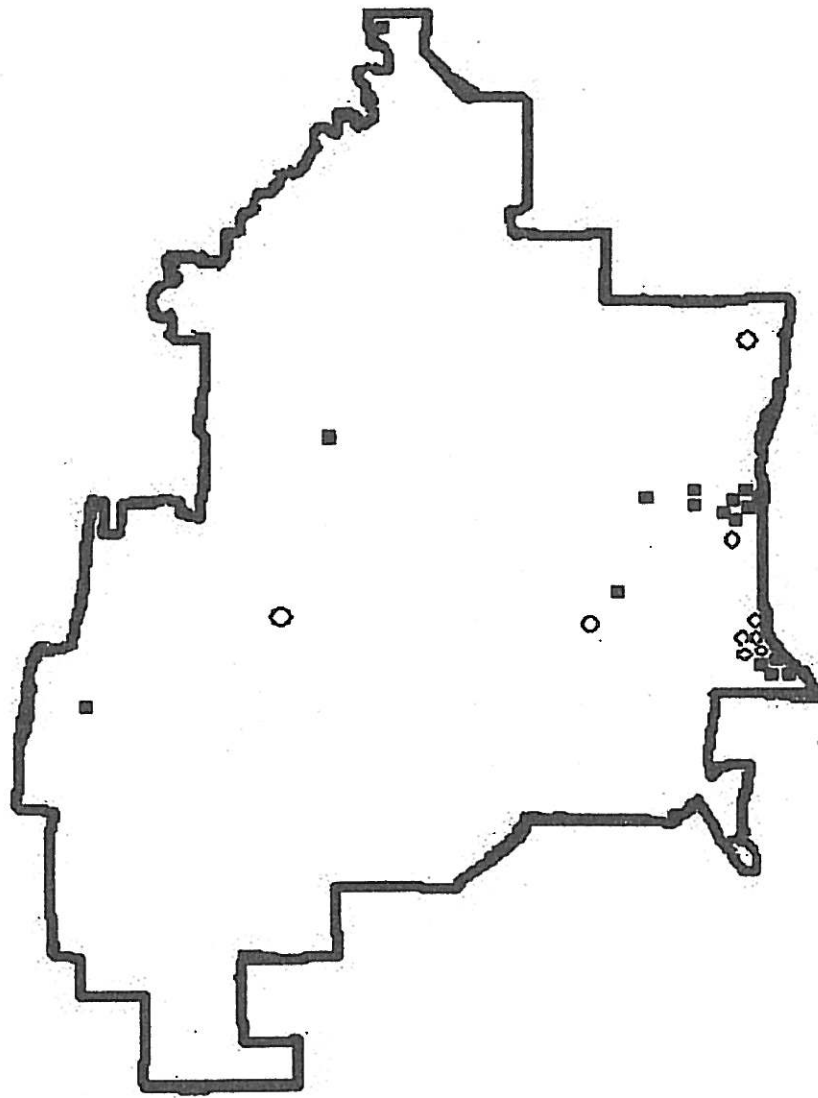


Fig. 8.--Capture sites for southeastern myotis (*Myotis austroriparius*) at Shiloh National Military Park in Hardin County, Tennessee, from May through October of 2001. Open circles represent dry sites; squares represent wet sites.

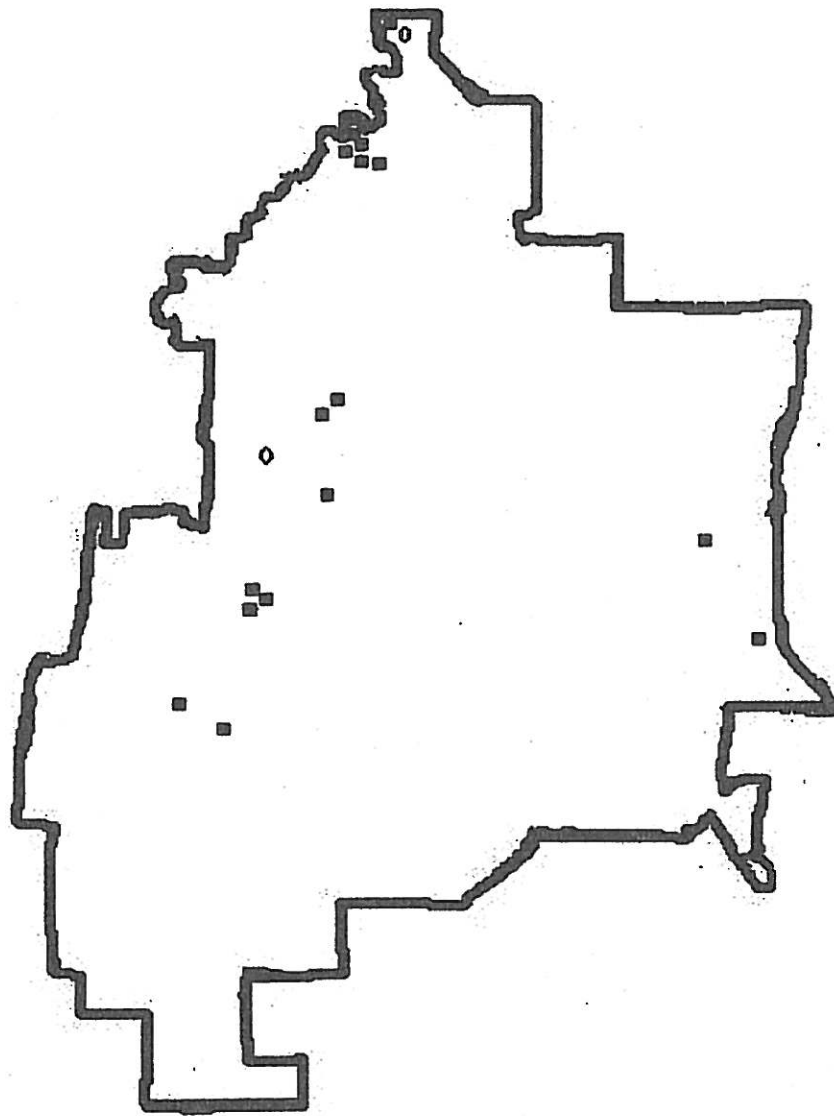


Fig. 9.--Capture sites for evening bats (*Nycticeius humeralis*) at Shiloh National Military Park in Hardin County, Tennessee, from May through October 2001. Open circles represent dry sites; squares represent wet sites.

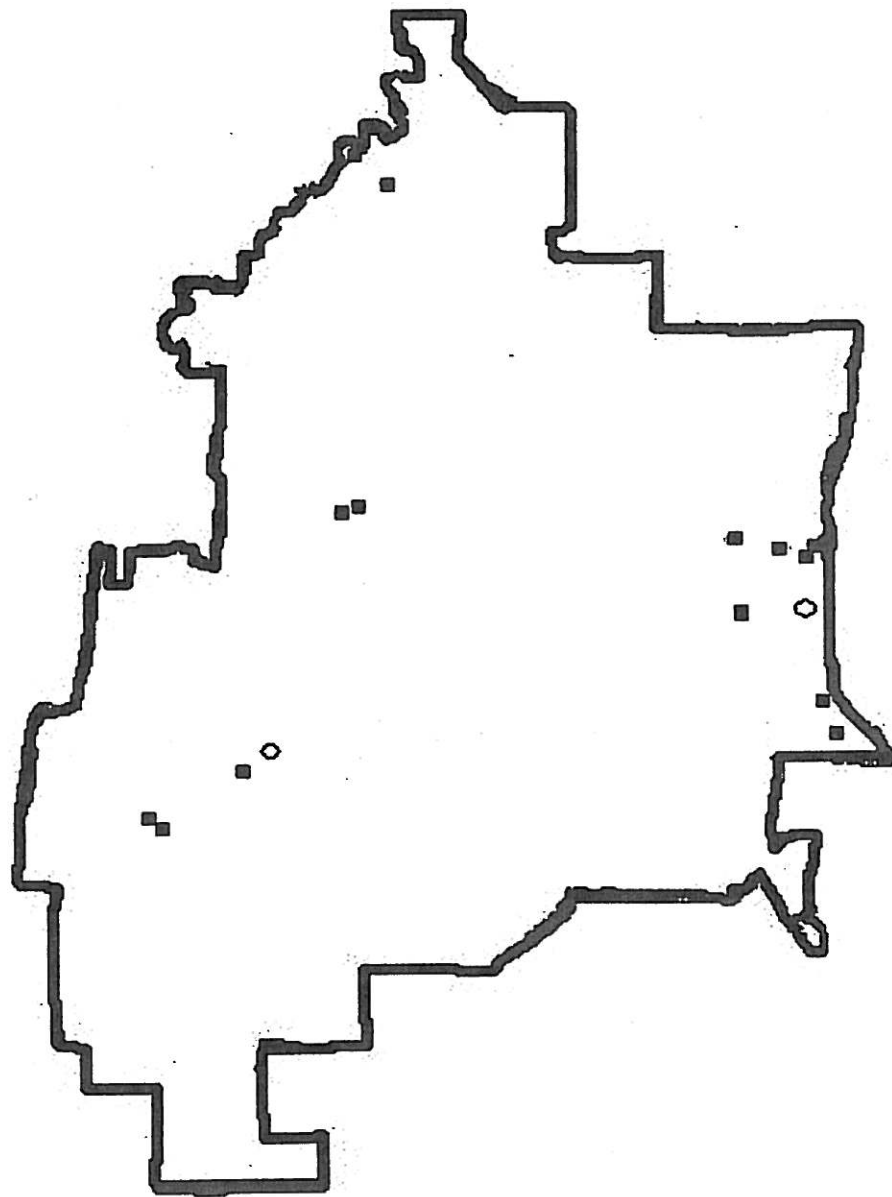


Fig. 10.--Capture sites for eastern pipistrelles (*Pipistrellus subflavus*) at Shiloh National Military Park in Hardin County, Tennessee, from May through October 2001. Open circles represent dry sites; squares represent wet sites.

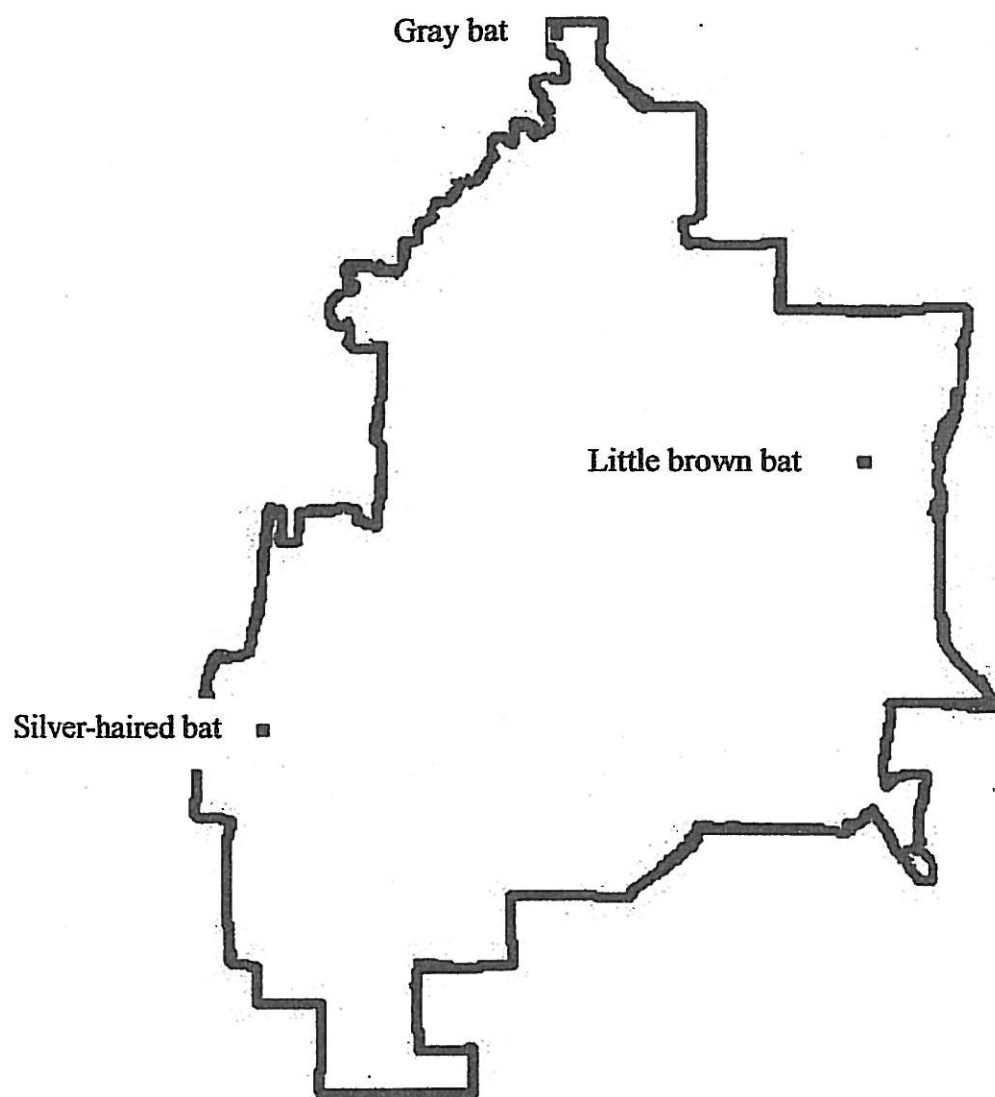


Fig. 11.—Capture sites for gray bat (*Myotis grisescens*), little brown bat (*Myotis lucifugus*), and silver-haired bat (*Lasionycteris noctivagans*) at Shiloh National Military Park in Hardin County, Tennessee, from May through October 2001. Squares represent wet sites.

Captures of Species

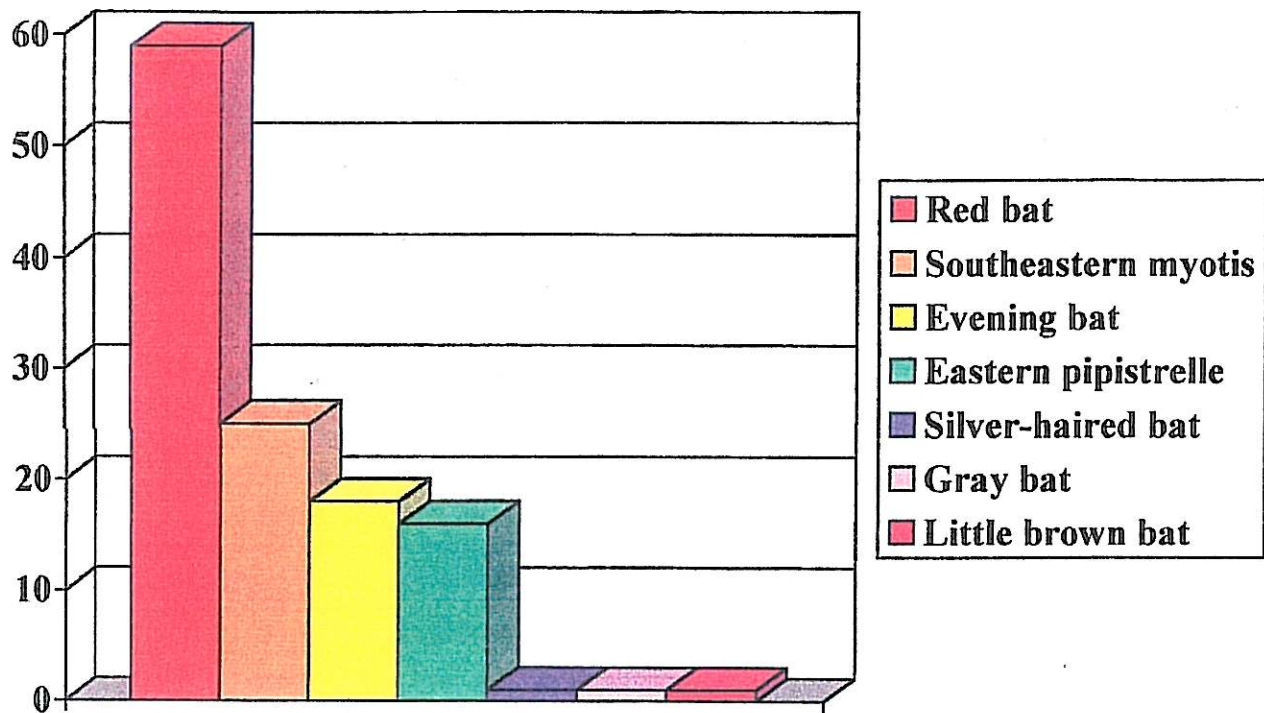


Fig. 12.--Graph showing species abundance distributions for seven species of bats captured at Shiloh National Military Park in Hardin Co., Tennessee, from May through October 2001.

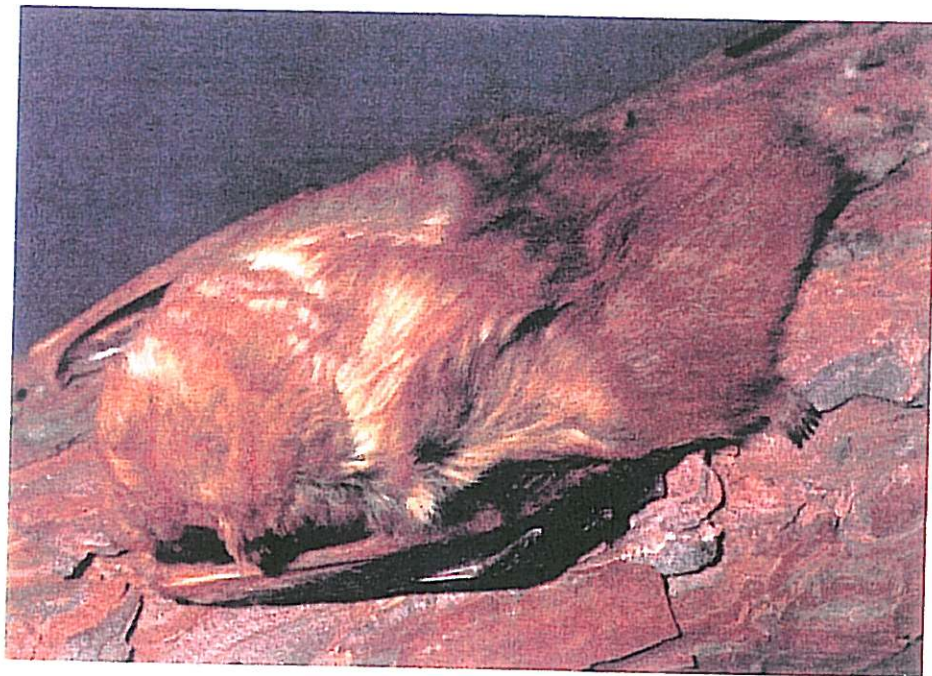


Fig. 13.--Red bat (Lasiurus borealis).

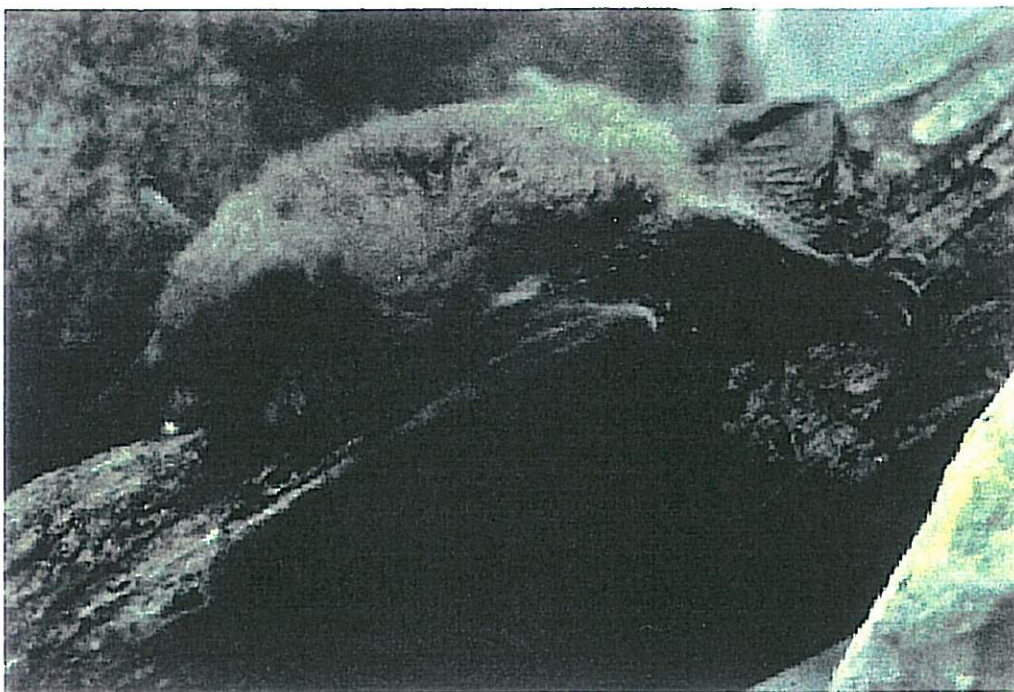


Fig. 14.--Southeastern myotis (Myotis austroriparius).



Fig. 15.--Gray bat (Myotis grisescens)



Fig. 16.--Silver-haired bat (Lasionycteris noctivagans).



Fig. 17.--Little brown bat (Myotis lucifugus)



Fig. 18.--Evening bat (Nycticeius humeralis).



Fig. 19.--Eastern pipistrelle (Pipistrellus subflavus)

APPENDICES

Appendix I.--Capture information for bats taken at Shiloh National Military Park in Hardin Co., Tennessee, from May through October 2001. See Fig. 6 for explanation of areas and text for descriptions of wet and dry habitats.

DATE	AREA	LOCATION	NET DRY(1)	WET (2)	GPS:16S/UTM	# BATS	# SPECIES
9-May-01	I	Dill Branch	1	2	0379779/3889843	5	2
9-May-01	I	Dill Branch	2	2	0379771/3889921	0	0
9-May-01	I	Dill Branch	3	2	0379689/3890024	3	3
9-May-01	I	Dill Branch	4	2	0379641/3890065	2	1
9-May-01	I	Dill Branch	5	2	0379622/3890120	1	1
9-May-01	I	Corinth-Pittsburgh	6	1	0379409/3890375	0	0
9-May-01	I	Corinth-Pittsburgh	7	1	0379369/3890314	0	0
9-May-01	I	Corinth-Pittsburgh	8	1	0379360/3890297	0	0
9-May-01	I	Corinth-Pittsburgh	9	1	0379030/3890262	0	0
9-May-01	I	Corinth-Pittsburgh	10	1	0378866/3890158	0	0
10-May-01	II	Shiloh Branch	11	2		0	0
10-May-01	II	Shiloh Branch	12	2		1	1
10-May-01	II	Shiloh Branch	13	2		0	0
10-May-01	II	Shiloh Branch	14	2		0	0
10-May-01	II	Shiloh Branch	15	2		0	0
10-May-01	II	Beauregard Rd	16	1		0	0
10-May-01	II	Beauregard Rd	17	1		0	0
10-May-01	II	Beauregard Rd	18	1		0	0
10-May-01	II	Beauregard Rd	19	1		0	0
10-May-01	II	Beauregard Rd	20	1		0	0
13-May-01	III	Borrow Ponds	21	2	0379484/3889588	0	0
13-May-01	III	Borrow Ponds	22	2	0379477/3889588	0	0
13-May-01	III	Borrow Ponds	23	2	0379412/3889604	4	3
13-May-01	III	Indian Mounds	24	1	0379755/3889671	0	0
13-May-01	III	Indian Mounds	25	1	0379713/3889524	0	0
13-May-01	III	Riverside Dr	26	1	0379281/3889566	0	0
13-May-01	III	Riverside Dr	27	1	0379271/3889570	0	0
13-May-01	III	Riverside Dr	28	1	0379109/3889599	0	0
13-May-01	III	Hamburg-Savannah	29	1	0377260/3876252	0	0
13-May-01	III	Hamburg-Savannah	30	1	0378701/3888782	0	0
14-May-01	IV	Tilghman Branch	31	2	0379595/3889631	0	0
14-May-01	IV	Tilghman Branch	32	2	0377802/3890084	0	0
14-May-01	IV	Tilghman Branch	33	2	0377786/3890011	7	2
14-May-01	IV	Tilghman Branch	34	2	0377777/3890158	0	0
14-May-01	IV	Tilghman Branch	35	2	0377764/3890243	0	0
14-May-01	IV	Cavalry Rd	36	1	0378177/3890068	0	0
14-May-01	IV	Cavalry Rd	37	1	0378170/3890095	0	0
14-May-01	IV	Cavalry Rd	38	1	0378173/3890117	0	0
14-May-01	IV	Cavalry Rd	39	1	0378130/3890112	0	0
14-May-01	IV	Cavalry Rd	40	1	0378134/3890164	0	0
15-May-01	V	HWY 22	41	1	0377811/3890871	0	0
15-May-01	V	HWY 22	42	1	0377798/3890856	0	0
15-May-01	V	HWY 22	43	1	0377791/3890908	0	0
15-May-01	V	HWY 22	44	1	0377807/3890923	0	0
15-May-01	V	HWY 22	45	1	0377841/3890968	0	0

DATE	AREA	LOCATION	NET DRY(1)	WET(2)	GPS:16S/UTM	# BATS	# SPECIES
15-May-01	V	Tilghman Branch	46	2	0378087/3891020	0	0
15-May-01	V	Tilghman Branch	47	2	0378083/3891024	0	0
15-May-01	V	Tilghman Branch	48	2	0378091/3891061	0	0
15-May-01	V	Tilghman Branch	49	2	0378077/3891087	0	0
15-May-01	V	Tilghman Branch	50	2	0378074/3891105	0	0
15-May-01	VI	Indian Mounds	51	1	0379824/3888797	1	1
15-May-01	VI	Indian Mounds	52	1	0379740/3889471	1	1
15-May-01	VI	Brown's Landing	53	2	0379751/3889120	0	0
15-May-01	VI	Brown's Landing	54	2	0379841/3889060	0	0
15-May-01	VI	Brown's Landing	55	2	0379842/3889032	0	0
15-May-01	VI	Brown's Landing	56	2	0379833/3889025	0	0
15-May-01	VI	Brown's Landing	57	2	0379806/3889924	0	0
15-May-01	VI	Brown's Landing	58	2	0379805/3889924	3	2
15-May-01	VI	Brown's Landing	59	2	0379811/3888922	0	0
15-May-01	VI	Brown's Landing	60	2	0379811/3888796	1	1
16-May-01	VII	Hamburg-Savannah	61	1	0378045/3891842	0	0
16-May-01	VII	Hamburg-Savannah	62	1	0378043/3891928	0	0
16-May-01	VII	Hamburg-Savannah	63	1	0377023/3892017	0	0
16-May-01	VII	Hamburg-Savannah	64	1	0378009/3892082	0	0
16-May-01	VII	Hamburg-Savannah	65	1	0377871/3892295	0	0
16-May-01	VII	Hamburg-Savannah	66	1	0377786/3892383	0	0
16-May-01	VII	Hamburg-Savannah	67	1	0377693/3892461	0	0
16-May-01	VII	Hamburg-Savannah	68	1	0377644/3892487	0	0
16-May-01	VII	Hamburg-Savannah	69	1	0377596/3892536	1	1
16-May-01	VII	Hamburg-Savannah	70	1	0377590/3892595	1	1
16-May-01	VII	Hamburg-Savannah	71	1	0377570/3892631	0	0
16-May-01	VII	Owl Creek	72	2	0377587/3892673	0	0
16-May-01	VII	Owl Creek	73	2	0377542/3892644	0	0
16-May-01	VII	Owl Creek	74	2	0377553/3892610	1	1
16-May-01	VII	Owl Creek	75	2	0377544/3892530	0	0
16-May-01	VII	Owl Creek	76	2	0377542/3892513	0	0
16-May-01	VII	Owl Creek	77	2	0377539/3892443	0	0
16-May-01	VII	Owl Creek	78	2	0379824/3892419	0	0
16-May-01	VII	Owl Creek	79	2	0379824/3888797	0	0
17-May-01	VIII	Rea Springs Trail	80	1	0376763/3888545	0	0
17-May-01	VIII	Rea Springs Trail	81	1	0376780/3888560	1	1
17-May-01	VIII	Rea Springs Trail	82	1	0376799/3888586	1	1
17-May-01	VIII	Rea Springs Trail	83	1	0376806/3888590	0	0
17-May-01	VIII	Rea Springs Trail	84	1	0376816/3888624	0	0
17-May-01	VIII	Rea Springs/Ea. Br	85	2	0376811/3888446	0	0
17-May-01	VIII	Rea Springs/Ea. Br	86	2	0376762/3888435	0	0
17-May-01	VIII	Rea Springs/Ea. Br	87	2	0376770/3888410	0	0
17-May-01	VIII	Rea Springs/Ea. Br	88	2	0376692/3888390	3	2
17-May-01	VIII	Rea Springs/Ea. Br	89	2	0376599/3888324	0	0
18-May-01	II	Shiloh Branch	90	2	0375956/3888348	0	0
18-May-01	II	Shiloh Branch	91	2	0375937/3888381	2	2
18-May-01	II	Shiloh Branch	92	2	0375877/3888387	0	0
18-May-01	II	Shiloh Branch	93	2	0375847/3888375	0	0
18-May-01	II	Shiloh Branch	94	2	0375854/3888371	0	0

DATE	AREA	LOCATION	NET DRY(1)	WET(2)	GPS:16S/UTM	# BATS	# SPECIES
22-May-01	VI	Upper Landing Trail	95	1	0379815/3888926	0	0
22-May-01	VI	Upper Landing Trail	96	1	0379794/3888845	0	0
22-May-01	VI	Upper Landing Trail	97	1	0379785/3888826	0	0
22-May-01	VI	Upper Landing Trail	98	1	0379794/3888758	0	0
22-May-01	VI	Upper Landing Trail	99	1	0379801/3888705	0	0
22-May-01	VI	Upper Landing Str	100	2	0379840/3888670	0	0
22-May-01	VI	Upper Landing Str	101	2	0379830/3888620	0	0
22-May-01	VI	Upper Landing Str	102	2	0379835/3888596	1	1
22-May-01	VI	Upper Landing Str	103	2	0379840/3888558	1	1
22-May-01	VI	Upper Landing Str	104	2	0379859/3888851	0	0
23-May-01	IX	Bloody Pond	105	2	0378667/3888641	0	0
23-May-01	IX	Bloody Pond	106	2	0378654/3888631	0	0
23-May-01	IX	Bloody Pond	107	2	0378642/3888624	0	0
23-May-01	IX	Bloody Pond	108	2	0378634/3888663	0	0
23-May-01	IX	Bloody Pond	109	2	0378639/3888676	0	0
23-May-01	IX	Hamburg-Savannah	110	1	0378746/3888621	0	0
23-May-01	IX	Hamburg-Savannah	111	1	0378763/3888650	0	0
23-May-01	IX	Hamburg-Savannah	112	1	0378803/3888685	0	0
23-May-01	IX	Hamburg-Savannah	113	1	0378856/3888690	0	0
23-May-01	IX	Hamburg-Savannah	114	1	0378916/3888734	0	0
28-May-01	X	Pittsburg Landing	115	1	0379888/3890857	0	0
28-May-01	X	Pittsburg Landing	116	1	0379849/3890799	0	0
28-May-01	X	Pittsburg Landing	117	1	0379886/3890685	1	1
28-May-01	X	Pittsburg Landing	118	1	0379899/3890561	0	0
28-May-01	X	Pittsburg Landing	119	1	0379760/3890625	0	0
29-May-01	IX	Bloody Pond	120	2	0378667/3888641	0	0
29-May-01	IX	Bloody Pond	121	2	0378654/3888631	0	0
29-May-01	IX	Bloody Pond	122	2	0378642/3888624	1	1
29-May-01	IX	Bloody Pond	123	2	0378634/3888663	0	0
29-May-01	IX	Bloody Pond	124	2	0378639/3888676	0	0
29-May-01	IX	Hamburg-Savannah	125	1	0378746/3888621	0	0
29-May-01	IX	Hamburg-Savannah	126	1	0378763/3888650	0	0
29-May-01	IX	Hamburg-Savannah	127	1	0378803/3888685	0	0
29-May-01	IX	Hamburg-Savannah	128	1	0378856/3888690	0	0
29-May-01	IX	Hamburg-Savannah	129	1	0378916/3888734	0	0
30-May-01	I	Dill Branch	130	2	0379779/3889843	1	1
30-May-01	I	Dill Branch	131	2	0379771/3889921	0	0
30-May-01	I	Dill Branch	132	2	0379689/3890024	1	1
30-May-01	I	Dill Branch	133	2	0379641/3890065	0	0
30-May-01	I	Dill Branch	134	2	0379622/3890120	1	1
30-May-01	I	Corinth-Pittsburgh	135	1	0379409/3890375	0	0
30-May-01	I	Corinth-Pittsburgh	136	1	0379369/3890314	0	0
30-May-01	I	Corinth-Pittsburgh	137	1	0379360/3890297	0	0
30-May-01	I	Corinth-Pittsburgh	138	1	0379030/3890262	0	0
30-May-01	I	Corinth-Pittsburgh	139	1	0378866/3890158	0	0
31-May-01	VI	Upper Landing Trail	140	1	0379815/3888926	1	1
31-May-01	VI	Upper Landing Trail	141	1	0379794/3888845	0	0
31-May-01	VI	Upper Landing Trail	142	1	0379785/3888826	2	1
31-May-01	VI	Upper Landing Trail	143	1	0379794/3888758	1	1

DATE	AREA	LOCATION	NET DRY(1)	WET (2)	GPS:16S/UTM	# BATS	# SPECIES
31-May-01	VI	Upper Landing Trail	144	1	0379801/3888705	0	0
31-May-01	VI	Upper Landing Str	145	2	0379840/3888670	0	0
31-May-01	VI	Upper Landing Str	146	2	0379830/3888620	0	0
31-May-01	VI	Upper Landing Str	147	2	0379835/3888596	0	0
31-May-01	VI	Upper Landing Str	148	2	0379840/3888558	0	0
31-May-01	VI	Upper Landing Str	149	2	0379859/3888851	0	0
5-Jun-01	VI	Upper Landing Trail	150	1	0379807/3888977	0	0
5-Jun-01	VI	Upper Landing Trail	151	1	0379791/3888886	0	0
5-Jun-01	VI	Upper Landing Trail	152	1	0379799/3888837	1	1
5-Jun-01	VI	Upper Landing Trail	153	1	0379802/3888778	1	1
5-Jun-01	VI	Upper Landing Trail	154	1	0379803/3888696	0	0
5-Jun-01	VI	Upper Landing Str	155	2	0379829/3889053	1	1
5-Jun-01	VI	Upper Landing Str	156	2	0379826/3888917	0	0
5-Jun-01	VI	Upper Landing Str	157	2	0379811/3888807	0	0
5-Jun-01	VI	Upper Landing Str	158	2	0379866/3888521	0	0
5-Jun-01	VI	Upper Landing Str	159	2	0379853/3888467	2	1
11-Jun-01	XI	Tilgman Branch	160	2	0377506/3891735	0	0
11-Jun-01	XI	Tilgman Branch	161	2	0377524/3891753	0	0
11-Jun-01	XI	Tilgman Branch	162	2	0377552/3891786	0	0
11-Jun-01	XI	Tilgman Branch	163	2	0377573/3891827	0	0
11-Jun-01	XI	Tilgman Branch	164	2	0377584/3891871	0	0
11-Jun-01	XI	Tilgman Branch	165	2	0377625/3891975	0	0
11-Jun-01	XI	Owl Creek	166	2	0377600/3891989	0	0
11-Jun-01	XI	Owl Creek	167	2	0377621/3892005	0	0
11-Jun-01	XI	Owl Creek	168	2	0377667/3892082	0	0
11-Jun-01	XI	Owl Creek	169	2	0377636/3892168	0	0
12-Jun-01	XI	Tilgman Branch	170	2	0377506/3891735	0	0
12-Jun-01	XI	Tilgman Branch	171	2	0377524/3891753	1	1
12-Jun-01	XI	Tilgman Branch	172	2	0377552/3891786	1	1
12-Jun-01	XI	Tilgman Branch	173	2	0377573/3891827	0	0
12-Jun-01	XI	Tilgman Branch	174	2	0377584/3891871	0	0
12-Jun-01	XI	Tilgman Branch	175	2	0377625/3891975	0	0
12-Jun-01	XI	Owl Creek	176	2	0377600/3891989	0	0
12-Jun-01	XI	Owl Creek	177	2	0377621/3892005	0	0
12-Jun-01	XI	Owl Creek	178	2	0377667/3892082	0	0
12-Jun-01	XI	Owl Creek	179	2	0377636/3892168	0	0
14-Jun-01	XIV	Peabody Rd	180	1	0378126/3887952	0	0
14-Jun-01	XIV	Peabody Rd	181	1	0378112/3887899	0	0
14-Jun-01	XIV	Peabody Rd	182	1	0378106/3887861	0	0
14-Jun-01	XIV	Peabody Rd	183	1	0378021/3887866	0	0
14-Jun-01	XIV	Peabody Rd	184	1	0377991/3887894	0	0
14-Jun-01	XIV	Peabody Rd	185	1	0377422/3888774	0	0
14-Jun-01	XIV	Peabody Rd	186	1	0377420/3887644	1	1
14-Jun-01	XIV	Peabody Rd	187	1	0377408/3887631	0	0
14-Jun-01	XIV	Peabody Rd	188	1	0377378/3887576	0	0
14-Jun-01	XIV	Peabody Rd	189	1	0377321/3887494	1	1
18-Jun-01	V	HWY 22	190	1	0377411/3887748	0	0
18-Jun-01	V	HWY 22	191	1	0377413/3887683	0	0
18-Jun-01	V	HWY 22	192	1	0377409/3887634	1	1

DATE	AREA	LOCATION	NET DRY(1)	WET (2)	GPS:16S/UTM	# BATS	# SPECIES
18-Jun-01	V	HWY 22	193	1	0377372/3887578	1	1
18-Jun-01	V	HWY 22	194	1	0377315/3887530	0	0
18-Jun-01	V	HWY 22	195	1	0377327/3887516	0	0
18-Jun-01	V	HWY 22	196	1	0377403/3887486	0	0
18-Jun-01	V	HWY 22	197	1	0377406/3887462	0	0
18-Jun-01	V	HWY 22	198	1	0377495/3887437	0	0
18-Jun-01	V	HWY 22	199	1	0377623/3887434	0	0
19-Jun-01	XII	Reconnoitering Rd	200	2	0376824/3887309	0	0
19-Jun-01	XII	Reconnoitering Rd	201	2	0376807/3887318	0	0
19-Jun-01	XII	Reconnoitering Rd	202	2	0376787/3887341	0	0
19-Jun-01	XII	Reconnoitering Rd	203	2	0376779/3887368	0	0
19-Jun-01	XII	Reconnoitering Rd	204	2	0376741/3887379	0	0
19-Jun-01	XII	Reconnoitering Rd	205	2	0376729/3887420	1	1
19-Jun-01	XII	Reconnoitering Rd	206	2	0376700/3887436	0	0
19-Jun-01	XII	Reconnoitering Rd	207	2	0376696/3887450	0	0
19-Jun-01	XII	Reconnoitering Rd	208	2	0376677/3887472	0	0
19-Jun-01	XII	Reconnoitering Rd	209	2	0376680/3887488	0	0
26-Jun-01	XIII	Sherman Rd	210	1	0377069/3889859	0	0
26-Jun-01	XIII	Sherman Rd	211	1	0377063/3889872	0	0
26-Jun-01	XIII	Sherman Rd	212	1	0377057/3889927	0	0
26-Jun-01	XIII	Sherman Rd	213	1	0377062/3889940	0	0
26-Jun-01	XIII	Sherman Rd	214	1	0377071/3889986	0	0
26-Jun-01	XIII	Sherman Rd	215	1	0376003/3889753	0	0
26-Jun-01	XIII	Sherman Rd	216	1	0376960/3889785	0	0
26-Jun-01	XIII	Sherman Rd	217	1	0377006/3889826	0	0
26-Jun-01	XIII	Sherman Rd	218	1	0377020/3889741	0	0
26-Jun-01	XIII	Sherman Rd	219	1	0377022/3889720	0	0
27-Jun-01	II	Shiloh Branch	220	2		0	0
27-Jun-01	II	Shiloh Branch	221	2		0	0
27-Jun-01	II	Shiloh Branch	222	2		1	1
27-Jun-01	II	Shiloh Branch	223	2		0	0
27-Jun-01	II	Shiloh Branch	224	2		0	0
27-Jun-01	II	Beauregard Rd	225	1		0	0
27-Jun-01	II	Beauregard Rd	226	1		0	0
27-Jun-01	II	Beauregard Rd	227	1		0	0
27-Jun-01	II	Beauregard Rd	228	1		0	0
27-Jun-01	II	Beauregard Rd	229	1		0	0
28-Jun-01	IV	Tilghman Branch	230	2	0379595/3889631	0	0
28-Jun-01	IV	Tilghman Branch	231	2	0377802/3890084	0	0
28-Jun-01	IV	Tilghman Branch	232	2	0377786/3890011	0	0
28-Jun-01	IV	Tilghman Branch	233	2	0377777/3890158	0	0
28-Jun-01	IV	Tilghman Branch	234	2	0377764/3890243	3	2
28-Jun-01	IV	Cavalry Rd	235	1	0378177/3890068	0	0
28-Jun-01	IV	Cavalry Rd	236	1	0378170/3890095	0	0
28-Jun-01	IV	Cavalry Rd	237	1	0378173/3890117	0	0
28-Jun-01	IV	Cavalry Rd	238	1	0378130/3890112	0	0
28-Jun-01	IV	Cavalry Rd	239	1	0378134/3890164	0	0
2-Jul-01	XIII	Corinth Rd	240	1	0377286/3889288	0	0
2-Jul-01	XIII	Corinth Rd	241	1	0377322/3889397	0	0

DATE	AREA	LOCATION	NET DRY(1)	WET (2)	GPS:16S/UTM	# BATS	# SPECIES
2-Jul-01	XIII	Corinth Rd	242	1	0377246/3889429	0	0
2-Jul-01	XIII	Corinth Rd	243	1	0377348/3889395	0	0
2-Jul-01	XIII	Corinth Rd	244	1	0377460/3889379	1	1
2-Jul-01	XIII	Sherman Rd	245	1	0376787/3889415	0	0
2-Jul-01	XIII	Sherman Rd	246	1	0376802/3889472	0	0
2-Jul-01	XIII	Sherman Rd	247	1	0376805/3889457	0	0
2-Jul-01	XIII	Sherman Rd	248	1	0376818/3889441	0	0
2-Jul-01	XIII	Sherman Rd	249	1	0376820/3889437	0	0
3-Jul-01	VII	Owl Creek	250	2	0377584/3892675	0	0
3-Jul-01	VII	Owl Creek	251	2	0377538/3892636	0	0
3-Jul-01	VII	Owl Creek	252	2	0377558/3892635	0	0
3-Jul-01	VII	Owl Creek	253	2	0377541/3892478	0	0
3-Jul-01	VII	Owl Creek	254	2	0377538/3892636	0	0
3-Jul-01	IV	Hamburg-Savannah	255	1	0378202/3890763	0	0
3-Jul-01	IV	Hamburg-Savannah	256	1	0378317/3890714	0	0
3-Jul-01	IV	Hamburg-Savannah	257	1	0378342/3890653	0	0
3-Jul-01	IV	Hamburg-Savannah	258	1	0378371/3890606	0	0
3-Jul-01	IV	Hamburg-Savannah	259	1	0378438/3890462	0	0
5-Jul-01	XII	Corinth Rd	260	1	0376281/3887280	0	0
5-Jul-01	XII	Corinth Rd	261	1	0376251/3887284	0	0
5-Jul-01	XII	Corinth Rd	262	1	0376241/3887273	0	0
5-Jul-01	XII	Corinth Rd	263	1	0376225/3887258	0	0
5-Jul-01	XII	Corinth Rd	264	1	0376295/3887226	1	1
5-Jul-01	XII	Corinth Rd	265	1	0376207/3887112	2	1
5-Jul-01	XII	Corinth Rd	266	1	0376148/3887046	2	1
5-Jul-01	XII	Corinth Rd	267	1	0376123/3887021	0	0
5-Jul-01	XII	Corinth Rd	268	1	0376094/3887022	1	1
5-Jul-01	XII	Corinth Rd	269	1	0376079/3886928	0	0
6-Jul-01	IV	Hamburg-Savannah	270	1	0378461/3890487	0	0
6-Jul-01	IV	Hamburg-Savannah	271	1	0378500/3890514	0	0
6-Jul-01	IV	Hamburg-Savannah	272	1	0378566/3890229	0	0
6-Jul-01	IV	Hamburg-Savannah	273	1	0378555/3890237	0	0
6-Jul-01	IV	Cavalry Rd	274	1	0378520/3890038	0	0
6-Jul-01	IV	Hamburg-Savannah	275	1	0378466/3890404	0	0
6-Jul-01	IV	Hamburg-Savannah	276	1	0378512/3890245	0	0
6-Jul-01	IV	Hamburg-Savannah	277	1	0378561/3890158	0	0
6-Jul-01	IV	Hamburg-Savannah	278	1	0378576/3890091	1	1
6-Jul-01	IV	Hamburg-Savannah	279	1	0378585/3889958	1	1
8-Jul-01	X	Pittsburg Landing	280	1	0379888/3890857	0	0
8-Jul-01	X	Pittsburg Landing	281	1	0379849/3890799	0	0
8-Jul-01	X	Pittsburg Landing	282	1	0379886/3890685	0	0
8-Jul-01	X	Pittsburg Landing	283	1	0379899/3890561	0	0
8-Jul-01	X	Pittsburg Landing	284	1	0379760/3890625	0	0
8-Jul-01	I	Corinth-Pittsburgh	285	1	0379409/3890375	0	0
8-Jul-01	I	Corinth-Pittsburgh	286	1	0379369/3890314	0	0
8-Jul-01	I	Corinth-Pittsburgh	287	1	0379360/3890297	0	0
8-Jul-01	I	Corinth-Pittsburgh	288	1	0379030/3890262	0	0
8-Jul-01	I	Corinth-Pittsburgh	289	1	0378866/3890158	0	0
9-Jul-01	III	Borrow Ponds	290	2	0379743/3889572	0	0

DATE	AREA	LOCATION	NET DRY(1)	WET (2)	GPS:16S/UTM	# BATS	# SPECIES
9-Jul-01	III	Borrow Ponds	291	2	0379468/3889596	0	0
9-Jul-01	III	Borrow Ponds	292	2	0379535/3889635	0	0
9-Jul-01	III	Indian Mounds	293	1	0379682/3889546	0	0
9-Jul-01	III	Indian Mounds	294	1	0379746/3889593	0	0
9-Jul-01	III	Riverside Dr	295	1	0379239/3889564	0	0
9-Jul-01	III	Riverside Dr	296	1	0379159/3889562	0	0
9-Jul-01	III	Riverside Dr	297	1	0379129/3889567	0	0
9-Jul-01	III	Hamburg-Savannah	298	1	0378734/3889115	0	0
9-Jul-01	III	Hamburg-Savannah	299	1	0378793/3888783	0	0
10-Jul-01			300	1	0377974/3887856	0	0
10-Jul-01			301	1	0377990/3887858	0	0
10-Jul-01			302	1	0378012/3887858	0	0
10-Jul-01			303	1	0378067/3887862	0	0
10-Jul-01			304	1	0378090/3887868	0	0
10-Jul-01			305	1	0378099/3887892	0	0
10-Jul-01			306	1	0378108/3887924	0	0
10-Jul-01			307	1	0378134/3887951	0	0
10-Jul-01			308	1	0378127/3887966	0	0
10-Jul-01			309	1	0378107/3887976	0	0
11-Jul-01	IX	Sunken Rd	310	1	0378233/3888696	1	1
11-Jul-01	IX	Sunken Rd	311	1	0378274/3888664	0	0
11-Jul-01	IX	Sunken Rd	312	1	0378316/3888581	0	0
11-Jul-01	IX	Sunken Rd	313	1	0378306/3888544	0	0
11-Jul-01	IX	Sunken Rd	314	1	0378330/3888605	0	0
11-Jul-01	IX	Sunken Rd	315	1	0378375/3888582	1	1
11-Jul-01	IX	Sunken Rd	316	1	0378439/3888560	1	1
11-Jul-01	IX	Sunken Rd	317	1	0378534/3888559	1	1
11-Jul-01	IX	Sunken Rd	318	1	0378602/3888606	0	0
11-Jul-01	IX	Sunken Rd	319	1	0378626/3888577	0	0
16-Jul-01	XIII	Water Oaks Pond	320	2	0376969/3889244	0	0
16-Jul-01	XIII	Water Oaks Pond	321	2	0376978/3889232	0	0
16-Jul-01	XIII	Water Oaks Pond	322	2	0376985/3889217	0	0
16-Jul-01	XIII	Water Oaks Pond	323	2	0376974/3889209	0	0
16-Jul-01	XIII	Water Oaks Pond	324	2	0376964/3889220	0	0
16-Jul-01	VIII	Shiloh Church	325	1	0376892/3888932	0	0
16-Jul-01	VIII	Shiloh Church	326	1	0376893/3888820	0	0
16-Jul-01	VIII	Shiloh Church	327	1	0376839/3888664	0	0
16-Jul-01	VIII	Shiloh Church	328	1	0376825/3888622	0	0
16-Jul-01	VIII	Shiloh Church	329	1	0376789/3888569	1	1
17-Jul-01	XIII	Corinth Rd	330	1	0377673/3889241	0	0
17-Jul-01	XIII	Corinth Rd	331	1	0377657/3889280	0	0
17-Jul-01	XIII	Corinth Rd	332	1	0377630/3889314	0	0
17-Jul-01	XIII	Corinth Rd	333	1	0377615/3889311	0	0
17-Jul-01	XIII	Ruggle's Battery	334	1	0377667/3889048	0	0
17-Jul-01	XIII	Ruggle's Battery	335	1	0377604/3889038	0	0
17-Jul-01	XIII	Ruggle's Battery	336	1	0377596/3889047	0	0
17-Jul-01	XIII	Ruggle's Battery	337	1	0377573/3889072	0	0
17-Jul-01	XIII	Ruggle's Battery	338	1	0377509/3889095	0	0
17-Jul-01	XIII	Ruggle's Battery	339	1	0377449/3889096	1	1

DATE	AREA	LOCATION	NET DRY(1)	WET(2)	GPS:16S/UTM	# BATS	# SPECIES
18-Jul-01	IV	Cavalry Rd	340	1	0378396/3890103	0	0
18-Jul-01	IV	Cavalry Rd	341	1	0378443/3889950	0	0
18-Jul-01	IV	Cavalry Rd	342	1	0378426/3889973	0	0
18-Jul-01	IV	Cavalry Rd	343	1	0378420/3889998	0	0
18-Jul-01	IV	Cavalry Rd	344	1	0378217/3890016	0	0
18-Jul-01	IV	Cavalry Rd	345	1	0378217/3889965	0	0
18-Jul-01	IV	Cavalry Rd	346	1	0378203/3889868	0	0
18-Jul-01	IV	Cavalry Rd	347	1	0378115/3889785	0	0
18-Jul-01	IV	Cavalry Rd	348	1	0378140/3889767	0	0
18-Jul-01	IV	Cavalry Rd	349	1	0378111/3889735	0	0
19-Jul-01	IV	Cavalry Rd	350	1	0378396/3890103	0	0
19-Jul-01	IV	Cavalry Rd	351	1	0378443/3889950	0	0
19-Jul-01	IV	Cavalry Rd	352	1	0378426/3889973	0	0
19-Jul-01	IV	Cavalry Rd	353	1	0378420/3889998	0	0
19-Jul-01	IV	Cavalry Rd	354	1	0378217/3890016	0	0
19-Jul-01	IV	Cavalry Rd	355	1	0378217/3889965	0	0
19-Jul-01	IV	Cavalry Rd	356	1	0378203/3889868	0	0
19-Jul-01	IV	Cavalry Rd	357	1	0378115/3889785	0	0
19-Jul-01	IV	Cavalry Rd	358	1	0378140/3889767	0	0
19-Jul-01	IV	Cavalry Rd	359	1	0378111/3889735	0	0
23-Jul-01	II	Shiloh Branch	360	2	0376008/3888341	0	0
23-Jul-01	II	Shiloh Branch	361	2	0376040/3888379	0	0
23-Jul-01	II	Shiloh Branch	362	2	0376066/3888422	0	0
23-Jul-01	II	Shiloh Branch	363	2	0376099/3888404	0	0
23-Jul-01	II	Shiloh Branch	364	2	0376120/3888422	0	0
23-Jul-01	II	Shiloh Branch	365	2	0375956/3888348	0	0
23-Jul-01	II	Shiloh Branch	366	2	0375937/3888381	0	0
23-Jul-01	II	Shiloh Branch	367	2	0375877/3888387	0	0
23-Jul-01	II	Shiloh Branch	368	2	0375847/3888375	1	1
23-Jul-01	II	Shiloh Branch	369	2	0375854/3888371	0	0
24-Jul-01	V	Tilghman Branch	370	2	0377802/3890895	0	0
24-Jul-01	V	Tilghman Branch	371	2	0377811/3890971	0	0
24-Jul-01	V	Tilghman Branch	372	2	0377783/3890932	0	0
24-Jul-01	V	Tilghman Branch	373	2	0377821/3890965	0	0
24-Jul-01	V	Tilghman Branch	374	2	0377828/3890958	0	0
24-Jul-01	V	Hamburg-Savannah	375	1	0378078/3891249	0	0
24-Jul-01	V	Hamburg-Savannah	376	1	0378071/3891317	0	0
24-Jul-01	V	Hamburg-Savannah	377	1	0378064/3891360	0	0
24-Jul-01	V	Hamburg-Savannah	378	1	0378057/3891497	0	0
24-Jul-01	V	Hamburg-Savannah	379	1	0378056/3891439	0	0
25-Jul-01	XII	Corinth Rd	380	1	0376281/3887280	0	0
25-Jul-01	XII	Corinth Rd	381	1	0376251/3887284	1	1
25-Jul-01	XII	Corinth Rd	382	1	0376241/3887273	0	0
25-Jul-01	XII	Corinth Rd	383	1	0376225/3887258	1	1
25-Jul-01	XII	Corinth Rd	384	1	0376295/3887226	0	0
25-Jul-01	XII	Corinth Rd	385	1	0376207/3887112	0	0
25-Jul-01	XII	Corinth Rd	386	1	0376148/3887046	0	0
25-Jul-01	XII	Corinth Rd	387	1	0376123/3887021	0	0
25-Jul-01	XII	Corinth Rd	388	1	0376094/3887022	0	0

DATE	AREA	LOCATION	NET DRY(1)	WET (2)	GPS:16S/UTM	# BATS	# SPECIES
25-Jul-01	XII	Corinth Rd	389	1	0376079/3886928	0	0
30-Jul-01	X	Pittsburg Landing	390	1	0379888/3890857	0	0
30-Jul-01	X	Pittsburg Landing	391	1	0379849/3890799	0	0
30-Jul-01	X	Pittsburg Landing	392	1	0379886/3890685	0	0
30-Jul-01	X	Pittsburg Landing	393	1	0379899/3890561	0	0
30-Jul-01	X	Pittsburg Landing	394	1	0379760/3890625	0	0
30-Jul-01	I	Dill Branch	395	2	0379771/3889921	0	0
30-Jul-01	I	Dill Branch	396	2	0379689/3890024	0	0
30-Jul-01	I	Dill Branch	397	2		0	0
30-Jul-01	I	Dill Branch	398	2	0379641/3890065	0	0
30-Jul-01	I	Dill Branch	399	2	0379622/3890120	0	0
31-Jul-01	X	Pittsburg Landing	400	1	0379888/3890857	0	0
31-Jul-01	X	Pittsburg Landing	401	1	0379849/3890799	0	0
31-Jul-01	X	Pittsburg Landing	402	1	0379886/3890685	0	0
31-Jul-01	X	Pittsburg Landing	403	1	0379899/3890561	0	0
31-Jul-01	X	Pittsburg Landing	404	1	0379760/3890625	0	0
31-Jul-01	I	Dill Branch	405	2	0379771/3889921	1	1
31-Jul-01	I	Dill Branch	406	2	0379689/3890024	0	0
31-Jul-01	I	Dill Branch	407	2		0	0
31-Jul-01	I	Dill Branch	408	2	0379641/3890065	0	0
31-Jul-01	I	Dill Branch	409	2	0379622/3890120	0	0
1-Aug-01	IV	Hamburg-Savannah	410	2	0379779/3889843	0	0
1-Aug-01	IV	Hamburg-Savannah	411	2	0379771/3889921	0	0
1-Aug-01	IV	Hamburg-Savannah	412	2	0379689/3890024	0	0
1-Aug-01	IV	Hamburg-Savannah	413	2	0379641/3890065	0	0
1-Aug-01	IV	Hamburg-Savannah	414	2	0379622/3890120	0	0
1-Aug-01	I	Dill Branch	415	1	0378466/3890404	0	0
1-Aug-01	I	Dill Branch	416	1	0378512/3890245	0	0
1-Aug-01	I	Dill Branch	417	1	0378561/3890158	0	0
1-Aug-01	I	Dill Branch	418	1	0378576/3890091	0	0
1-Aug-01	I	Dill Branch	419	1	0378585/3889958	1	1
2-Aug-01	IX	Sunken Rd	420	1	0378233/3888696	0	0
2-Aug-01	IX	Sunken Rd	421	1	0378274/3888664	0	0
2-Aug-01	IX	Sunken Rd	422	1	0378316/3888581	0	0
2-Aug-01	IX	Sunken Rd	423	1	0378306/3888544	0	0
2-Aug-01	IX	Sunken Rd	424	1	0378330/3888605	0	0
2-Aug-01	IX	Sunken Rd	425	1	0378375/3888582	0	0
2-Aug-01	IX	Sunken Rd	426	1	0378439/3888560	0	0
2-Aug-01	IX	Sunken Rd	427	1	0378534/3888559	0	0
2-Aug-01	IX	Sunken Rd	428	1	0378602/3888606	0	0
2-Aug-01	IX	Sunken Rd	429	1	0378626/3888577	0	0
6-Aug-01	VI	Indian Mounds	430	1	0379824/3888797	0	0
6-Aug-01	VI	Indian Mounds	431	1	0379740/3889471	0	0
6-Aug-01	VI	Brown's Landing	432	2	0379751/3889120	0	0
6-Aug-01	VI	Brown's Landing	433	2	0379841/3889060	0	0
6-Aug-01	VI	Brown's Landing	434	2	0379842/3889032	0	0
6-Aug-01	VI	Brown's Landing	435	2	0379833/3889025	0	0
6-Aug-01	VI	Brown's Landing	436	2	0379806/3889924	0	0
6-Aug-01	VI	Brown's Landing	437	2	0379805/3889924	0	0

DATE	AREA	LOCATION	NET DRY(1)	WET(2)	GPS:16S/UTM	# BATS	# SPECIES
6-Aug-01	VI	Brown's Landing	438	2	0379811/3888922	0	0
6-Aug-01	VI	Brown's Landing	439	2	0379811/3888796	0	0
7-Aug-01	VI	Indian Mounds	440	1	0379824/3888797	0	0
7-Aug-01	VI	Indian Mounds	441	1	0379740/3889471	0	0
7-Aug-01	VI	Brown's Landing	442	2	0379751/3889120	0	0
7-Aug-01	VI	Brown's Landing	443	2	0379841/3889060	0	0
7-Aug-01	VI	Brown's Landing	444	2	0379842/3889032	0	0
7-Aug-01	VI	Brown's Landing	445	2	0379833/3889025	0	0
7-Aug-01	VI	Brown's Landing	446	2	0379806/3889924	0	0
7-Aug-01	VI	Brown's Landing	447	2	0379805/3889924	0	0
7-Aug-01	VI	Brown's Landing	448	2	0379811/3888922	0	0
7-Aug-01	VI	Brown's Landing	449	2	0379811/3888796	0	0
8-Aug-01	VIII	Rea Springs	450	1	0376763/3888545	0	0
8-Aug-01	VIII	Rea Springs	451	1	0376780/3888560	0	0
8-Aug-01	VIII	Rea Springs	452	1	0376799/3888586	0	0
8-Aug-01	VIII	Rea Springs	453	1	0376806/3888590	0	0
8-Aug-01	VIII	Rea Springs	454	1	0376816/3888624	0	0
8-Aug-01	VIII	Rea Springs/Ea. Br	455	2	0376811/3888446	0	0
8-Aug-01	VIII	Rea Springs/Ea. Br	456	2	0376762/3888435	0	0
8-Aug-01	VIII	Rea Springs/Ea. Br	457	2	0376770/3888410	0	0
8-Aug-01	VIII	Rea Springs/Ea. Br	458	2	0376692/3888390	0	0
8-Aug-01	VIII	Rea Springs/Ea. Br	459	2	0376599/3888324	0	0
9-Aug-01	VIII	Rea Springs	460	1	0376763/3888545	0	0
9-Aug-01	VIII	Rea Springs	461	1	0376780/3888560	0	0
9-Aug-01	VIII	Rea Springs	462	1	0376799/3888586	0	0
9-Aug-01	VIII	Rea Springs	463	1	0376806/3888590	0	0
9-Aug-01	VIII	Rea Springs	464	1	0376816/3888624	0	0
9-Aug-01	VIII	Rea Springs/Ea. Br	465	2	0376811/3888446	0	0
9-Aug-01	VIII	Rea Springs/Ea. Br	466	2	0376762/3888435	0	0
9-Aug-01	VIII	Rea Springs/Ea. Br	467	2	0376770/3888410	0	0
9-Aug-01	VIII	Rea Springs/Ea. Br	468	2	0376692/3888390	0	0
9-Aug-01	VIII	Rea Springs/Ea. Br	469	2	0376599/3888324	0	0
13-Aug-01	XIII	Sherman Rd	470	1	0377069/3889859	0	0
13-Aug-01	XIII	Sherman Rd	471	1	0377063/3889872	0	0
13-Aug-01	XIII	Sherman Rd	472	1	0377057/3889927	1	1
13-Aug-01	XIII	Sherman Rd	473	1	0377062/3889940	0	0
13-Aug-01	XIII	Sherman Rd	474	1	0377071/3889986	0	0
13-Aug-01	XIII	Sherman Rd	475	1	0376003/3889753	0	0
13-Aug-01	XIII	Sherman Rd	476	1	0376960/3889785	0	0
13-Aug-01	XIII	Sherman Rd	477	1	0377006/3889826	0	0
13-Aug-01	XIII	Sherman Rd	478	1	0377020/3889741	0	0
13-Aug-01	XIII	Sherman Rd	479	1	0377022/3889720	0	0
14-Aug-01	XII	Reconnoitering Rd	480	2		0	0
14-Aug-01	XII	Reconnoitering Rd	481	2		0	0
14-Aug-01	XII	Reconnoitering Rd	482	2		0	0
14-Aug-01	XII	Reconnoitering Rd	483	2		0	0
14-Aug-01	XII	Reconnoitering Rd	484	2		0	0
14-Aug-01	XII	Reconnoitering Rd	485	2		0	0
14-Aug-01	XII	Reconnoitering Rd	486	2		0	0

DATE	AREA	LOCATION	NET DRY(1)	WET/(2)	GPS:16S/UTM	# BATS	# SPECIES
14-Aug-01	XII	Reconnoitering Rd	487	2		0	0
15-Aug-01	XII	Reconnoitering Rd	488	2		0	0
15-Aug-01	XII	Reconnoitering Rd	489	2		0	0
15-Aug-01	XII	Reconnoitering Rd	490	2		0	0
15-Aug-01	XII	Reconnoitering Rd	491	2		0	0
15-Aug-01	XII	Reconnoitering Rd	492	2		0	0
15-Aug-01	XII	Reconnoitering Rd	493	2		0	0
15-Aug-01	XII	Reconnoitering Rd	494	2		0	0
15-Aug-01	XII	Reconnoitering Rd	495	2		0	0
16-Aug-01	XIII	Corinth Rd	496	1	0377673/3889241	0	0
16-Aug-01	XIII	Corinth Rd	497	1	0377657/3889280	0	0
16-Aug-01	XIII	Corinth Rd	498	1	0377630/3889314	0	0
16-Aug-01	XIII	Corinth Rd	499	1	0377615/3889311	0	0
16-Aug-01	XIII	Ruggle's Battery	500	1	0377667/3889048	0	0
16-Aug-01	XIII	Ruggle's Battery	501	1	0377604/3889038	0	0
16-Aug-01	XIII	Ruggle's Battery	502	1	0377596/3889047	0	0
16-Aug-01	XIII	Ruggle's Battery	503	1	0377573/3889072	0	0
16-Aug-01	XIII	Ruggle's Battery	504	1	0377509/3889095	0	0
16-Aug-01	XIII	Ruggle's Battery	505	1	0377449/3889096	0	0
20-Aug-01	VII	Owl Creek	506	2	0377538/3892636	2	2
20-Aug-01	VII	Owl Creek	507	2	0377558/3892635	0	0
20-Aug-01	VII	Owl Creek	508	2		0	0
20-Aug-01	VII	Owl Creek	509	2		0	0
20-Aug-01	VII	Owl Creek	510	2		0	0
20-Aug-01	VII	Owl Creek	511	2	0377541/3892478	0	0
20-Aug-01	VII	Owl Creek	512	2	0377538/3892636	0	0
20-Aug-01	VII	Owl Creek	513	2		0	0
21-Aug-01	VII	Owl Creek	514	2	0377538/3892636	0	0
21-Aug-01	VII	Owl Creek	515	2	0377558/3892635	0	0
21-Aug-01	VII	Owl Creek	516	2		0	0
21-Aug-01	VII	Owl Creek	517	2		0	0
21-Aug-01	VII	Owl Creek	518	2		0	0
21-Aug-01	VII	Owl Creek	519	2	0377541/3892478	0	0
21-Aug-01	VII	Owl Creek	520	2	0377538/3892636	0	0
21-Aug-01	VII	Owl Creek	521	2		0	0
22-Aug-01	IV	Tilghman Branch	522	2	0379595/3889631	0	0
22-Aug-01	IV	Tilghman Branch	523	2	0377802/3890084	0	0
22-Aug-01	IV	Tilghman Branch	524	2	0377786/3890011	0	0
22-Aug-01	IV	Tilghman Branch	525	2	0377777/3890158	0	0
22-Aug-01	IV	Tilghman Branch	526	2	0377764/3890243	0	0
22-Aug-01	IV	Cavalry Rd	527	1	0378177/3890068	0	0
22-Aug-01	IV	Cavalry Rd	528	1	0378170/3890095	0	0
22-Aug-01	IV	Cavalry Rd	529	1	0378173/3890117	0	0
22-Aug-01	IV	Cavalry Rd	530	1	0378130/3890112	0	0
22-Aug-01	IV	Cavalry Rd	531	1	0378134/3890164	0	0
23-Aug-01	IV	Tilghman Branch	532	2	0379595/3889631	0	0
23-Aug-01	IV	Tilghman Branch	533	2	0377802/3890084	0	0
23-Aug-01	IV	Tilghman Branch	534	2	0377786/3890011	2	2
23-Aug-01	IV	Tilghman Branch	535	2	0377777/3890158	0	0

DATE	AREA	LOCATION	NET DRY(1)WET(2)	GPS:16S/UTM	# BATS	# SPECIES	
23-Aug-01	IV	Tilghman Branch	536	2	0377764/3890243	0	0
23-Aug-01	IV	Cavalry Rd	537	1	0378177/3890068	0	0
23-Aug-01	IV	Cavalry Rd	538	1	0378170/3890095	0	0
23-Aug-01	IV	Cavalry Rd	539	1	0378173/3890117	0	0
23-Aug-01	IV	Cavalry Rd	540	1	0378130/3890112	0	0
23-Aug-01	IV	Cavalry Rd	541	1	0378134/3890164	0	0
5-Sep-01	VII	Owl Creek	542	2		1	1
5-Sep-01	VII	Owl Creek	543	2	0377584/3892675	0	0
5-Sep-01	VII	Owl Creek	544	2	0377538/3892636	1	1
5-Sep-01	VII	Owl Creek	545	2		0	0
5-Sep-01	VII	Owl Creek	546	2	0377558/3892635	1	1
	VIII	Rea Springs/Ea. Br		2	5-07-51.5 w88-21-14.5		
	VIII	Rea Springs/Ea. Br		2	5-07-51.1w88-21-12.4		
	VIII	Rea Springs/Ea. Br		2	5-07-52.4w88-21-10.4		
	IX	Bloody Pond		2	5-08-01.4-88-19-54.6		
	IX	Bloody Pond		2	5-08-01.2-88-19-55.3		
	IX	Bloody Pond		2	5-08-01.2-88-19-55.3		
	IX	Bloody Pond		2	5-08-00.6-88-19-55.7		
	IX	Bloody Pond		2	5-08-00.1-88-19-55.8		

Appendix II.--Capture and demographic information for bats taken at Shiloh National Military Park in Hardin Co., Tennessee, from May through October 2001. See Fig. 6 and text of report for explanation of areas and habitats.

Month	Bat #	Hab*	Species	Band #	Age	Sex	Wt (g)	F. arm L (mm)	Area-Site
May	1	2	Myotis austroriparius	575	Ad	F	9.5	40	I-1
May	2	2	Myotis austroriparius	574	Ad	F	9.5	41	I-1
May	3	2	Myotis austroriparius		Ad	F	10	40	I-1
May	4	2	Pipistrellus subflavus	551	Ad	F	6	33	I-1
May	5	2	Pipistrellus subflavus	573	Ad	F	6.5	35	I-1
May	6	2	Lasiurus borealis	826	Ad	M	8	39	I-1
May	7	2	Myotis austroriparius	53	Ad	F	9.5	40	I-1
May	8	2	Pipistrellus subflavus	826	Ad	F	6.5	35	I-1
May	9	2	Myotis austroriparius	51	Ad	F	10	39	I-1
May	10	2	Myotis austroriparius	52	Ad	F	7.5	39	I-1
May	11	2	Lasiurus borealis	827	Ad	M	10.5	41	I-1
May	12	2	Pipistrellus subflavus	572	Ad	F	5.5	35	II-1
May	13	2	Lasiurus borealis	553	Ad	F	16.5	42	III-1
May	14	2	Lasiurus borealis	555	Ad	F	17	45	III-1
May	15	2	Nycticeius humeralis	526	Ad	M	8	37	III-1
May	16	2	Pipistrellus subflavus	554	Ad	F	6	37	III-1
May	17	2	Lasiurus borealis	556	Ad	F	16.5	43	IV-1
May	18	2	Lasiurus borealis	557	Ad	F	12.5	41	IV-1
May	19	2	Lasiurus borealis	559	Ad	F	17.5	42	IV-1
May	20	2	Lasiurus borealis	560	Ad	F	19	44	IV-1
May	21	2	Lasiurus borealis	527	Ad	M	7	38	IV-1
May	22	2	Pipistrellus subflavus	558	Ad	F	6.5	29	IV-1
May	23	2	Pipistrellus subflavus	561	Ad	F	5.5	34	IV-1
May	24	1	Myotis austroriparius	530	Ad	M	10.5	40	VI-1
May	25	1	Lasiurus borealis	549	Ad	M	7.5	39	VI-1
May	26	2	Lasiurus borealis	562	Ad	F	15	41	VI-2
May	27	2	Lasiurus borealis	570	Ad	F	17	43	VI-2
May	28	2	Pipistrellus subflavus	550	Ad	M	9	34	VI-2
May	29	2	Nycticeius humeralis	529	Ad	M	7.5	30	VI-2
May	30	1	Nycticeius humeralis	548	Ad	M	6.5	34	VII-1
May	31	1	Lasiurus borealis		Ad	M			VII-1
May	32	2	Lasiurus borealis	570	Ad	F	16	40	VII-2
May	33	1	Pipistrellus subflavus	547	Ad	M	6	38	VIII-1
May	34	1	Myotis austroriparius	574	Ad	F	9.5	41	VIII-1
May	35	2	Lasiurus borealis	563	Ad	F	17	43	VIII-2
May	36	2	Lasiurus borealis	564	Ad	F	15.5	41	VIII-2
May	37	2	Nycticeius humeralis	546	Ad	M	5.5	35	VIII-2
May	38	2	Lasionycteris noctivagans	531	Ad	M	10	42	II-3
May	39	2	Lasiurus borealis	545	Ad	M	12.5	41	II-3
May	40	2	Lasiurus borealis	568	Ad	F	19.5	43	VI-4
May	41	2	Myotis austroriparius	565	Ad	F	6.5	40	VI-4
May	42	1	Myotis austroriparius		Ad	M	6	38	X-1
May	43	2	Myotis austroriparius	567	Ad	F	9	41	IX-1
May	44	2	Myotis austroriparius	566	Ad	F	7.5	38	I-1

Month	Bat #	Hab	Species	Band #	Age	Sex	Wt (g)	F.arm L (mm)	Area-Site
May	45	2	Myotis austroriparius	950	Ad	F	7	40	I-1
May	46	2	Pipistrellus subflavus	926	Ad	F	6	36	I-1
May	47	1	Pipistrellus subflavus	448	Ad	F	7	33	VI-3
May	48	1	Myotis austroriparius	949	Ad	F	8	38	VI-3
May	49	1	Myotis austroriparius	947	Ad	F	6	40	VI-3
May	50	1	Myotis austroriparius	946	Ad	F	9.5	40	VI-3
June	51	1	Myotis austroriparius	425	Ad	F	9.5	40	VI-3
June	52	1	Myotis austroriparius	533	Ad	M	7.5	39	VI-3
June	53	2	Pipistrellus subflavus	544	Ad	M	6.5	36	VI-4
June	54	2	Myotis austroriparius	423	Ad	F	9.5	41	VI-4
June	55	2	Myotis austroriparius		Ad	F	8.5		VI-4
June	56	2	Lasiurus borealis		Ad	F	11	41	XI-1
June	57	2	Lasiurus borealis	414	Ad	F	13.5	39	XI-1
June	58	2	Lasiurus borealis		Ad	F	11	42	XI-1
June	59	2	Nycticeius humeralis	417	Ad	F	7	35	XI-1
June	60	2	Nycticeius humeralis	532	Ad	F	10.5	37	XI-1
June	61	2	Lasiurus borealis	535	Ad	M	10.5	40	XI-1
June	62	2	Lasiurus borealis	421	Ad	F	11	41	XI-1
June	63	2	Lasiurus borealis	415	Ad	F	12	41	XI-1
June	64	2	Lasiurus borealis	410	Ad	F	10.5	40	XI-1
June	65	2	Lasiurus borealis		Ad	F	10.5	41	XI-1
June	66	2	Nycticeius humeralis	536	Ad	M	7.5	39	XI-1
June	67	2	Nycticeius humeralis	413	Ad	F	8	37	XI-1
June	68	2	Pipistrellus subflavus	538	Ad	M	5.5	36	XI-1
June	69	2	Nycticeius humeralis	537	Ad	M	8.5	36	XI-1
June	70	2	Lasiurus borealis	412	Ad	F	11	43	XI-2
June	71	2	Lasiurus borealis	422	Ad	F	11	40	XI-2
June	72	2	Lasiurus borealis	539	Ad	M	12.5	40	XI-2
June	73	2	Pipistrellus subflavus	534	Ad	M	5	33	XI-2
June	74	2	Lasiurus borealis	420	Ad	F	13	42	XI-1
June	75	2	Lasiurus borealis		Ad	F	17	43	XI-1
June	76	2	Lasiurus borealis	543	Ad	M	17.5	41	XI-1
June	77	2	Lasiurus borealis	411	Ad	F	14.5	43	XI-1
June	78	2	Lasiurus borealis	409	Ad	F	12	42	XI-1
June	79	1	Lasiurus borealis	419	Ad	F	16	43	XIV-1
June	80	1	Lasiurus borealis	541	Ad	M	15.5	40	XIV-1
June	81	1	Lasiurus borealis	542	Ad	M	13	45	V-1
June	82	1	Lasiurus borealis	542	Ad	M	13	45	V-1
June	83	2	Lasiurus borealis	408	Ad	F	13.5	44	XII-1
June	84	2	Pipistrellus subflavus	540	Ad	F	7.5	37	II-1
June	85	2	Lasiurus borealis		Juv	F	8	37	IV-1
June	86	2	Nycticeius humeralis	524	Ad	M	9	30	IV-1
June	87	2	Nycticeius humeralis	525	Ad	M	10.5	35	IV-1
July	88	1	Lasiurus borealis	523	Juv	M	9	40	XIII-3
July	89	1	Lasiurus borealis	3	Juv	F	8.5	40	XII-3
July	90	1	Lasiurus borealis	1	Ad	F	15	40	XII-3
July	91	1	Lasiurus borealis	501	Juv	M	7.5	38	XII-3
July	92	1	Lasiurus borealis	25	Ad	F	13	31	XII-3
July	93	1	Lasiurus borealis	513	Juv	M	9	35	XII-3

Month	Bat #	Hab	Species	Band #	Age	Sex	Wt (g)	F. arm L (mm)	Area-Site
July	94	1	Lasiurus borealis	502	Juv	M	9.25	40	XII-3
July	95	1	Lasiurus borealis	13	Juv	F	9	39	IV-5
July	96	1	Lasiurus borealis	12	Ad	F	13	40	IV-5
July	97	1	Lasiurus borealis	5	Ad	F	14.75	42	IX-3
July	98	1	Myotis austroriparius	4	Ad	F	6.5	35	IX-3
July	99	1	Lasiurus borealis	521	Juv	M	7.5	40	IX-3
July	100	1	Lasiurus borealis	519	Juv	M	10	39	IX-3
July	101	1	Lasiurus borealis	6	Juv	F	10.25	40	VIII-3
July	102	1	Lasiurus borealis	7	Juv	F	9.75	40	XIII-7
July	103	2	Myotis austroriparius	576	Juv	M	4	33	II-3
July	104	1	Lasiurus borealis	10	Ad	F	14.25	43	XII-2
July	105	1	Lasiurus borealis	577	Ad	M	8.5	40	XII-2
July	106	2	Myotis austroriparius	514	Ad	M	11	35	I-1
August	107	2	Myotis lucifugus	9	Ad	F	8.25	39	I-1
August	108	1	Nycticeius humeralis	11	Ad	F	9	39	XIII-1
August	109	2	Lasiurus borealis	401	Ad	F	11	42	VII-2
August	110	2	Myotis grisescens	520	Ad	M	10.5	42	VII-2
August	111	2	Myotis austroriparius	515	Ad	M	6.25	36	IV-1
August	112	2	Nycticeius humeralis	600	Ad	M	8	37	IV-1
Sept	113	2	Nycticeius humeralis						VII-2
Sept	114	2	Myotis austroriparius		Ad	M	6	39	VII-2
Sept	115	2	Pipistrellus subflavus		Juv	F	5	34	VII-2
Sept	116	2	Nycticeius humeralis	503	Ad	M	13.75	35	VIII-2
Sept	117	2	Lasiurus borealis	504	Ad	M	9.5	38	VIII-2
Sept	118	2	Lasiurus borealis		Ad	M	13.75	40	VIII-2
Oct	119	2	Nycticeius humeralis		Ad	M	12.75	35	XIII-5
Oct	120	2	Nycticeius humeralis		Ad	F	12.75	36	XIII-5
Oct	121	2	Nycticeius humeralis	505	Ad	M	12.75	35	XIII-5

*Habitat, 1 = dry; 2 = wet.