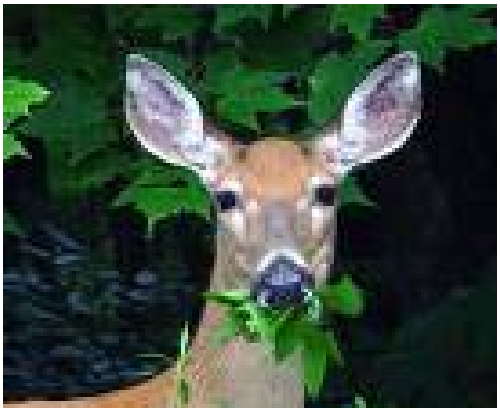
INVENTORY OF MAMMALS AT

STONES RIVER NATIONAL BATTLEFIELD

2004 — 2006









Prepared for:
United States Department of the Interior
National Park Service
Stones River National Battlefield
3501 Old Nashville Highway
Murfreesboro, Tennessee 37129

Prepared by:
Michael L. Kennedy, and
Heidi L. LaMountain
Department of Biology
The University of Memphis
Memphis, Tennessee 38152

INVENTORY OF MAMMALS AT

STONES RIVER NATIONAL BATTLEFIELD

FINAL REPORT

Prepared for:

United States Department of Interior
National Park Service
Stones River National Battlefield
3501 Old Nashville Highway
Murfreesboro, Tennessee 37129

Prepared by:

Michael L. Kennedy and Heidi L. LaMountain
Department of Biology
The University of Memphis
Memphis, Tennessee 38152

July 2007

TABLE OF CONTENTS

	Page
FOREWORD……..	iii
ACKNOWLEDGMENTS……	iv
ABSTRACT……	1
INTRODUCTION……..	2
STUDY AREA……	3
MATERIALS AND METHODS……	4
RESULTS……	6
DISCUSSION…….	8
LITERATURE CITED……	14
FIGURES…….	16
TABLES……..	31
APPENDIX I……..	57
APPENDIX II…….	59

FOREWORD

The following pages present a final report for work relating to an inventory of the mammals at Stones River National Battlefield in Rutherford County, Tennessee. Nick Jordan, Tony Allen, Mike Lane, and other students from The University of Memphis assisted with fieldwork. Dr. Michael L. Kennedy was the principal investigator for the project. A photo log is included as part of the report. Scientific and common names followed Choate et al. (1994) or Schwartz and Schwartz (2001). However, interested readers should be aware of the taxonomic revisions of Wilson and Reeder (2005).

ACKNOWLEDGMENTS

Thanks are extended to Terri Hogan, Nathan Singer, and other personnel of Stones River National Battlefield for their help in many aspects of this study. Several students from The University of Memphis assisted in fieldwork. The study was funded in part by the National Park Service.

INVENTORY OF MAMMALS AT

STONES RIVER NATIONAL BATTLEFIELD

ABSTRACT—Mammalian biodiversity was surveyed at Stones River National Battlefield (STRI) in Rutherford County, Tennessee, during 2004 to 2006. Survey techniques included utilization of live traps, pitfall traps, mist nets, scent stations, camera stations, and spotlighting. Twenty-five species, representing seven orders and 13 families, were verified to occur on the site. No state or federally listed threatened or endangered species was recorded. The white-footed mouse (*Peromyscus leucopus*) was the most common small mammal found to occur on the site. White-tailed deer (*Odocoilieus virginianus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and eastern mole (*Scalopus aquaticus*) were among the more common mammals found on the site. Biodiversity in bats was low. Several species known to occur in the region were not found on the site. Reasons for this discrepancy are unclear. However, it is not uncommon for local sites to have less biodiversity than that recorded for the region. Future studies will likely add a few additional species of mammals to the list of mammalian biodiversity at STRI. Given the good quality of much of the habitat at STRI, it appears that strong management could result in maintaining and even increasing the mammalian biodiversity at this site.

INTRODUCTION

In May of 2004, a study was initiated to inventory the mammalian biodiversity at Stones River National Battlefield (STRI) in Rutherford County, Tennessee. While over 70 species of mammals are known to occur in Tennessee (Kellogg 1939, Kennedy 1977, Hall 1981, Choate et al. 1994), mammals occurring in Rutherford County and at STRI have not been studied in detail. Meffe et al. (1997) pointed out that the earth is not uniform and the distribution of organisms varies across it surface. Because of this variation, distributions of animals and plants may vary on local, regional, and national scales. Additionally, because all regional biotas contain more species than are found in any single locality or habitat type, there are limits as to species richness at the local level (Meffe et al. 1997). Therefore, successful management of natural resources at individual sites, such as STRI, requires an understanding of the biota at the local level.

Van Dyke (2003) noted that species often are lost from habitats when the area of habitat is reduced (a worldwide problem associated with habitat loss and fragmentation), which is due in many cases to anthropogenic influences. Fragmentation almost always occurs with large habitat modification but can occur when areas are reduced to only a minor degree if the original habitat is divided by roads, railroads, fences, fire lanes, and other barriers to the free movement of species (Primack 1998). Primack (1998) indicated that habitat fragmentation in an area results in reduction in size of the original area, greater amount of edge habitat, and reduced distance to the nearest edge. All of these are conditions characteristic of parts of STRI and can have negative impacts on animal and plant populations. The effect of human disturbance on various species of wildlife has been noted in previous works (see Bolen and Robinson 2003).

Many parks and recreational areas in urban/suburban environments, such as STRI, are characterized by a highly fragmented landscape and small disjunct patches of habitat.

Management of biodiversity in these areas is in its infancy. However, because of the high level of visibility of these areas to the public and their association with a high quality of life for people in the region, they are socially, politically, economically, and biologically important sites. Studies of biodiversity in such areas should provide valuable information toward the management of natural resources on these important but highly modified landscapes.

The purpose of the present investigation was to survey the mammalian biodiversity at STRI. Specifically, goals were to: (1) document at least 90% of the mammals reasonably expected to occur on the site; (2) describe the distribution and, if possible, relative abundance of species of special concern occurring on the site; (3) provide baseline information on the distribution, abundance, and habitat association of mammalian populations occurring on the site.

STUDY AREA

Stones River National Battlefield (National Park Service, United States Department of the Interior) was located in the central part of Rutherford County, Tennessee (Figure 1), in the city of Murfreesboro (35º 51'' 28'' N; 86º 23' 41'' W) at 3501 Old Nashville Highway. The site was approximately 45 kilometers (28 miles) southeast of Nashville. STRI was a 288 ha (647 acres) park made up of six separate and isolated units (Main Battlefield Park, Artillery Monument, Fortress Rosecrans, Redoubt Brannan, and the headquarter sites for military leaders; see National Park Service 1998). Miller et al. (2005) provided descriptions of sites. These areas consisted of a mosaic of unique habitats, including hay fields, cultivated fields, cedar glades, and forest. Cultivated fields consisted mostly of cotton (*Gossypium* spp.) and soybean (*Glycine max*). The cedar glades were a very unique habitat that were home to 12 specially adapted plant species including the endangered Tennessee coneflower (*Echinacea tennesseensis*) and Pyne's

ground plum (*Astragalus bibullatus*). Forests consisted of several tree species, including oaks (*Quercus* spp.), eastern red cedar (*Juniperus virginiana*), green ash (*Fraxinus pennsylvanica*), and white ash (*Fraxinus americanus*). The West Fork of the Stones River flowed through several portions on the eastern side of the park. STRI has drafted a native plant restoration management plan that works towards the elimination of exotic plants to promote the growth of native species. The management plan included planting seed and live plants and prescribed burning to help restore native plant populations.

MATERIALS AND METHODS

Randomly established, 1 ha plots (n = 19) were created throughout STRI (Figure 2; Appendix I). Survey techniques included trapping and mist-netting procedures carried out on all established plots. Bait/camera stations were established at selected locations. Small areas of suitable habitats or other habitat types not sufficiently represented in the random plots were also selected for sampling throughout the site to maximize capture success of small mammals. Sampling was initiated in the summer of 2004 and concluded during the fall of 2006.

Small mammals (other than bats) were sampled primarily with 2 methods: Sherman live traps and pitfall traps. Sherman traps were set in various habitat types (forest, field, forest/field edge) within each of the 19 selected plots and at other appropriate areas throughout the park (Figure 3). Traps were placed in areas within the habitat that would provide the highest opportunity for capture. At each of the selected plots, small mammals were sampled utilizing 20 Sherman live traps in place over 3 nights. This effort resulted in 60 trap nights at each of the plots. Additional sampling was conducted at selected sites throughout STRI. In total, approximately 8000 trap nights were employed in the investigation. One trap night equaled 1

trap set for 1 night. Traps were baited with rolled oats and checked daily. Upon capture, individuals were identified to species, selected individuals photographed, and specimens released at the site of capture. Any individual found dead was collected and taken as a voucher specimen. Voucher specimens for all taxa are identified in appropriate tables.

Pitfall traps (the second technique utilized to survey for small mammals) consisted of a 16-ounce cup (plastic) placed in the ground with the rim of the cup at surface level (see Jones et al., 1996). A pitfall night was considered 1 pitfall trap set for 1 night. These traps were not baited and were not filled with fluids. Numerous transects of 10 pitfall traps (spaced about 5 m apart) were placed in various habitat types (forest, field, forest/field edge) within each plot and at other appropriate areas throughout the park (Figure 4). Pitfall traps were maintained for 2 nights (20 trap nights at each plot; a pitfall-trap night was 1 pitfall trap set for 1 night) at each of the 19 plot sites and various nights at other sites. This resulted in 400 pitfall-trap nights at plot sites. Including all sites sampled throughout STRI, approximately 1000 pitfall-trap nights were employed in the study. Upon capture, individuals were identified, selected individuals photographed, and individuals released at the site of capture. Any individual found dead was taken as a voucher specimen.

Three bait/camera stations were placed at selected sites on STRI (Figure 5). Bait/camera stations were baited with corn prior to setting up cameras in order to allow various mammals proper time to locate and feed on the bait. Cameras were mounted 0.5 m to 1 m (1.6 ft to 3.3 ft) off the ground on an available tree in a direction facing the corn. Cameras were checked bi-weekly, and film and batteries were changed as needed.

Mist nets were employed to sample populations of bats. Nets were placed at the 19 selected plots (Figure 2; Appendix I) and 17 additional sites on STRI (Figure 6). At the 19

selected plots, 2 nets were utilized at each plot for 2 nights (2 mist-net nights at each plot; mist-net night = 1 mist net set for 1 night). In total, the study included 125 mist-net nights. Mist net techniques used for the survey followed those from Jones et al. (1996). Nets were opened at about dusk and closed shortly after dawn. An ultrasonic detector was used at 2 sites (Artillery Monument and Fortress Rosecrans) to survey bat calls.

Scent stations, following procedures outlined in Leberg and Kennedy (1982), were employed to verify the presence of species based on tracks. Stations were selectively placed at 25 sites (Figure 7) likely to record occurrence of mammals.

The assessment of mammals at STRI also included spotlight surveys at night and other observational records (at night and during the day) as work was conducted. A list of species that had some potential for occurring at STRI (Table 1) was compiled from the literature (Kellogg 1939; Kennedy 1977; Hall 1981; Choate et al. 1994) and from discussions with personnel that work at STRI and local mangers of natural resources at the state level. Documentation of occurrence of species at STRI was by actual capture, species sighted, observation of tracks or other signs, photograph, or skeletal feature collected on the site.

RESULTS

Mammals with a relatively high potential for occurring at STRI, as well as documented occurrences of species, are given in Tables 1 and 2. In total, 27 species were considered to have a relatively high potential for occurring at STRI. Of these, 25 (93%) were verified (Table 2).

Species documented at STRI represented seven orders and 13 families (Order Didelphimorphia, Family Didelphidae; Order Insectivora, Families Soricidae and Talpidae; Order Chiroptera, Family Vespertilionidae; Order Lagomorpha, Family Leporidae; Order

Rodentia, Families Sciuridae and Muridae; Order Carnivora, Families Canidae, Procyonidae, Mustelidae, Mephitidae, and Felidae; Order Artiodactyla, Family Cervidae) of mammals. Species within families were ranked (see Table 2) based on their abundance as observed during the study. No federal or state listed endangered or threatened species was identified during the survey. At the state level, the only species of special concern identified was the southeastern shrew taken at plots 10 and 16.

Using Sherman live traps, 1 species of opossum (*Didelphis virginiana*; a juvenile) and 5 species of small rodents were identified from 294 captures. This effort yielded a capture-success rate of about 3%. Species captured included (number of captures given as n): white-footed mouse (*Peromyscus leucopus*; n = 186), house mouse (*Mus musculus*; n = 52), prairie vole (*Microtus ochrogaster*; n = 48), eastern harvest mouse (*Reithrodontomys humulus*; n = 5), deer mouse (*P. maniculatus*; n = 2). See Table 3 and Figure 3.

Pitfall trapping yielded 17 captures of shrews (southeastern shrew, *Sorex longirostris,* n = 2; northern short-tailed shrew, *Blarina brevicauda*, n = 11; least shrew, *Cryptotis parva*, n = 4). See Table 4 and Figure 4.

Bait/camera stations resulted in the documentation of 4 species. Species identified included: white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), eastern gray squirrel (*Scuirus carloninensis*), and eastern cottontail rabbit (*Sylvilagus floridanus*). Results are shown in Table 5 and Figure 5.

Two red bats (*Lasiurus* borealis) and one eastern pipistrelle (*Pipistrellus subflavus*) were caught in mist nets. See Table 6 and Figure 6. Several bats (assumed to be red bats) were seen flying in the park. Most observations were at Fortress Rosecrans, along main park loop, and at Artillery Monument.

Some species were verified by the use of scent stations. These included: Virginia opossum (*Didelphis virginiana*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), house cat (*Felis catus*), and white-tailed deer (*Odocoileus virginianus*). Results are given in Table 7. Observational data or opportunistic collecting verified the occurrence of additional species. Results are given in Table 8.

DISCUSSION

Results of the present study provide initial data on the mammalian fauna occurring on STRI. The focus of the investigation was to document at least 90% of mammals reasonably expected to occur on the site, describe the distribution and, if possible, relative abundance of species of special concern occurring on the site, and provide baseline information on the distribution, abundance, and habitat associations of mammalian populations occurring on the site. The investigation went well. However, as for amphibians and reptiles (Miller et al. 2005), many species known to occur in the region were not found on the study site during the investigation. Much of the discrepancy between lists of potentially occurring mammals at STRI and those actually documented on the site results from small numbers of species of bats, shrews, and rodents found at STRI. Reasons for these discrepancies are unclear. Environmental conditions that include food resources and roosting sites may be limited in this urban area. Miller et al. (2005) suggested that amphibians and reptiles could have been extripated from STRI decades ago at a time when the land, now within park boundaries, was actively engaged in agriculture, and, therefore, relative isolation fostered by urbanization could prevent recolonization of these species. Such circumstances could influence recolonization by shrews and rodents as well. However, it is not uncommon for local sites to have less biodiversity than

that recorded for the region (Meffe et al. 1997). Future studies will likely add a few additional species of mammals to the list of mammalian biodiversity at STRI.

The Virginia opossum (the only known member of the Family Didelphidae occurring at STRI) appeared to be a common mammal in the park. This species is known to have a wide tolerance for habitat (McManus, 1974) but prefers to live in wooded areas near streams (Schwartz and Schwartz, 2001). The species is known to occur in other urban areas (Bolen and Robinson, 2003).

Three species of shrews (southeastern shrew, northern short-tailed shrew, and least shrew) represented the Family Soricidae at STRI during the study. Overall, shrews were not common on the site. Southeastern shrews appear to prefer moist situations but have been taken in a wide range of habitats (Whitaker and Hamilton, 1998). Moist woods seem to be the preferred habitat for northern short-tailed shrews, but the species is found in a wide variety of habitats (Whitaker and Hamilton, 1998). Least shrews prefer grassy fields and early successional habitat (Schwartz and Schwartz, 2001).

The only member of the family Talpidae recorded at STRI was the eastern mole (*Scalopus aquaticus*). Ridges caused by tunneling of moles under the soil were observed throughout STRI. The species appeared to be common on the site. This taxon occurs underground in meadows, pastures, lawns, open woodlands, gardens and stream banks where the soil is loose but well drained (Schwartz and Schwartz, 2001).

For bats (Family Vespertilionidae), only the red bat (*Lasiurus borealis*) appeared to be common at STRI. This assumption is based primarily on sightings and antibat recordings of bats assumed to be red bats. The species is known in urban areas and roosts mostly in trees or shrubs (Shump and Shump, 1982). Based on capture, the eastern pipistrelle was uncommon. Because

of the diversity of bats in the region, additional species may be added to the list of mammals occurring at STRI in the future.

The nine-banded armadillo (*Dasypus novemcinctus*; Family Dasypodidae) was not documented in the present study. However, it is known in the region. Additionally, it is known to occur in urban habitats (Bolen and Robinson, 2003). This is a species that will likely be recorded at STRI in the future.

Eastern cottontail rabbits (*Sylvilagus floridanus*; Family Leporidae) were observed throughout STRI. The species appeared to be common. This rabbit is highly adaptable to habitat but prefers open brushy or forest-edge habitat (Schwartz and Schwartz, 2001). There appeared to be little swamp rabbit (*Sylvilagus aquaticus)* habitat on STRI. Therefore, it is not likely that this species will be recorded at the park without significant habitat modification.

The woodchuck (*Marmota monax*; Family Sciuridae) and eastern gray squirrel (*Sciurus carolinensis*; Family Sciuridae) were observed throughout STRI. Woodchucks appeared to be common, while gray squirrels were abundant. *M. monax* prefers forested edges bordered by open lands, brush fencerows, or other cover, while gray squirrels are typical of hardwood forest (Choate et al. 1994). Gray squirrels are common in urban areas (Schwartz and Schwartz, 2001). Eastern chipmunks (*Tamias striatus*) and southern flying squirrels (*Glaucomys volans*) are Sciuridae that are known to occur in urban areas (Schwartz and Schwartz, 2001; Bolen and Robinson, 2003) and could be added to the list of mammals occurring at STRI in the future. However, at present, these species are unknown at STRI.

Beaver (*Castor canadensis*) were not documented during the present study. However, they are known in urban areas, and, given their ability to move and disperse (Schwartz and Schwartz, 2001), they likely could be recorded at sites along the Stones River in the future.

Most rodents at STRI belong to the Family Muridae. While the overall biodiversity of this family was lower than that expected at STRI (Kellogg 1939, Hall 1981, Choate et al. 1994), species evenness was typical of most natural populations where one or two species are present in large numbers and other species are represented by smaller numbers of individuals (Smith 1986). At STRI, rodents were represented by a large number of white-footed mice and smaller numbers of house mice, prairie voles, eastern harvest mice, and deer mice. White-footed mice were the most common and abundant small mammals on the site. This species has a broad tolerance for habitat (Lackey et al. 1985). The mosaic of habitat types present at STRI is supportive of a wide diversity of small mammals. Species that have a potential to be added to the list of mammals occurring at STRI in the future include marsh rice rat (*Oryzomys palustris*), cotton mouse (*P. gossypinus*), golden mouse (*Ochrotomys nuttalli*), hispid cotton rat (*Sigmodon hispidus*), woodland vole (*Microtus pinetorum*), and meadow jumping mouse (*Zapus hudsonius*).

The Family Canidae was represented on the site by the coyote, red fox, and domestic dog. Based on observations, the coyote was common at the site, while the red fox was uncommon. Both species have a broad tolerance for habitat (Whitaker and Hamilton, 1998), and both are known in urban environments (Bolen and Robinson, 2003). Domestic dogs were documented on the site; however, such occurrences were not widespread.

Raccoons (Family Procyonidae) were common throughout the study area and appeared to be abundant in numbers. This species has a wide tolerance for habitat but prefers habitat near water, especially in bottomlands and wooded areas near urban developments (Choate et al. 1994).

Mink and river otter (Family Mustelidae) were uncommon on the site. Mink were documented only from a photograph taken from files at STRI. This animal was observed in

2003 at Fortress Rosecrans. River otter were documented by scat and other sign. Both species utilize diverse wetland habitats varying from small streams to large swamps (Whitaker and Hamilton, 1998).

The only representative of the Family Mephitidae at STRI was the striped skunk. This species appeared to be a relatively common mammal on the site. It is known to have a broad tolerance for habitat and to do well in habitat associated with urban development (Bolen and Robinson, 2003).

Domestic cats (Family Felidae) were uncommon on the site. However, two individuals were observed at Fortress Rosecrans. Because of a potential to impact nesting birds and other taxa, this species should be watched closely at STRI.

White-tailed deer (Family Cervidae) were common at STRI. This species has a wide tolerance for habitat and is known to do well in urban areas (Bolen and Robinson, 2003).

Overall, little attention has been given to urban wildlife; yet most people of the United States live in metropolitan areas where human associations with nature seem especially valuable (Bolen and Robinson, 2003). This makes parks like STRI extremely important. However, urbanization tends to promote monocultures, which results in large populations of a few species (Bolen and Robinson, 2003). There is some indication of this at STRI. Yet, given the good quality of much of the habitat at STRI, it appears that strong management could result in maintaining and even increasing the mammalian biodiversity at the site. Maintaining much of the oldfield habitat through a rotation in mowing will enhance many of the grassland and early successional species. Reduction in use of chemical treatment in agriculture and for insects will foster biodiversity. Exotic species such as the house mouse could be removed as well as domestic dogs and cats. Corridors to connect small habitat patches would foster gene flow and

provide potential for metapopulation dynamics that maintain populations of rare species. Given the nature of the habitat at STRI, We feel it would make an excellent site for studies relating to reintroduction of species not present on the park but occurring in the region. Bolen and Robinson (2003) have pointed out that the goals and activities of urban wildlife management vary with the degree of urbanization and have noted that managers must use creative means to develop multiple-use plans compatible with other urban activities. Educational programs are needed to assist local residents in understanding management goals and needs.

LITERATURE CITED

Bolen, E. G., and W. L. Robinson. 2003. Wildlife Ecology and Management. Prentice Hall, Upper Saddle River, New Jersey.

Choate, J.R., J. K. Jones, Jr., and C. Jones. 1994. Handbook of the mammals of the south-central states. Louisiana State University Press, Baton Rouge.

Hall, E. R. 1981. The mammals of North America, 2 vol. John Wiley and Sons Ltd., New York.

Jones, C., W. J. McShea, M. J. Conroy, and T.H. Kunz. 1996. Capturing mammals. Pp. 115-155 *in* Measuring and monitoring biological diversity: standard methods for mammals (E.O. Wilson, F. R. Cole, J. D. Nichols, R. Rudran, and M. S. Foster, eds.). Smithsonian Institution Press, Washington.

Kellogg, R. 1939. Annotated list of Tennessee mammals. Proceedings of the United States National Museum 86:245-303.

Kennedy, M.L. 1991. Annotated checklist of the mammals of western Tennessee. Journal of the Tennessee Academy of Science 66:183-185.

Lackey, J. A., D. G. Huckaby, and B. G. Ormiston. 1985. Peromyscus leucopus. Mammalian Species 247:1-10.

Leberg, P. L., and M. L. Kennedy. 1987. Use of scent-station methodology to assess raccoon abundance. Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies 41:394-403.

McManus, J. J. 1974. Didelphis virginiana. Mammalian Species 40:1-6.

Meffe, G. K., C. R. Carroll, and Contributors. 1997. Principles of conservation biology. Sinauer Associates, Inc., Sunderland, Massachusetts.

Miller, B. T., J. Spiess, and M. L. Niemiller. 2005. Inventory of amphibians and reptiles of Stones River National Battlefield. Unpublished report developed for Stones River National Battlefield, Murfreesboro, Tennessee.

National Park Service. 1998. Final general management plan/development concept plan? Environmental impact statement. Unpublished report developed for Stones River National Battlefield, Murfreesboro, Tennessee.

Primack, R. D. 1998. Essentials of conservation biology. Sinauer Associates, Inc., Sunderland, Massachusetts.

Schwartz, C. W., and E. R. Schwartz. 2001. The wild mammals of Missouri. University of Missouri Press and Missouri Department of Conservation. Columbia, Missouri.

Smith, R. L. 1986. Elements of Ecology. Harper and Row, Publishers, Inc., New York, New York.

Shump, K. A., Jr., and A. U. Shump. 1982. Lasiurus borealis. Mammalian Species, 183:1-6).

Van Dyke, F. 2003. Conservation biology: foundations, concepts, applications. McGraw-Hill, Boston, Massachusetts.

Whitaker, J. O., Jr., and W. J. Hamilton, Jr. 1998. Mammals of the eastern United States. Cornell University Press, Ithaca, New York.

Wilson, D. E., and D. M. Reeder. 2005. Mammal species of the world: a taxonomic and geographic reference. 3rd ed. Smithsonian Institution Press, Washington, D. C.

Figures

Figure 1. Map showing location of Stones River National Battlefield in Rutherford County, Tennessee.

Stones River National Battlefield
Rutherford County, Tennessee

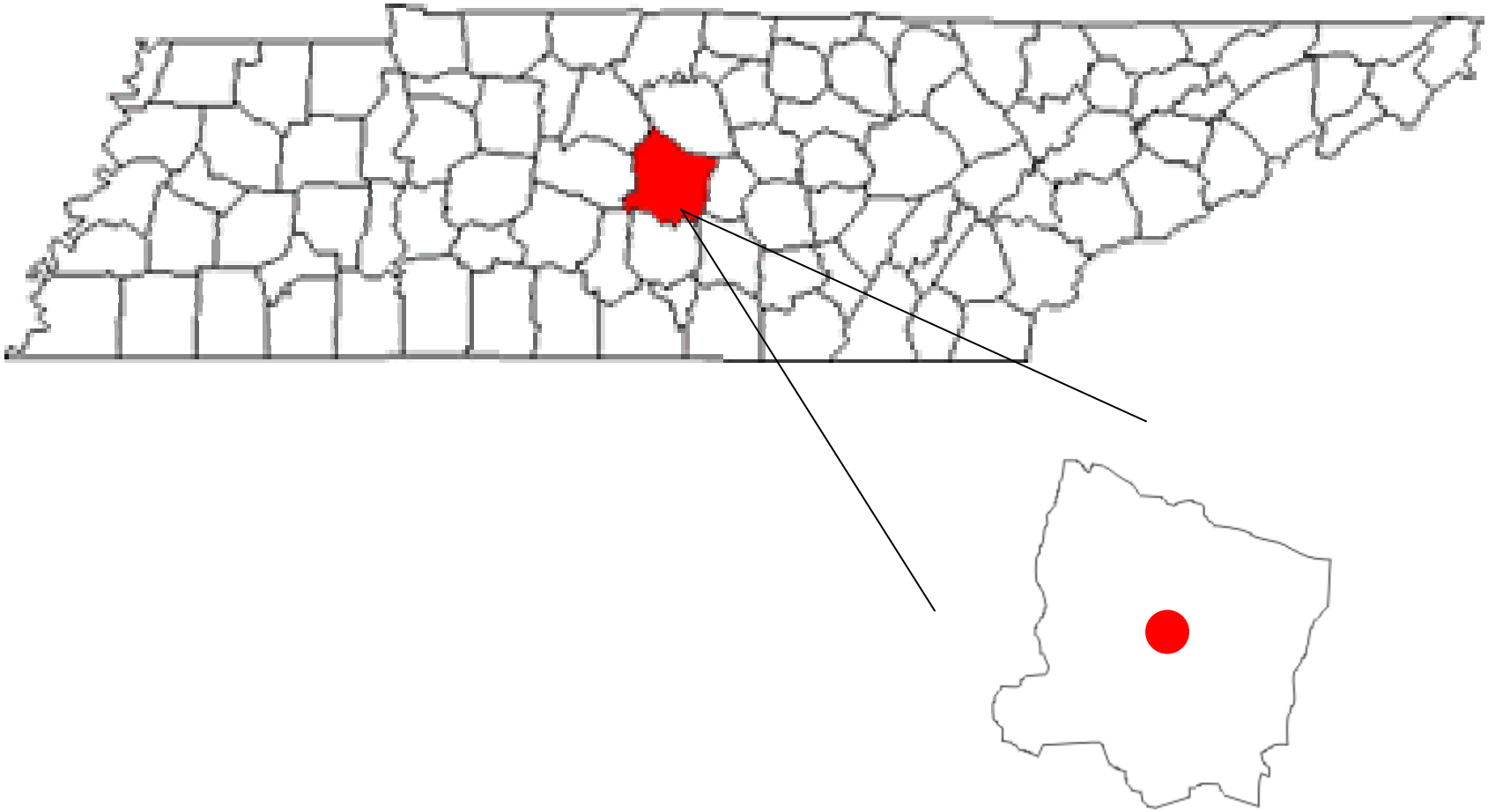


Figure 2. Map showing numbered locations of randomly established plots at Stones River National Battlefield in Rutherford County, Tennessee, which were used in sampling mammalian biodiversity during 2004-2006. Sampling was at 19 plots. Plot numbers are 1-3 and 5-20. Specific plot locations are given in Appendix I. Only selected numbered plots are shown on the following maps (Figures 2-6).

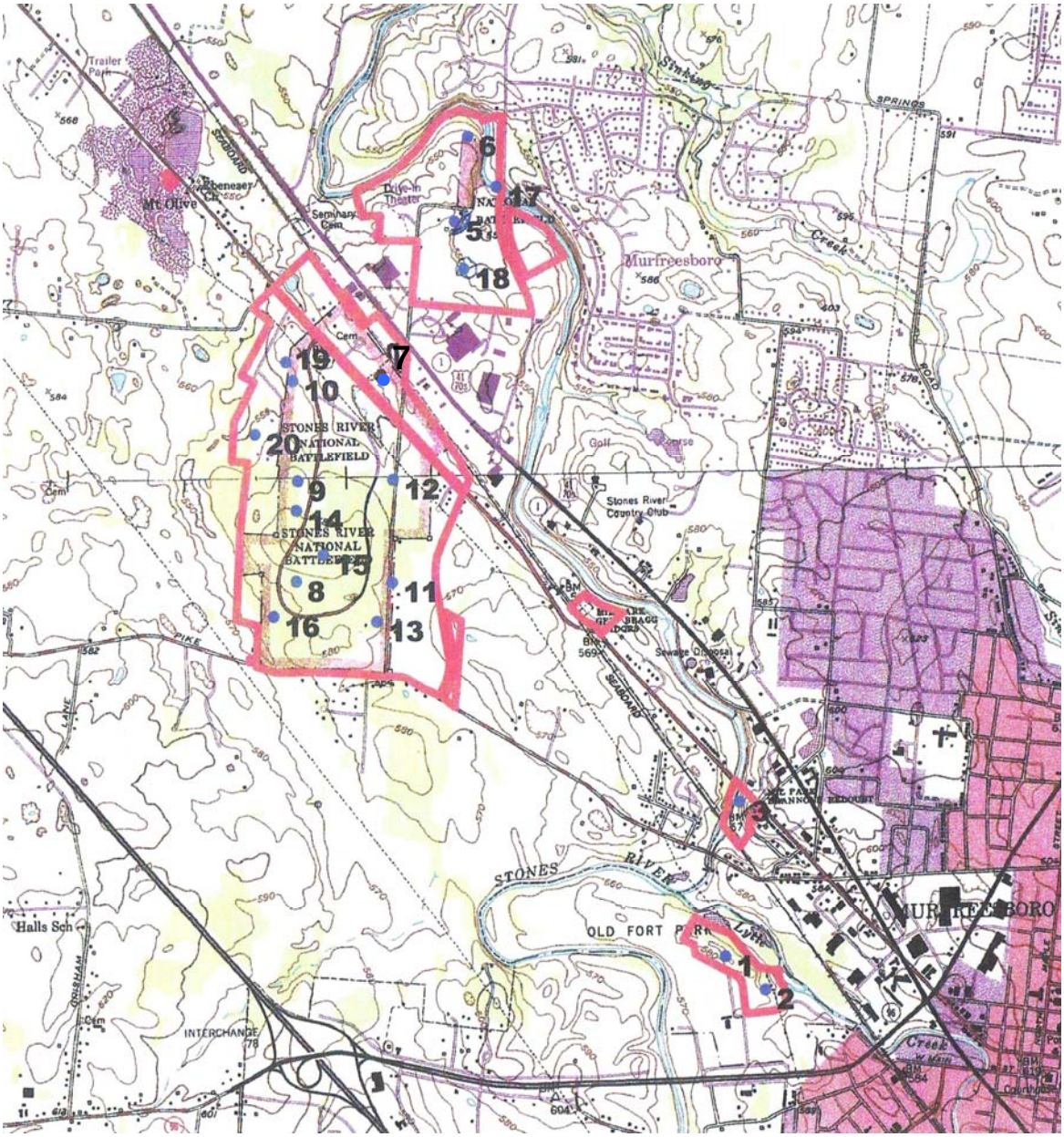

Trailer Park
Mt Olive
Ebeneezer Ch
Seminary Cem
Drive-In Theatre
Murfreesboro
Golf Course
STONES RIVER NATIONAL BATTLEFIELD
Stones River Country Club
Sewage Disposal
STONES RIVER
OLD FORT PARK
Halls Sch
INTERCHANGE 78
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
• Plot locations
Boundary
N

Figure 3. Map of selected sampling locations utilized in a study of small mammals employing Sherman live-traps at Stones River National Battlefield in Rutherford County, Tennessee, during 2004-2006.

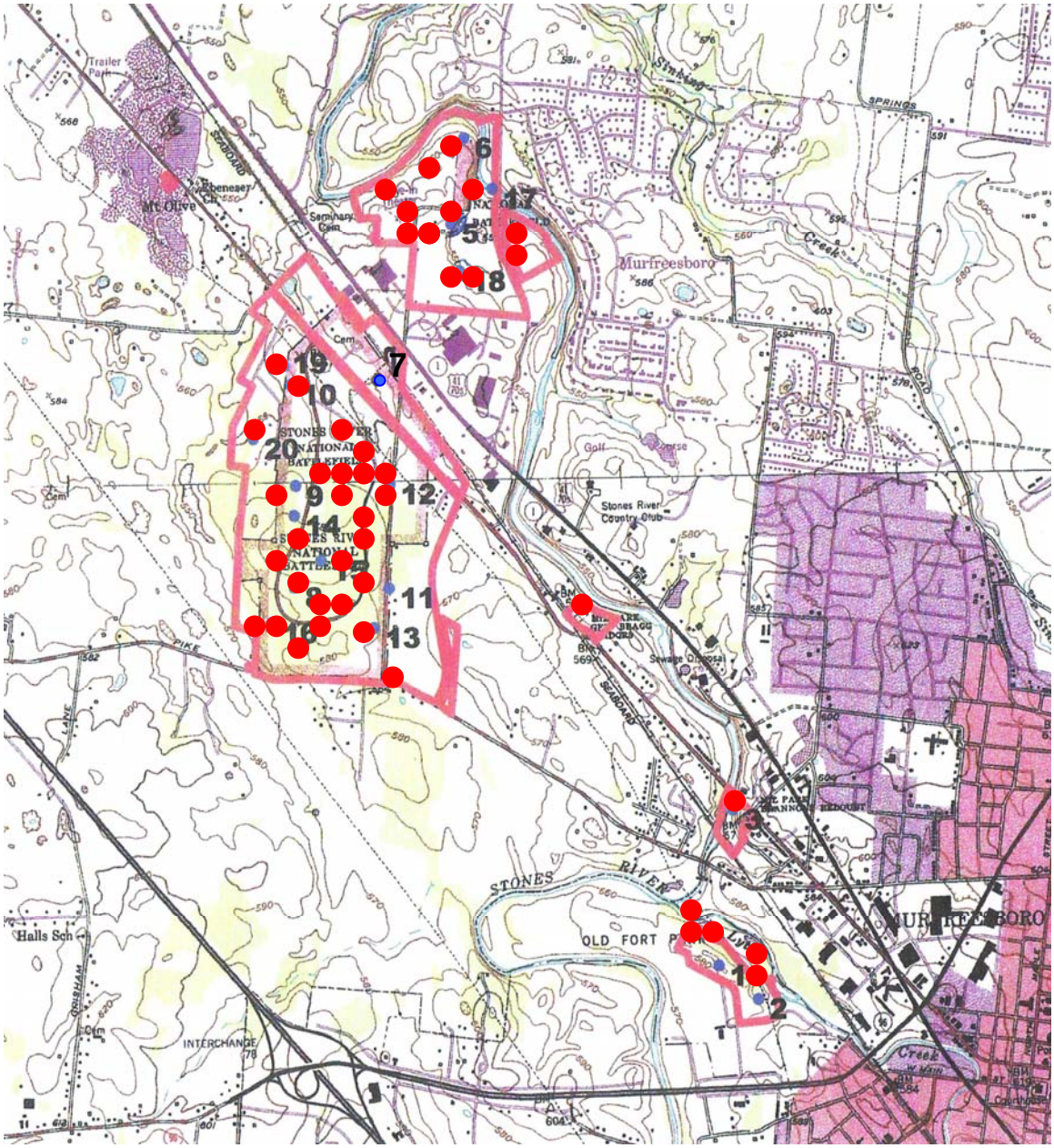
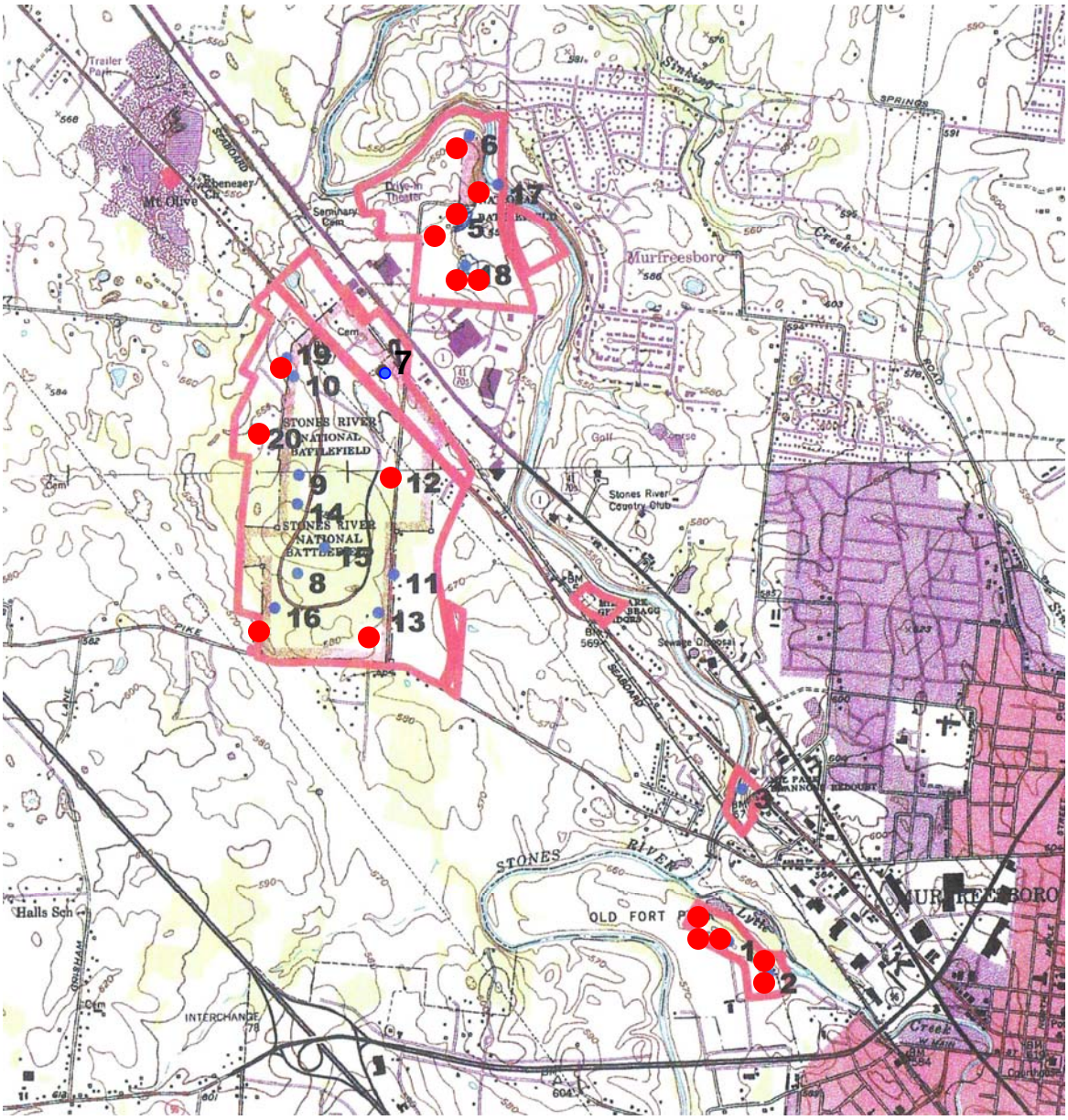

Plot locations
Boundary
Trapping sites (transects using Sherman live traps)
N
Murfreesboro
STONES RIVER
Stones River Country Club
Halls Sch
INTERCHANGE 78
Mt Olive
Ebeneser Ch
Sanctuary Cem
Trailer Park
Golf Course
Sewage Disposal
OLD FORT P
REDOUBT
Creek
SPRINGS
ROAD
PIKE
LANE
GOLDSMAN
SEABOARD
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Figure 4. Map of selected sampling locations utilized in a study of small mammals employing pitfall traps at Stones River National Battlefield in Rutherford County, Tennessee, during 2004-2006.



- Plot locations
- Boundary
- Trapping sites (transects using pitfall traps)

N

Figure 5. Map of bait/camera locations used in a study of mammalian fauna at Stones River National Battlefield in Rutherford County, Tennessee, during 2004-2006.

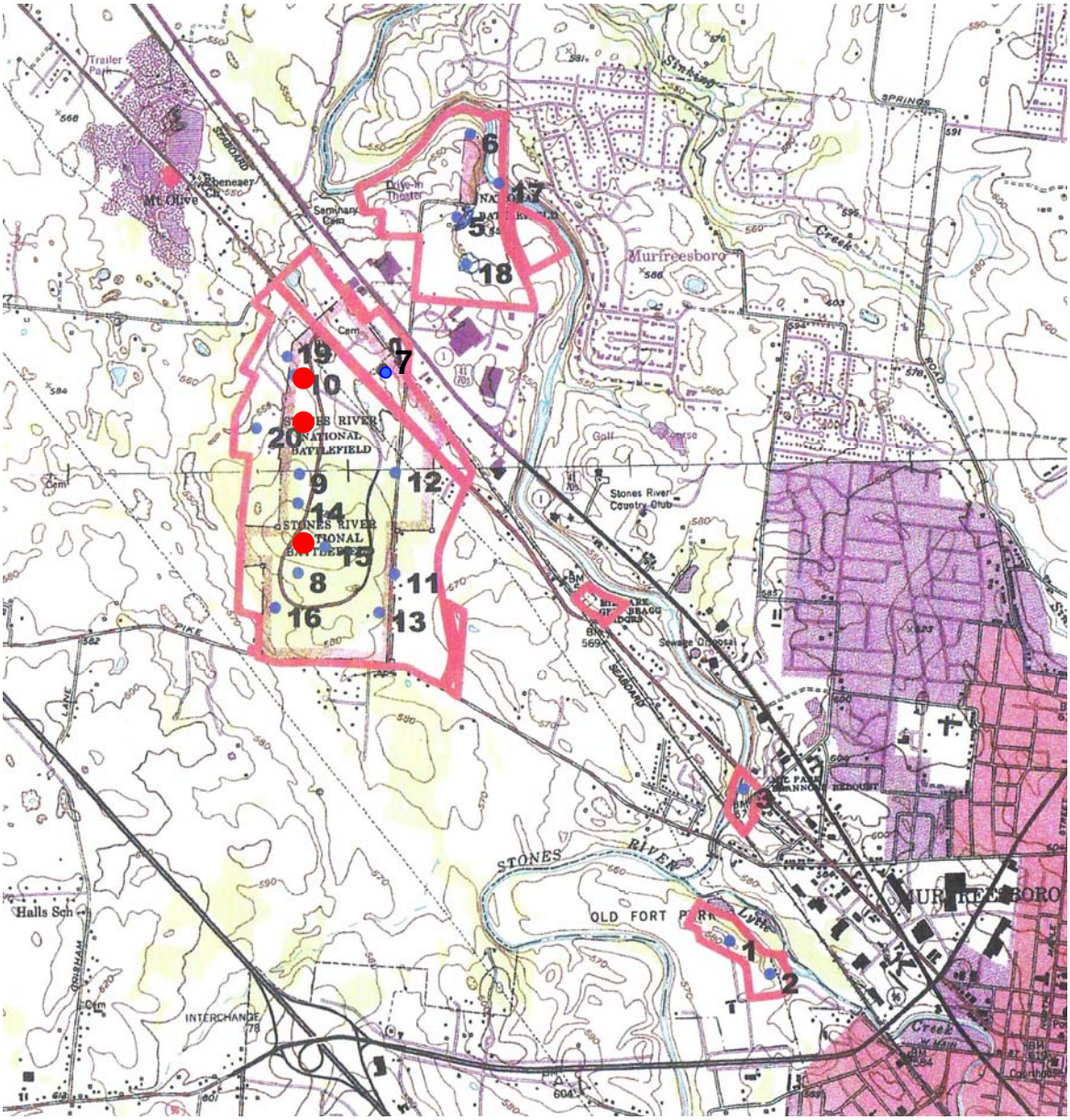

Plot locations
Boundary
Bait camera sites
N

Figure 6. Map of selected locations used in a study of bats at Stones River National Battlefield in Rutherford County, Tennessee, during 2004-2006.

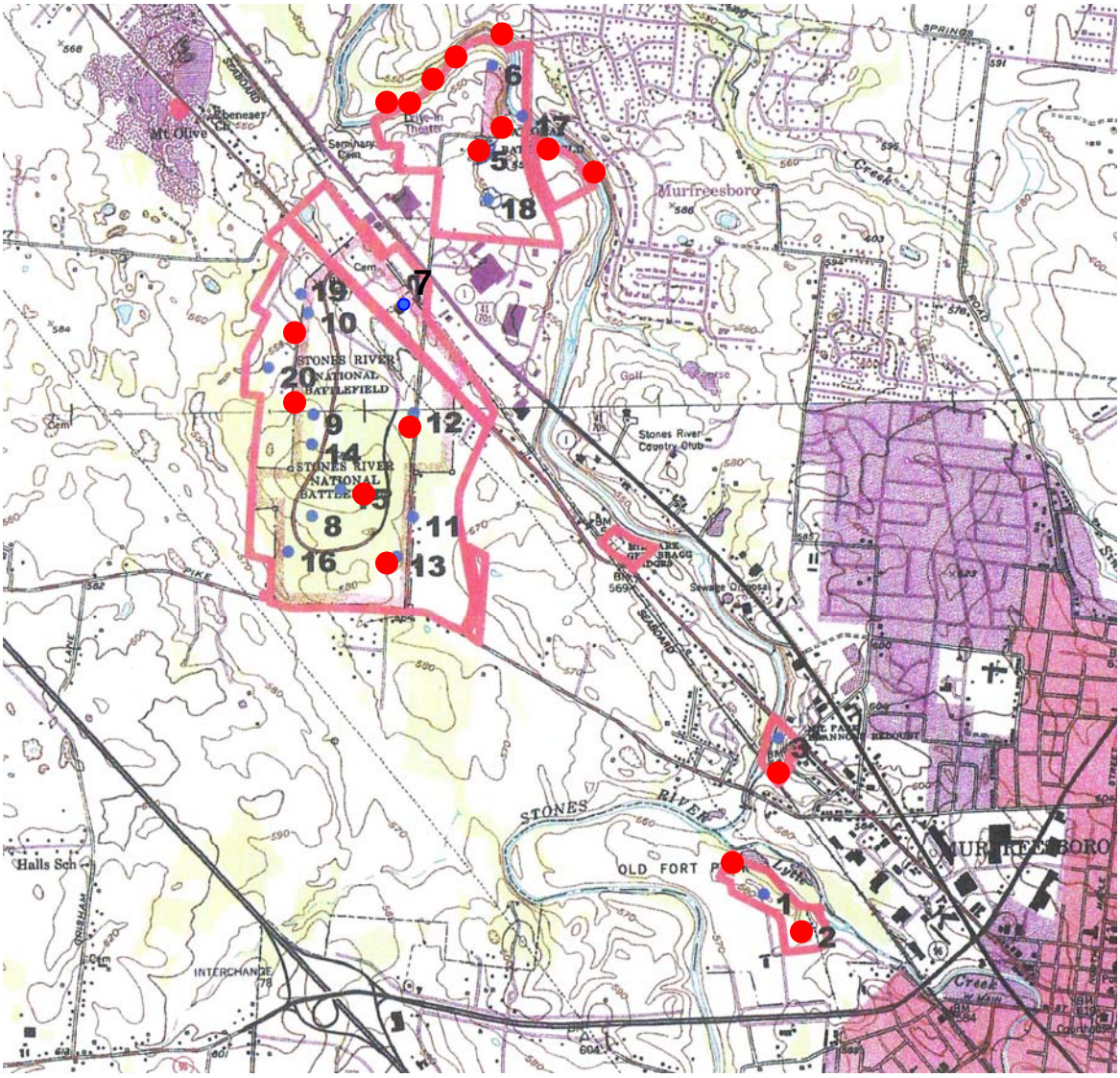
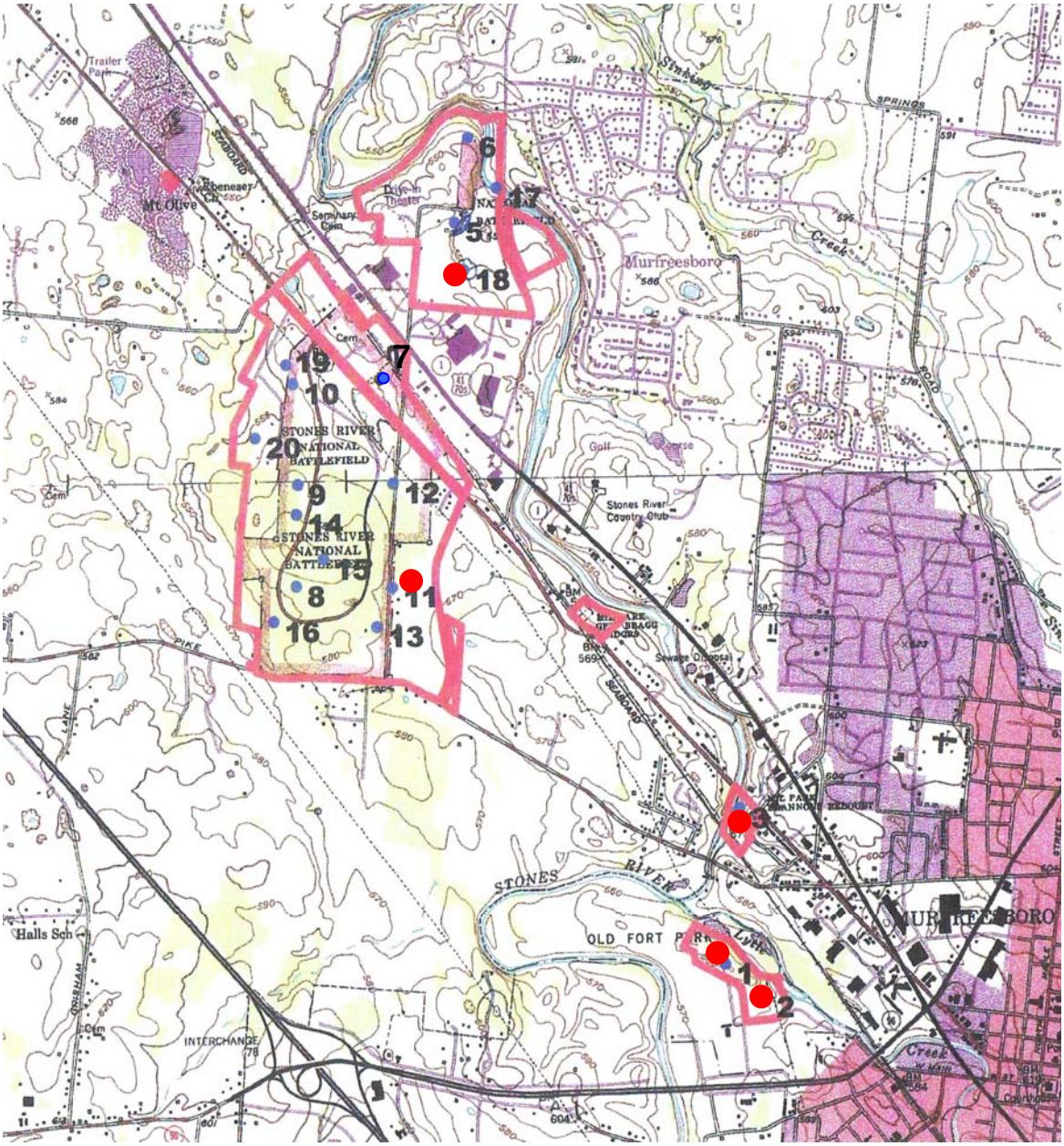

Murfreesboro
STONES RIVER NATIONAL BATTLEFIELD
STONES RIVER
OLD FORT
Halls Sch
INTERCHANGE 78
Stones River Country Club
Mt Olive
Seminary Cem
1
2
3
4
5
6
7
8
9
10
11
12
13
14
16
18
19
20
N
Plot locations
Boundary
Trapping sites (using bat mist nets)

Figure 7. Map of selected locations used in a study of mammals using scent-station procedures at Stones River National Battlefield in Rutherford County, Tennessee, during 2004-2006.



● Plot locations

Boundary

N

Tables

Table 1. Checklist of mammals with a potential for occurring at Stones River National Battlefield. Species marked with an asterisk were considered to have a relatively high probability for occurrence (species not marked a low probability for occurrence).

Scientific Name	Common Name	Scientific Name	Common Name
*Didelphis virginiana**	Virginia Opossum	*Oryzomys palustris*	Marsh Rice Rat
Sorex cinereus	Masked Shrew	*Reithrodontomys humulis**	Eastern Harvest Mouse
*Sorex longirostris**	Southeastern Shrew	*Peromyscus maniculatus**	Deer Mouse
Sorex fumeus	Smoky Shrew	*Peromyscus leucopus**	White-footed Mouse
Sorex hoyi	Pygmy Shrew	*Peromyscus gossypinus*	Cotton Mouse
*Blarina brevicauda**	Northern Short-tailed Shrew	*Ochrotomys nuttalli*	Golden Mouse
*Cryptotis parva**	Least Shrew	*Sigmodon hispidus*	Hispid Cotton Rat
*Scalopus aquaticus**	Eastern Mole	*Neotoma magister*	Allegheny Woodrat
Myotis lucifugus	Little Brown Bat	*Microtus ochrogaster**	Prairie Vole
Myotis grisescens	Gray Bat	*Microtus pinetorum**	Woodland Vole
Myotis septentrionalis	Northern Long-eared Myotis	*Ondatra zibethicus**	Muskrat
Myotis sodalis	Indiana Myotis	*Synaptomys cooperi*	Southern Bog Lemming
Myotis leibii	Small-footed Myotis	*Rattus rattus*	Black Rat
Lasionycteris noctivagans	Silver-haired Bat	*Rattus norvegicus*	Norway Rat
*Pipistrellus subflavus**	Eastern Pipistrelle	*Mus musculus**	House Mouse
Eptesicus fuscus	Big Brown Bat	*Zapus hudsonius*	Meadow Jumping Mouse
*Lasiurus borealis**	Red Bat	*Canis familiaris**	Domestic Dog
Lasiurus cinereus	Hoary Bat	*Canis latrans**	Coyote
*Nycteceius humeralis**	Evening Bat	*Vulpes vulpes**	Red Fox
*Sylvilagus floridanus**	Eastern Cottontail	*Urocyon cinereoargenteus*	Gray Fox
Sylvilagus aquaticus	Swamp Rabbit	*Mephitis mephitis**	Striped Skunk
Tamias striatus	Eastern Chipmunk	*Dasypus novemcinctus*	Nine-banded Armadillo
*Marmota monax**	Woodchuck	*Procyon lotor**	Raccoon
*Sciurus carolinensis**	Eastern Gray Squirrel	*Mustela frenata*	Long-tailed Weasel
Sciurus niger	Fox Squirrel	*Mustela vison**	Mink
Glaucomys volans	Southern Flying Squirrel	*Lontra canadensis**	River Otter
Castor canadensis	Beaver	*Felis catus**	Feral Cat
		Lynx rufus	Bobcat
		*Odocoileus virginianus**	White-tailed Deer

Table 2. Mammals captured or identified (with some form of documentation) in a survey of mammals at Stones River National Battlefield during 2004-2006. Letter abbreviations* refer to abundance rankings: A = abundant; C = common; UC = uncommon; R = rare.

Scientific Name	Common Name	Documentation	
Didelphis virginiana	Virginia Opossum	Photo of species and track	C
Sorex longirostris	Southeastern Shrew	Specimen collected	R
Blarina brevicauda	Northern Short-tailed Shrew	Specimen collected	UC
Cryptotis parva	Least Shrew	Specimen collected	R
Scalopus aquaticus	Eastern Mole	Photo of mole runs	C
Pipistrellus subflavus	Eastern Pipistrelle	Photo of species	UC
Lasiurus borealis	Red Bat	Photo of species	C
Sylvilagus floridanus	Eastern Cottontail	Photo of species	C
Marmota monax	Woodchuck	Photo of den; lower jaw found and collected	C
Sciurus carolinensis	Eastern Gray Squirrel	Photo of species	A
Reithrodontomys humulis	Eastern Harvest Mouse	Specimen examined	UC
Peromyscus maniculatus	Deer Mouse	Specimen collected	UC
Peromyscus leucopus	White-footed Mouse	Photo of species	A
Microtus ochrogaster	Prairie Vole	Photo of species	C
Ondatra zibethicus	Muskrat	Photo of scat	R
Mus musculus	House Mouse	Specimen collected	A
Canis familiaris	Domestic Dog	Photo of species	UC
Canis latrans	Coyote	Photo of species	C
Vulpes vulpes	Red Fox	Skull collected	UC
Procyon lotor	Raccoon	Photo of track	A
Mustela vison	Mink	Photo from STRI files	R
Lontra canadensis	River Otter	Photo of scat	R
Mephitis mephitis	Striped Skunk	Photo of track ; skull collected	C
Felis catus	Feral Cat	Photo of species	UC
Odocoileus virginianus	White-tailed Deer	Photo of species	C

*Abundant: Species may be seen daily, in suitable habitat and season, and counted in relatively large numbers.

Common: Species may be seen daily, in suitable habitat and season, but not counted in large numbers.

Uncommon: Species likely to be seen monthly in appropriate season and habitat and may be locally common.

Rare: Species present but usually seen only a few times each year.

Table 3. Data for small mammal collected using Sherman live traps at Stones River National Battlefield during 2004–2006.

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
080304	*D. virginiana*				N 35°52.982', W 86°26.004'	*
120704	*R. humulis*	Edge	F	10	N 35°53.317', W 86°25.632'	*
120704	*R. humulis*	Edge	M	9	N 35°53.317', W 86°25.632'	*
120804	*R. humulis*	Field	F	13	N 35°52.812', W 86°26.171'	*
120804	*R. humulis*	Field	F	13	N 35°52.812', W 86°26.171'	*
052505	*R. humulis*		F		N 35°53.234', W 86°25.601'	5
120704	*P. maniculatus*	Edge	F	20	N 35°53.176', W 86°25.627'	*
120804	*P. maniculatus*+	Edge	M	21	N 35°52.815', W 86°26.193'	*
052004	*P. leucopus*		M	14	N 35°52.209', W 86°25.844'	11
052104	*P. leucopus*	Edge	F	29	N 35°52.773', W 86°26.185''	10
052104	*P. leucopus*		M	21	N 35°52.203', W 86°25.838'	*
052104	*P. leucopus*	Forest	F	25	N 35°52.203', W 86°25.838'	11
052104	*P. leucopus*	Edge	F	32	N 35°52.773', W 86°26.185'	*
052204	*P. leucopus*	Field	M	20	N 35°53.112', W 86°25.595'	18
052204	*P. leucopus*	Forest	M	21	N 35°52.115', W 86°26.244'	16
052204	*P. leucopus*	Forest	F	28	N 35°52.115', W 86°26.246'	16
052204	*P. leucopus*	Forest	M	25	N 35°52.213', W 86°25.835'	11
052204	*P. leucopus*	Edge	M	25	N 35°52.748', W 86°26.178'	10
052204	*P. leucopus*	Forest	M	18	N 35°52.130', W 86°26.260'	*
052204	*P. leucopus*	Forest	M	22	N 35°52.210', W 86°25.836'	*
052204	*P. leucopus*	Field	M	20	N 35°53.112', W 86°25.595'	*

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
052204	*P. leucopus*	Forrest	M	21	N 35°52.115' W 86°26.244'	*
052204	*P. leucopus*	Forest	F	28	N35°52.115' W 86°25.246'	*
052204	*P. leucopus*	Forest	M	25	N 35°52.213' W 86°25.835'	*
052204	*P. leucopus*	Edge	M	25	N 35°52.748' W 86°26.176'	*
052304	*P. leucopus*	Forest	M	18	N 35°52.130' W 86°26.260'	16
052304	*P. leucopus*	Forest	M	22	N 35°52.210' W 86°25.836'	11
052304	*P. leucopus*	Forest	M	20	N 35°52.491' W 86°25.895'	12
052304	*P. leucopus*	Forest	M	20	N 35°52.491' W 86°25.895'	*
052404	*P. leucopus*	Field	F	24	N 35°53.105' W 86°25.602'	18
052404	*P. leucopus*	Field	M	30	N 35°53.290' W 86°25.479'	17
052404	*P. leucopus*	Edge	M	22	N 35°53.434' W 86°25.558'	6
052404	*P. leucopus*	Field	F	24	N 35°53.105' W 86°25.602'	*
052404	*P. leucopus*	Field	M	30	N 35°53.280' W 86°25.478'	*
052404	*P. leucopus*	Edge	M	22	N 35°53.434' W 86°25.558'	*
061104	*P. leucopus*	Edge	F	24	N 35°51.522' W86°24.607'	*
061104	*P. leucopus*	Edge	M	20	N 35°51.522' W 86°24.613'	3
061104	*P. leucopus*	Edge	M	20	N 35°51.522' W 86°24.613'	*
061104	*P. leucopus*	Edge	F	24	N 35°51.522' W 86°24.607'	3
061204	*P. leucopus*	Edge	M	21	N 35°51.520' W 86°24.609'	3
061204	*P. leucopus*	Edge	M	21	N 35°51.520' W 86°24.609'	*
071004	*P. leucopus*	Field	F	20	N 35°53.083' W 86°25.641'	18
071004	*P. leucopus*	Edge	F	20	N 35°53.083' W 86°25.641'	*

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
071404	*P. leucopus*	Field	F	23	N 35°51.540', W 86°24.579'	3
071404	*P. leucopus*	Edge	M	22	N 35°51.515', W 86°24.562'	3
071404	*P. leucopus*	Edge	M	20	N 35°51.515', W 86°24.543'	3
071404	*P. leucopus*	Edge	M	23	N 35°52.153', W 86°25.970'	13
071404	*P. leucopus*	Field	M	30	N 35°52.147', W 86°25.971'	*
071404	*P. leucopus*	Field			N 35°51.540', W 86°24.579'	*
071404	*P. leucopus*	Edge	M	22	N 35°51.515', W 86°24.562'	*
071404	*P. leucopus*	Edge	M	20	N 35°51.515', W 86°24.543'	*
071404	*P. leucopus*		M	23	N 35°52.153', W 87°25.276'	*
071504	*P. leucopus*	Field	M	30	N 35°52.147', W 86°25.971'	13
071704	*P. leucopus*	Edge	M	20	N 35°52.153', W 86°25.970'	13
080304	*P. leucopus*	Edge	M	25	N 35°52.141', W 86°25.968'	13
080304	*P. leucopus*	Edge			N 35°52.142', W 86°25.965'	13
080304	*P. leucopus*	Edge	F		N 35°52.143', W 86°25.865'	*
080304	*P. leucopus*	Forest	F	20	N 35°52.556', W 86°25.882'	12
080304	*P. leucopus*	Edge	M	20	N 35°52.565', W 86°25.838'	*
080304	*P. leucopus*	Edge	M	25	N 35°52.141', W 86°25.968'	*
080304	*P. leucopus*	Edge			N 35°52.142', W 86°25.965'	*
080304	*P. leucopus*	Edge	F		N 35°52.143', W 86°25.865'	*
080304	*P. leucopus*	Forest	F	20	N 35°52.556', W 86°25.882'	*
080304	*P. leucopus*	Edge			N 35°52.565', W 86°25.838'	*
080404	*P. leucopus*	Edge	F	16	N 35°52.320', W 86°26.095'	*

Table 3. Continued

Date	Species	Habitat Type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
080404	*P. leucopus*	Edge			N 35°52.097' W 86°25.990'	*
080404	*P. leucopus*	Forest	M		N 35°52.538' W 86°25.871'	12
080404	*P. leucopus*		F	16	N 35°52.320' W 86°26.095'	15
080404	*P. leucopus*	Edge			N 35°52.097' W 86°25.990'	*
080404	*P. leucopus*	Forest	M		N 35°52.538' W 86°25.871'	*
080504	*P. leucopus*	Forest	M	22	N 35°52.547' W 86°25.880'	12
080504	*P. leucopus*	Edge	M	20	N 35°52.551' W 86°25.884'	12
080504	*P. leucopus*	Edge	F	16	N 35°52.150' W 86°25.969'	*
080504	*P. leucopus*	Edge	M	20	N 35°52.150' W 86°25.969'	*
080504	*P. leucopus*	Forest	F	20	N 35°52.321' W 86°26.150'	15
080504	*P. leucopus*	Edge	F	16	N 35°52.153' W 86°25.970'	*
080504	*P. leucopus*	Edge	M	20	N 35°52.150' W 86°25.969'	*
080504	*P. leucopus*	Forest	M	22	N 35°52.547' W 86°25.880'	*
080504	*P. leucopus*	Edge	M	20	N 35°52.551' W 86°25.884'	*
120704	*P. leucopus*	Edge	F	20	N 35°53.176' W 86°25.627'	*
120704	*P. leucopus*+	Edge	F	12	N 35°53.176' W 86°25.627'	*
120704	*P. leucopus*	Edge	M	8	N 35°53.176' W 86°25.627'	*
120704	*P. leucopus*	Edge	M	20	N 35°53.317' W 86°25.632'	*
120704	*P. leucopus*	Edge	M	22	N 35°53.317' W 86°25.632'	*
120704	*P. leucopus*	Edge	M	22	N 35°53.317' W 86°25.632'	*
120704	*P. leucopus*		F	12	N 35°52.815' W 86°26.193'	*
120704	*P. leucopus*	Edge	M	24	N 35°52.815' W 86°26.193'	*

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
120704	*P. leucopus*		F	20	N 35°52.815' W 86°26.193'	*
120704	*P. leucopus*		F	20	N 35°52.815' W 86°26.193'	*
120704	*P. leucopus*		F	22	N 35°52.815' W 86°26.193'	*
120704	*P. leucopus*		F	14	N 35°52.815' W 86°26.193'	*
120704	*P. leucopus*	Forest	F		N 35°52.437' W 86°25.835'	*
120704	*P. leucopus*	Forest	F	21	N 35°52.437' W 86°25.835'	*
120704	*P. leucopus*	Field	F	20	N 35°52.151' W 86°26.000'	*
120704	*P. leucopus*	Edge	M	20	N 35°53.317' W 86°25.632'	*
120704	*P. leucopus*	Edge	F	20	N 35°53.176' W 86°25.627'	*
120704	*P. leucopus*	Edge			N 35°53.176' W 86°25.627'	*
120704	*P. leucopus*	Field	F	20	N 35°52.151' W 86°26.000'	*
120704	*P. leucopus*	Field	F	10	N 35°52.151' W 86°26.000'	*
120704	*P. leucopus*	Forest	M		N 35°52.437' W 86°25.835'	*
120704	*P. leucopus*	Forest	M		N 35°52.437' W 86°25.835'	*
120704	*P. leucopus*	Forest	F	27	N 35°52.547' W 86°25.874'	*
120704	*P. leucopus*	Forest	F	17	N 35°52.547' W 86°25.874'	*
120704	*P. leucopus*	Forest	F	26	N 35°52.547' W 86°25.874'	*
120704	*P. leucopus*	Field	F	22	N 35°52.115' W 86°26.246'	*
120704	*P. leucopus*	Forest	F	25	N 35°52.547' W 86°25.874'	*
120704	*P. leucopus*	Edge	M	21	N 35°53.176' W 86°25.627'	*
120704	*P. leucopus*	Edge	M	20	N 35°53.176' W 86°25.627'	*
120704	*P. leucopus*	Edge	F	20	N 35°53.176' W 86°25.627'	*

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
120704	*P. leucopus*	Edge	F	25	N 35°53.317' W 86°25.632'	*
120704	*P. leucopus*	Field	F	20	N 35°52.151' W 86°26.000'	*
120804	*P. leucopus*	Edge	M	22	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	M	20	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	F	20	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	F	21	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	F	14	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*+	Edge	F	18	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	F	20	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	F	12	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	F	12	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Edge	F	10	N 35°52.815' W 86°26.193'	*
120804	*P. leucopus*	Forest	M	24	N 35°52.437' W 86°25.835'	*
120804	*P. leucopus*	Forest	M	22	N 35°52.437' W 86°25.835'	*
120804	*P. leucopus*	Forest	F	22	N 35°52.437' W 86°25.835'	*
120804	*P. leucopus*	Forest	F	24	N 35°52.437' W 86°25.835'	*
120804	*P. leucopus*+	Forest	M	22	N 35°52.524' W 86°25.849'	*
120804	*P. leucopus*	Field	F	30	N 35°52.151' W 86°26.000'	*
120804	*P. leucopus*	Field	F	18	N 35°52.151' W 86°26.000'	*
052505	*P. leucopus*	Field	M		N 35°51.023' W 86°24.529'	2
052505	*P. leucopus*	Field	M		N 35°51.023' W 86°24.529'	2
052505	*P. leucopus*	Field	M		N 35°51.023' W 86°24.529'	2

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
052505	*P. leucopus*	Field	F		N 35°52.207' W 86°26.187'	8
052505	*P. leucopus*	Field	M		N 35°52.207' W 86°26.187'	8
052505	*P. leucopus*	Field	F		N 35°52.495' W 86°26.176'	9
052505	*P. leucopus*	Field	F		N 35°52.783' W 86°26.188'	10
052505	*P. leucopus*	Field	M		N 35°52.795' W 86°25.880'	7
052505	*P. leucopus*	Forest	F		N 35°52.410' W 86°26.183'	14
052505	*P. leucopus*	Forest	M		N 35°52.410' W 86°26.183'	14
052505	*P. leucopus*	Forest	M		N 35°52.090' W 86°25.902'	13
052505	*P. leucopus*	Forest	F		N 35°52.494' W 86°25.837'	12
052505	*P. leucopus*		M		N 35°52.282' W 86°26.088'	15
052505	*P. leucopus*		F		N 35°52.282' W 86°26.088'	15
052505	*P. leucopus*		M		N 35°52.282' W 86°26.088'	15
052505	*P. leucopus*	Field	F		N 35°51.558' W 86°24.612'	3
052505	*P. leucopus*	Field	M		N 35°51.558' W 86°24.612'	3
052605	*P. leucopus*		F		N 35°51.119' W 86°24.670'	1
052605	*P. leucopus*		M		N 35°51.119' W 86°24.670'	1
052605	*P. leucopus*		M		N 35°51.023' W 86°24.529'	2
052605	*P. leucopus*		M		N 35°51.023' W 86°24.529'	2
052605	*P. leucopus*		F		N 35°51.023' W 86°24.529'	2
052605	*P. leucopus*		F		N 35°53.476' W 86°25.550'	6
052605	*P. leucopus*		M		N 35°52.795' W 86°25.880'	7
052605	*P. leucopus*		F		N 35°52.795' W 86°25.880'	7

Table 3. Continued						
Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
052605	*P. leucopus*		F		N 35°52.795', W 86°25.880'	7
052605	*P. leucopus*		F		N 35°52.207', W 86°26.187'	8
052605	*P. leucopus*		M		N 35°52.207', W 86°26.187'	8
052605	*P. leucopus*		M		N 35°52.108', W 86°26.270'	16
052605	*P. leucopus*		F		N 35°53.096', W 86°25.571'	18
052605	*P. leucopus*		F		N 35°52.837', W 86°26.211'	19
052605	*P. leucopus*		F		N 35°52.631', W 86°26.328'	20
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*
052605	*P. leucopus*				N 35°53.830', W 86°25.613'	*

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
071705	*P. leucopus*+		M	19	N 35°52.410', W 86°26.183'	14
062206	*P. leucopus*	Forest	M	22	N 35°52.624', W 86°25.682'	*
062206	*P. leucopus*	Forest	F	21	N 35°52.624', W 86°25.682'	*
062206	*P. leucopus*	Forest	M	15	N 35°52.571', W 86°25.621'	*
062206	*P. leucopus*	Field	M	17	N 35°51.534', W 86°24.630'	*
062206	*P. leucopus*	Field	M	18.5	N 35°51.534', W 86°24.630'	*
062206	*P. leucopus*	Field	M	19	N 35°51.534', W 86°24.630'	*
062206	*P. leucopus*	Edge	M	10	N 35°51.143', W 86°24.606'	*
062306	*P. leucopus*	Edge	M	24	N 35°52.624', W 86°25.682'	*
062306	*P. leucopus*	Edge	M	18	N 35°52.624', W 86°25.682'	*
062306	*P. leucopus*	Edge	M	19	N 35°52.624', W 86°25.682'	*
062306	*P. leucopus*	Field	F	18	N 35°51.534', W 86°24.630'	*
062306	*P. leucopus*	Field	F	13	N 35°51.534', W 86°24.630'	*
062306	*P. leucopus*	Field	F	11	N 35°51.534', W 86°24.630'	*
062306	*P. leucopus*	Field	M	15	N 35°51.143', W 86°24.606'	*
062406	*P. leucopus*	Field	F	30	N 35°51.504', W 86°24.603'	*
062406	*P. leucopus*	Field	M	26	N 35°51.504', W 86°24.603'	*
062406	*P. leucopus*	Edge	M	11	N 35°51.022', W 86°24.491'	*
062406	*P. leucopus*	Edge	M	20	N 35°51.022', W 86°24.491'	*
052404	*M. ochrogaster*	Edge	M	25	N 35°53.478', W 86°25.573'	6
052404	*M. ochrogaster*	Edge	M	25	N 35°53.478', W 86°25.573'	*
071404	*M. ochrogaster*+	Field	M	35	N 35°52.153', W 86°25.970'	13

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
071404	*M. ochrogaster*	Field	M	25	N 35°51.515' W 86°24.543'	3
071404	*M. ochrogaster*	Field	M	25	N 35°51.575' W 86°24.543'	*
071704	*M. ochrogaster*	Field	F	22	N 35°52.153' W 86°25.970'	13
080304	*M. ochrogaster*	Field	M	30	N 35°52.551' W 86°25.879'	12
080304	*M. ochrogaster*	Field	M	30	N 35°52.551' W 86°25.879'	*
080404	*M. ochrogaster*	Field	M		N 35°52.102' W 86°25.982'	*
080404	*M. ochrogaster*		M		N 35°52.102' W 86°25.882'	*
080504	*M. ochrogaster*	Edge	F	40	N 35°52.150' W 86°25.969'	*
080504	*M. ochrogaster*	Edge	M	40	N 35°52.150' W 86°25.969'	*
080504	*M. ochrogaster*	Field		40	N 35°52.150' W 86°25.969'	*
080504	*M. ochrogaster*	Edge	F	40	N 35°52.153' W 86°25.970'	*
080504	*M. ochrogaster*	Edge	M	40	N 35°52.153' W 86°25.970'	*
080504	*M. ochrogaster*			40	N 35°52.153' W 86°25.970'	*
120704	*M. ochrogaster*	Field	M	35	N 35°52.151' W 86°26.000'	*
120704	*M. ochrogaster*	Field	M	26	N 35°52.115' W 86°26.246'	*
120704	*M. ochrogaster*	Field	F	40	N 35°52.151' W 86°26.000'	*
120704	*M. ochrogaster*	Edge	F	30	N 35°53.317' W 86°25.632'	*
120704	*M. ochrogaster*	Field	F	46	N 35°52.798' W 86°26.170'	*
120804	*M. ochrogaster*	Edge	F	40	N 35°52.815' W 86°26.193'	*
120804	*M. ochrogaster*	Edge	M	27	N 35°52.815' W 86°26.193'	*
120804	*M. ochrogaster*	Field	F	27	N 35°52.812' W 86°26.171'	*
120804	*M. ochrogaster*	Field	M	35	N 35°52.812' W 86°26.171'	*

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
120804	*M. ochrogaster*	Field	M	39	N 35°52.812' W 86°26.171'	*
120804	*M. ochrogaster*	Field	F	50	N 35°52.812' W 86°26.171'	*
120804	*M. ochrogaster*	Field	M	37	N 35°52.812' W 86°26.171'	*
120804	*M. ochrogaster*	Field	M	34	N 35°52.151' W 86°26.000'	*
052505	*M. ochrogaster*	Field	F		N 35°51.119' W 86°24.670'	1
052505	*M. ochrogaster*	Field	F		N 35°51.119' W 86°24.670'	1
052505	*M. ochrogaster*	Field	F		N 35°51.558' W 86°24.612'	3
052505	*M. ochrogaster*	Field	M		N 35°52.200' W 86°25.846'	11
052505	*M. ochrogaster*	Field	M		N 35°52.200' W 86°25.846'	11
052505	*M. ochrogaster*		F		N 35°52.282' W 86°26.088'	15
052605	*M. ochrogaster*		M		N 35°51.023' W 86°24.529'	2
052605	*M. ochrogaster*		M		N 35°53.234' W 86°25.601'	5
052605	*M. ochrogaster*		F		N 35°52.200' W 86°25.846'	11
052605	*M. ochrogaster*		M		N 35°52.108' W 86°26.270'	16
052605	*M. ochrogaster*		M		N 35°52.108' W 86°26.270'	16
052605	*M. ochrogaster*				N 35°53.830' W 86°25.613'	*
052605	*M. ochrogaster*				N 35°53.830' W 86°25.613'	*
052605	*M. ochrogaster*				N 35°53.830' W 86°25.613'	*
052605	*M. ochrogaster*				N 35°53.830' W 86°25.613'	*
052605	*M. ochrogaster*				N 35°53.830' W 86°25.613'	*
062206	*M. ochrogaster*	Edge	M	8	N 35°51.143' W 86°24.606'	*
062406	*M. ochrogaster*		M	14	N 35°51.022' W 86°24.491'	*

Table 3. Continued						
Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
062406	*M. ochrogaster*		F	29	N 35°51.022' W 86°24.491'	*
071404	*M. musculus*	Field	M	20	N 35°51.515' W 86°24.543'	3
071404	*M. musculus*	Field	M	18	N 35°51.540' W 86°24.579'	*
071404	*M. musculus*	Field	M	20	N 35°51.515' W 86°24.543'	*
071504	*M. musculus*	Field	M	18	N 35°51.540' W 86°24.579'	3
120704	*M. musculus*+	Edge	F	21	N 35°53.176' W 86°25.627'	*
120704	*M. musculus*	Edge	M	17	N 35°53.176' W 86°25.627'	*
120704	*M. musculus*+	Edge	F	22	N 35°53.176' W 86°25.627'	*
120704	*M. musculus*	Edge	F	10	N 35°53.176' W 86°25.627'	*
120704	*M. musculus*	Field	M	21	N 35°52.812' W 86°26.171'	*
120704	*M. musculus*	Edge	F	15.5	N 35°53.176' W 86°25.627'	*
120704	*M. musculus*	Edge	M	16	N 35°53.176' W 86°25.627'	*
120704	*M. musculus*	Edge		8	N 35°53.317' W 86°25.632'	*
120704	*M. musculus*	Edge	M	30	N 35°53.317' W 86°25.632'	*
120704	*M. musculus*	Edge	M	18	N 35°53.317' W 86°25.632'	*
120704	*M. musculus*	Edge	F	6	N 35°53.317' W 86°25.632'	*
120704	*M. musculus*	Field	M	15	N 35°52.151' W 86°26.000'	*
120704	*M. musculus*	Field	F	10	N 35°52.151' W 86°26.000'	*
120704	*M. musculus*		F	16	N 35°53.317' W 86°25.632'	*
120704	*M. musculus*	Edge	M	6	N 35°53.317' W 86°25.632'	*
120804	*M. musculus*	Field	F	20	N 35°52.151' W 86°26.000'	*
120804	*M. musculus*+	Field	F	22	N 35°52.812' W 86°26.171'	*

Table 3. Continued

Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
120804	*M. musculus*	Field	F	16	N 35°52.151', W 86°26.000'	*
120804	*M. musculus*	Edge	F	16	N 35°52.815', W 86°26.193'	*
052505	*M. musculus*	Field	M		N 35°51.023', W 86°24.529'	2
052505	*M. musculus*	Field	F		N 35°51.558', W 86°24.612'	3
052505	*M. musculus*	Field	M		N 35°51.558', W 86°24.612'	3
052505	*M. musculus*	Field	F		N 35°52.795', W 86°25.880'	7
052505	*M. musculus*	Field	F		N 35°52.795', W 86°25.880'	7
052505	*M. musculus*	Field	F		N 35°52.200', W 86°25.846'	11
052605	*M. musculus*		F		N 35°51.558', W 86°24.612'	3
052605	*M. musculus*		M		N 35°51.558', W 86°24.612'	3
052605	*M. musculus*		M		N 35°53.234', W 86°25.601'	5
052605	*M. musculus*		M		N 35°53.234', W 86°25.601'	5
052605	*M. musculus*		M		N 35°52.795', W 86°25.880'	7
052605	*M. musculus*		F		N 35°52.200', W 86°25.846'	11
052605	*M. musculus*		M		N 35°52.108', W 86°26.270'	16
052605	*M. musculus*		M		N 35°52.108', W 86°26.270'	16
052605	*M. musculus*				N 35°53.830', W 86°25.613'	*
052605	*M. musculus*				N 35°53.830', W 86°25.613'	*
052605	*M. musculus*				N 35°53.830', W 86°25.613'	*
052605	*M. musculus*				N 35°53.830', W 86°25.613'	*
052605	*M. musculus*				N 35°53.830', W 86°25.613'	*
052605	*M. musculus*				N 35°53.830', W 86°25.613'	*

Table 3. Continued						
Date	Species	Habitat type	Sex (M/F)	Weight (g)	GPS coordinates	Plot no.
052605	*M. musculus*				N 35°53.830', W 86°25.613'	*
062206	*M. musculus*	Field	F	11	N 35°51.534', W 86°24.630'	*
062206	*M. musculus*	Field	M	16	N 35°51.534', W 86°24.630'	*
062206	*M. musculus*	Field	F	20	N 35°51.534', W 86°24.630'	*
062206	*M. musculus*	Field	M	11	N 35°51.534', W 86°24.630'	*
062206	*M. musculus*		F	14	N 35°51.534', W 86°24.630'	*
062206	*M. musculus*		F	17	N 35°51.534', W 86°24.630'	*
062306	*M. musculus*		M	13	N 35°51.534', W 86°24.630'	*
062306	*M. musculus*		F	12	N 35°51.534', W 86°24.630'	*

Abbreviations of scientific names: *D. virginiana = Didelphis virginiana*; *R. humulis = Reithrodontomys humulis*; *P. leucopus = Peromyscus leucopus*; *M. ochrogaster = Microtus ochrogaster*; *M. musculus = Mus musculus.*

+Denotes voucher specimens.

*Individuals captured at selected sites that were different from randomly selected plots.

Table 4. Data[1] for small mammals collected using pitfall traps at Stones River National Battlefield during 2004-2006.

Date	Species	Habitat type	Sex (M/F)	Age** (A/J)	Weight (g)	GPS coordinates	Plot no. *
071705	*S. longirostris*		F	A	3		16
072205	*S. longirostris*		F	A			10
120704	*B. brevicauda*	Field		A	10	N 35°53.176' W 86°25.627'	*
072405	*B. brevicauda*		M	A	11		8
072405	*B. brevicauda*		F	A	13.5		8
072405	*B. brevicauda*		F	A	10.5		11
072405	*B. brevicauda*		F	A	11.5		13
072205	*B. brevicauda*			A			16
072405	*B. brevicauda*		F	A	10		16
072205	*C. parva*			A			14
071705	*C. parva*		M	A	3.5		14
071705	*C. parva*		F	A	5		18
072305	*C. parva*						18

[1]See Table 2 for explanation of scientific names; all specimens were taken as voucher material.

* Selected survey site

**A = adult; J = juvenile

Table 5. Data* for mammalian sampling at bait/camera stations at Stones River National Battlefield during 2004.

Camera #	GPS Coordinates	Species	Date
UM 1	N 35°52.394' W 86°26.219' Plot 14	*O. virginianus*	9 June 2004
		O. virginianus	10 June 2004
		O. virginianus	11 June 2004
		O. virginianus	13 June 2004
		S. carolinensis	14 June 2004
		O. virginianus	14 June 2004
		C. latrans	11 July 2004
		O. virginianus	11 July 2004
		O. virginianus	12 July 2004
		O. virginianus	13 July 2004
		O. virginianus	14 July 2004
		S. floridanus	14 June 2004
UM 2	N 35°52.212' W 86°26.190'		Malfunctioned, no data
UM 3	N 35°52.321' W 86°26.150' Plot 8	*O. virginianus*	11 June 2004
		O. virginianus	12 June 2004
		O. virginianus	13 June 2004
		O. virginianus	28 June 2004
		O. virginianus	2 July 2004
		O. virginianus	3 July 2004
		O. virginianus	4 July 2004
		O. virginianus	5 July 2004
		O. virginianus	6 July 2004
		O. virginianus	13 July 2004
		O. virginianus	14 July 2004
		O. virginianus	16 July 2004
		O. virginianus	17 July 2004
		O. virginianus	18 July 2004
		O. virginianus	19 July 2004
		C. latrans	11 July 2004

*See Table 2 for explanation of scientific names.

Table 6. Data* for bats collected using mist nets at Stones River National Battlefield during 2004-2006.

Date	Species	Sex	Age	GPS coordinates
052505	*P. subflavus*	M	A	N 35°53.340' W 86°25.433'
052505	*L. borealis*	M	A	N 35°53.340' W 86°25.433'
062206	*L. borealis*	F	A	N 35°51.254' W 86°24.638'

*See Table 2 for explanation of scientific names.

Table 7. Data* for mammalian species documented using scent stations at Stones River National Battlefield during 2005-2006.

Date	Species	GPS coordinates
062206	*D. virginiana*	N 35°51.180' W 86°24.549'
062206	*D. virginiana*	N 35°51.183' W 86°24.560'
062306	*D. virginiana*	N 35°51.095' W 86°24.536'
062206	*D. virginiana*	N 35°51.564' W 86°24.635'
062206	*D. virginiana*	N 35°52.225' W 86°25.814'
062206	*S. floridana*	N 35°53.088' W 86°25.569'
062206	*S. floridana*	N 35°51.090' W 86°24.550'
062206	*S. carolinensis*	N 35°51.254' W 86°24.638'
062306	*C. latrans*	N 35°51.095' W 86°24.536'
062106	*V. vulpes*	N 35°51.090' W 86°24.550'
062206	*P. lotor*	N 35°50.207' W 86°25.550'
062206	*P. lotor*	N 35°52.084' W 86°25.557'
062206	*P. lotor*	N 35°51.564' W 86°24.635'
062206	*P. lotor*	N 35°51.540' W 86°24.645'
062206	*P. lotor*	N 35°51.512' W 86°24.643'
062206	*P. lotor*	N 35°51.522' W 86°24.644'
062306	*P. lotor*	N 35°51.529' W 86°24.626'
072206	*P. lotor*	N 35°51.242' W 86°24.660'
062306	*P. lotor*	N 35°51.095' W 86°24.536'
062306	*P. lotor*	N 35°51.090' W 86°24.550'
062206	*M. mephitis*	N 35°51.242' W 86°24.660'

Table 7. Continued		
Date	Species	GPS coordinates
062106	*M. mephitis*	N 35°51.536' W 86°24.645'
062206	*M. mephitis*	N 35°51.074' W 86°24.503'
062306	*M. mephitis*	N 35°51.090' W 86°24.550'
062306	*F. catus*	N 35°51.090' W 86°24.550'

*See Table 2 for explanation of scientific names.

Table 8. Data for mammalian species documented through observation at Stones River National Battlefield.

Species	Form of Documentation	GPS Coordinates
Scalopus aquaticus	Mole run	N 35°52.832' W 86°26.145'
Scalopus aquaticus	Mole run	N 35°52.181' W 86°25.931'
Scalopus aquaticus	Mole run	N 35°52.582' W 86°25.665'
Scalopus aquaticus	Mole run	N 35°52.624' W 86°25.682'
Scalopus aquaticus	Mole run	N 35°52.575' W 86°25.666'
Scalopus aquaticus	Mole run	N 35°53.333' W 86°25.532'
Scalopus aquaticus	Mole run	N 35°52.848' W 86°26.134'
Marmota monax+	Lower jaw	N 35°53.433' W 86°25.530'
Marmota monax	Track and Burrow	N 35°53.433' W 86°25.530'
Marmota monax	Sight record	N 35°53.115' W 86°25.746'
Marmota monax	Sight record	N 35°51.116' W 86°24.719'
Blarina brevicauda+	Specimens (4) found dead	N 35°52.904' W 86°26.096'
Didelphis virginiana	Sight record	N 35°52.062' W 86°26.076'
Didelphis virginiana	Sight record	N 35°29.220' W 87°51.775'
Didelphis virginiana	Sight record	N 35°52.122' W 86°25.289'
Didelphis virginiana	Track record	N 35°52.482' W 86°25.902'
Didelphis virginiana	Sight record	N 35°52.118' W 86°26.077'
Sylvilagus floridanus	Sight record	N 35°52.728' W 86°26.099'
Sylvilagus floridanus	Sight record	N 35°52.890' W 86°26.145'
Sylvilagus floridanus	Sight record	N 35°53.115' W 86°25.746'
Sylvilagus floridanus	Sight record	N 35°52.912' W 86°26.117'

Table 8. Continued		
Species	Form of Documentation	GPS Coordinates
Sylvilagus floridanus	Sight record	N 35°51.515' W 86°24.552'
Sylvilagus floridanus	Sight record	N 35°51.247' W 86°24.789'
Sylvilagus floridanus	Sight record	N 35°51.133' W 86°24.590'
Sylvilagus floridanus	Sight record	N 35°53.325' W 86°25.580'
Sylvilagus floridanus	Sight record	N 35°52.631' W 86°25.925'
Sylvilagus floridanus	Sight record	N 35°53.278' W 86°25.703'
Sylvilagus floridanus	Sight record	N 35°53.168' W 86°25.735'
Sylvilagus floridanus	Sight record	N 35°53.115' W 86°25.746'
Sylvilagus floridanus	Sight record	N 35°53.270' W 86°25.728'
Sylvilagus floridanus	Sight record	N 35°52.263' W 86°25.919'
Sciurus carolinensis	Sight record	N 35°51.196' W 86°24.598'
Sciurus carolinensis	Sight record	N 35°51.170' W 86°24.705'
Sciurus carolinensis	Sight record	N 35°51.160' W 86°24.661'
Canis familiaris	Sight record	N 35°52.850' W 86°26.100'
Canis latrans	Tracks	N 35°52.294' W 86°26.146'
Vulpes vulpes+	Skull	N 35°51.090' W 86°24.550'
Procyon lotor	Track	N 35°50.207' W 86°25.550'
Procyon lotor	Track	N 35°51.522' W 86°24.644'
Procyon lotor	Sight record	N 35°53.110' W 86°25.546'
Mustela vison++	Photo from SRNB files	
Lontra canadensis	Scat pile	N 35°51.092' W 86°24.474'
Lontra canadensis	Scat pile	N 35°51.522' W 86°24.644'

Table 8. Continued		
Species	Form of Documentation	GPS Coordinates
Mephitis mephitis	Sight record	N 35°51.090' W 86°24.550'
Mephitis mephitis+	Skull	N 35°51.000' W 86°25.246'
Felis catus	Sight record	N 35°51.093' W 86°24.549'
Odocoileus virginianus	Sight record	N 35°52.122' W 86°25.989'
Odocoileus virginianus	Sight record	N 35°52.690' W 86°25.995'
Odocoileus virginianus	Track	N 35°52.482' W 86°25.902'
Odocoileus virginianus	Sight record	N 35°53.279' W 86°25.694'
Odocoileus virginianus	Sight record	N 35°52.571' W 86°25.621'
Odocoileus virginianus	Sight record	N 35°52.181' W 86°25.931'
Odocoileus virginianus	Sight record	N 35°53.255' W 86°25.655'
Odocoileus virginianus	Sight record	N 35°53.193' W 86°25.521'
Odocoileus virginianus	Sight record	N 35°53.340' W 86°25.433'
Odocoileus virginianus	Sight record	N 35°53.196' W 86°25.595'
Odocoileus virginianus	Sight record	N 35°52.725' W 86°26.071'
Odocoileus virginianus	Sight record	N 35°52.708' W 86°26.036'
Odocoileus virginianus	Sight record	N 35°52.708' W 86°26.036'
Odocoileus virginianus	Sight record	N 35°53.268' W 86°25.456'
Odocoileus virginianus	Sight record	N 35°53.115' W 86°25.746'
Odocoileus virginianus	Sight record	N 35°53.110' W 86°25.546'
Odocoileus virginianus	Sight record	N 35°53.278' W 86°25.703'
Odocoileus virginianus	Sight record	N 35°52.982' W 86°26.004'
Ondatra zibethicus	Scat	N 35°53.433' W 86°25.530'

+Voucher specimen. ++*Mustela vison* record from Fortress Rosecrans photo on 21 May 2003.

Appendix I. Plot sites used in an inventory of mammals at Stones River National Battlefield during 2004-2006.

A. Universe Transverse Mercator (UTM) Coordinates

Plot Number	X Coordinate	Y Coordinate
1	553,169	3,967,693.00
2	553,382	3,967,516.00
3	553,251	3,968,505.00
5	551,744	3,971,593.00
6	551,819	3,972,042.00
7	551,329	3,970,780.00
8	550,874	3,969,690.00
9	550,887	3,970,223.00
10	550,867	3,970,755.00
11	551,388	3,969,681.00
12	551,397	3,970,224.00
13	551,304	3,969,476.00
14	550,878	3,970,065.00
15	551,022	3,969,829.00
16	550,750	3,969,507.00
17	551,973	3,971,774.00
18	551,791	3,971,339.00
19	550,831	3,970,854.00
20	550,657	3,970,473.00

B. Latitude and Longitude

Plot Number	X Coordinate	Y Coordinate
1	N 35° 51.119’	W 86° 24.670’
2	N 35° 51.023’	W 86° 24.529’
3	N 35° 51.558’	W 86° 24.612’
5	N 35° 53.234’	W 86° 25.601’
6	N 35° 53.476’	W 86° 25.550’
7	N 35° 52.795’	W 86° 25.880’
8	N 35° 52.207’	W 86° 26.187’
9	N 35° 52.495’	W 86° 26.176’
10	N 35° 52.783’	W 86° 26.188’
11	N 35° 52.200’	W 86° 25.846’
12	N 35° 52.494’	W 86° 25.837’
13	N 35° 52.090’	W 86° 25.902’
14	N 35° 52.410’	W 86° 26.183’
15	N 35° 52.282’	W 86° 26.088’
16	N 35° 52.108’	W 86° 26.270’
17	N 35° 53.331’	W 86° 25.449’
18	N 35° 53.096’	W 86° 25.571’
19	N 35° 52.837’	W 86° 26.211’
20	N 35° 52.631’	W 86° 26.328’

Appendix II. Photo log for mammals surveyed at Stones River National Battlefield.

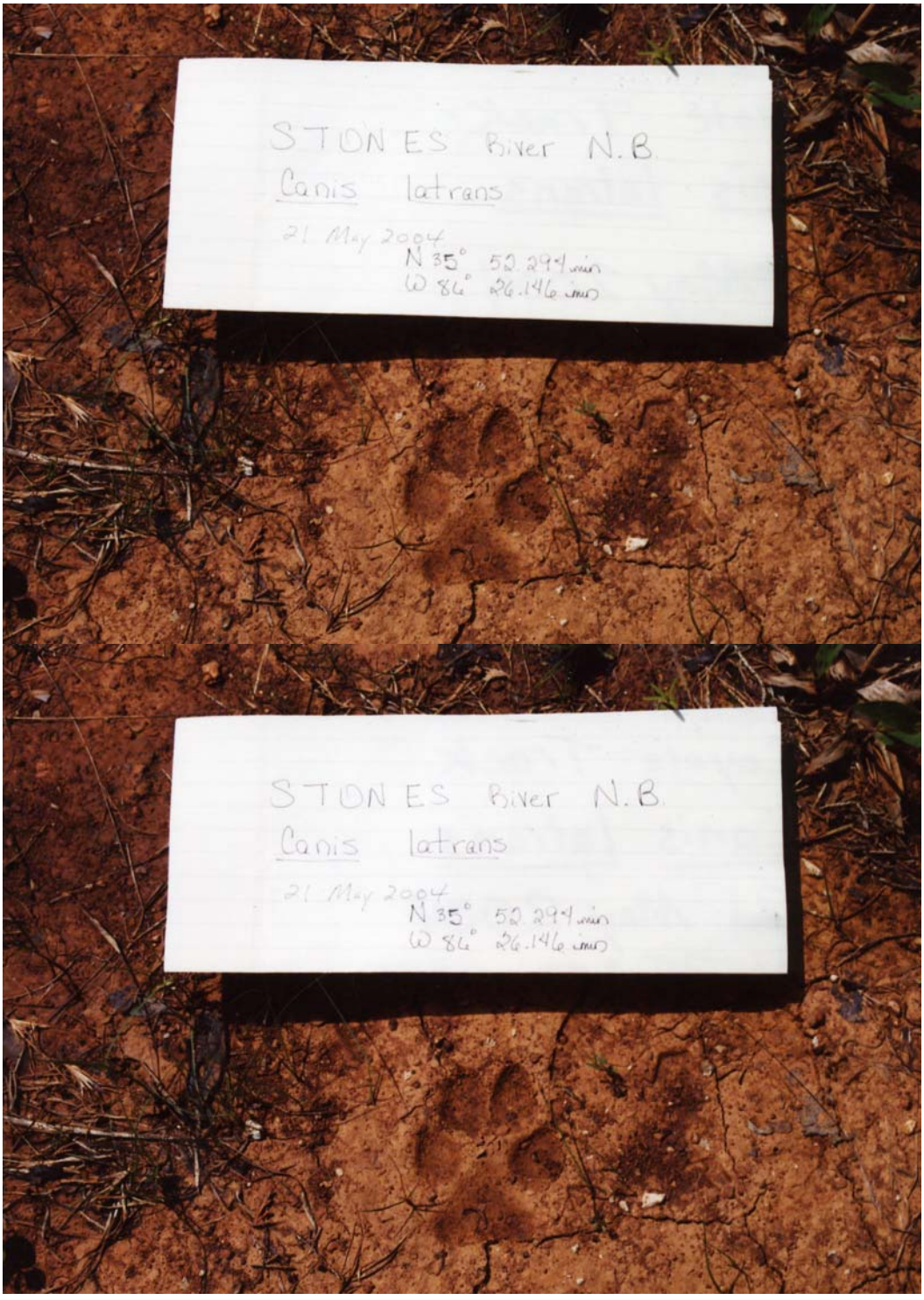


Canis familiaris 6/22/2006
N 35° 52.850’ W 86° 26.100’

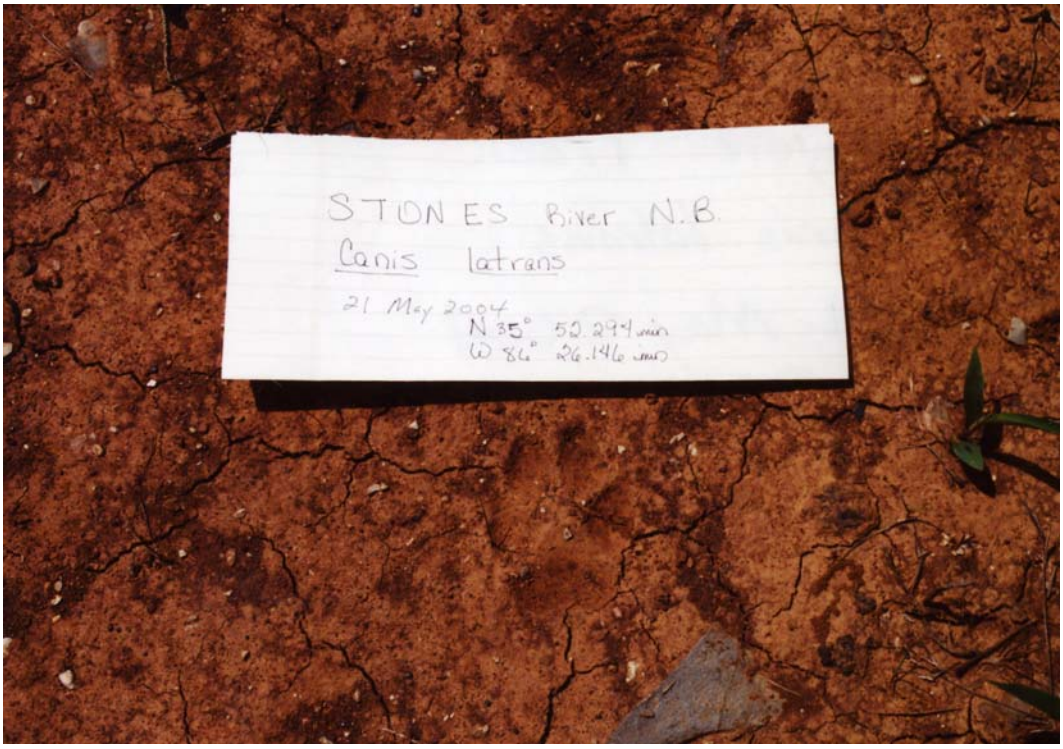




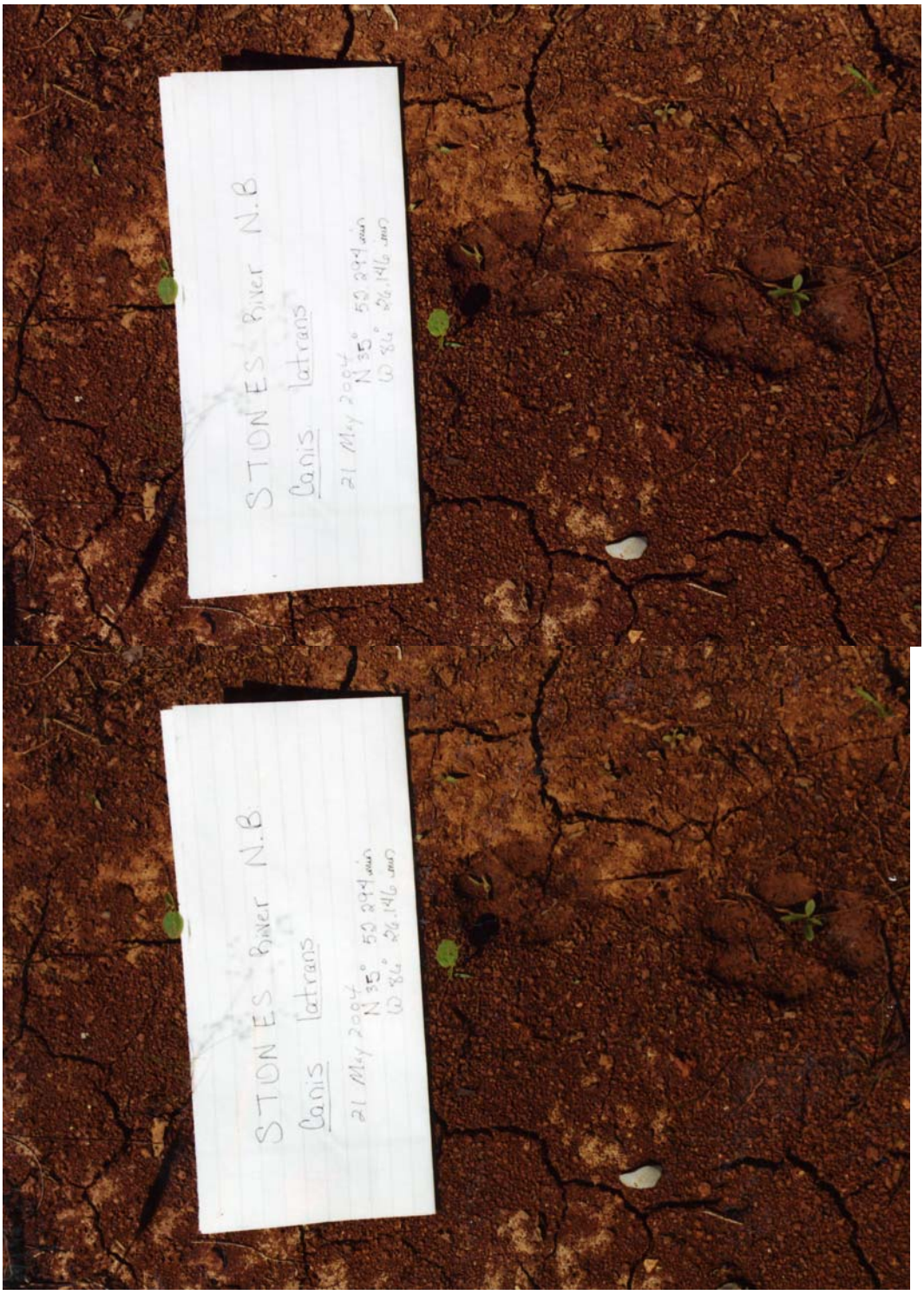
Canis latrans 5/21/2004
N 35° 52.294’ W 86° 26.146’



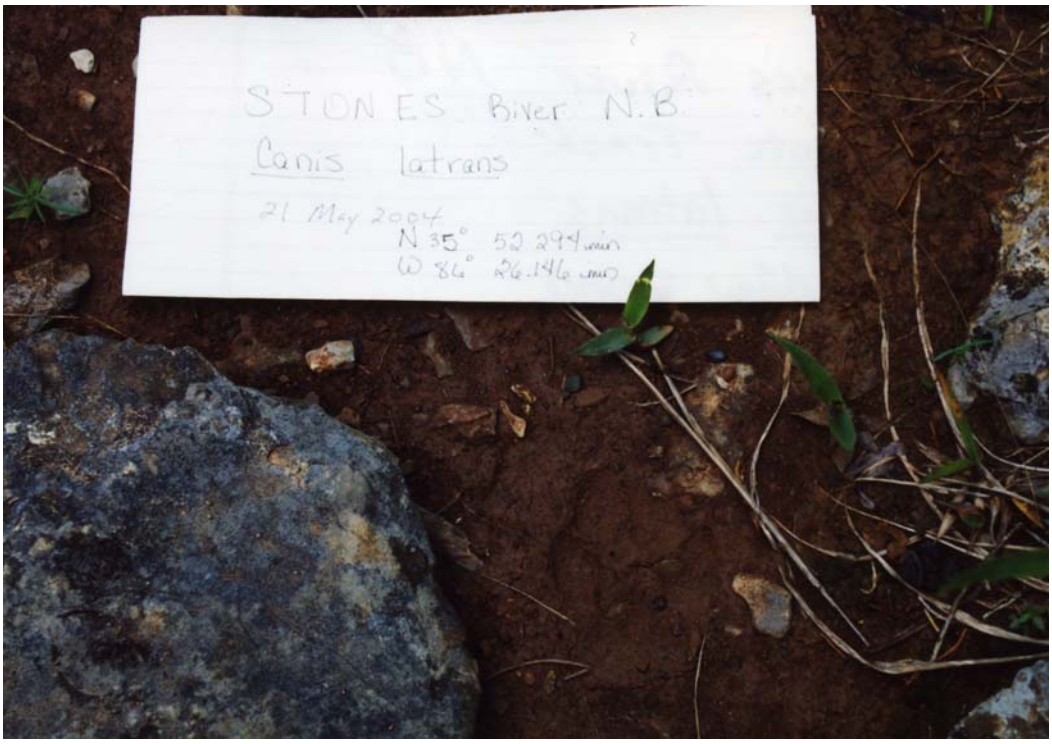
Canis latrans 6/22/2006
N 35° 52.294’ W 86° 26.146’



Canis latrans 6/22/2006
N 35° 52.294’ W 86° 26.146’



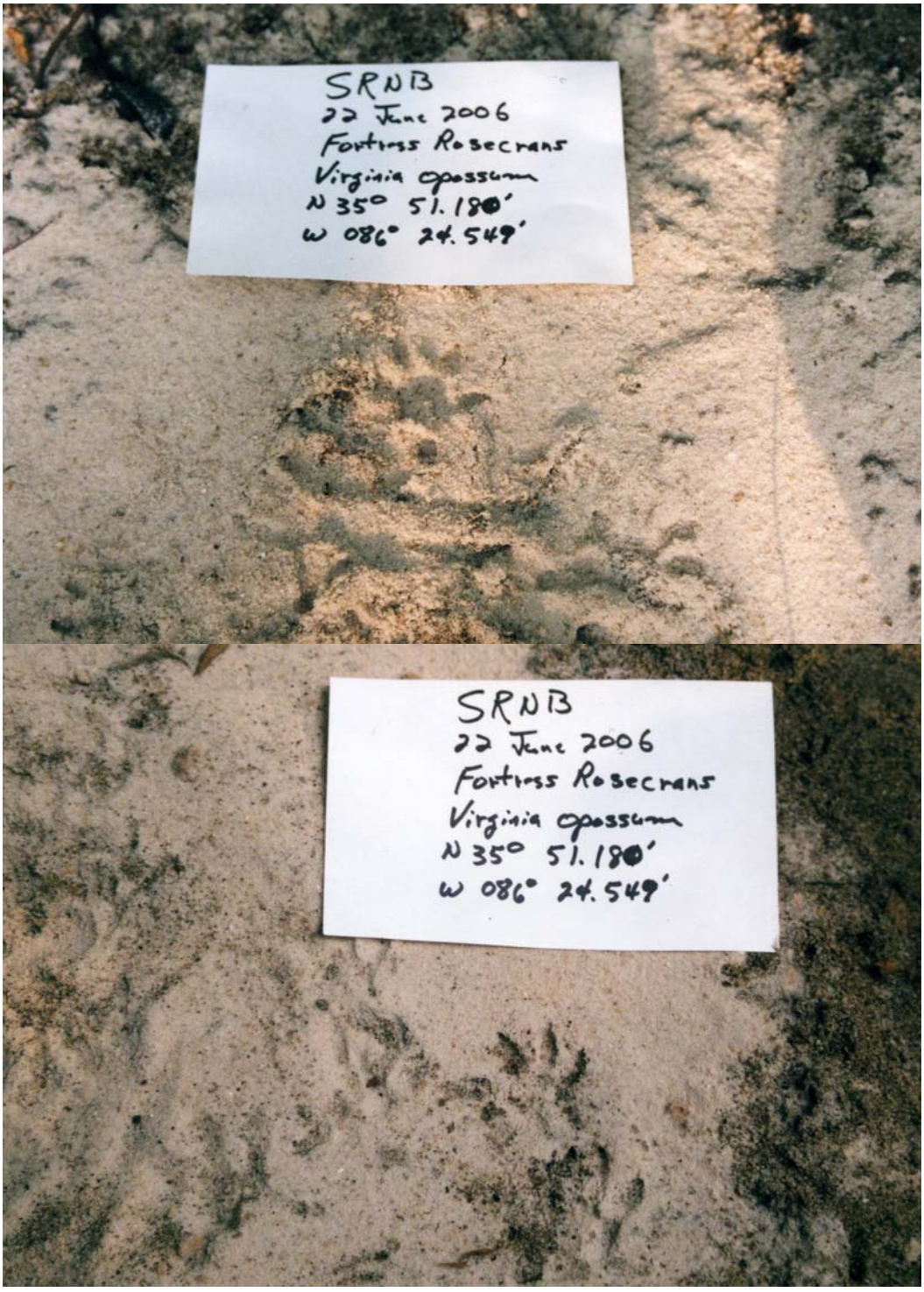
Canis latrans 6/22/2006
N 35° 52.294’ W 86° 26.146’



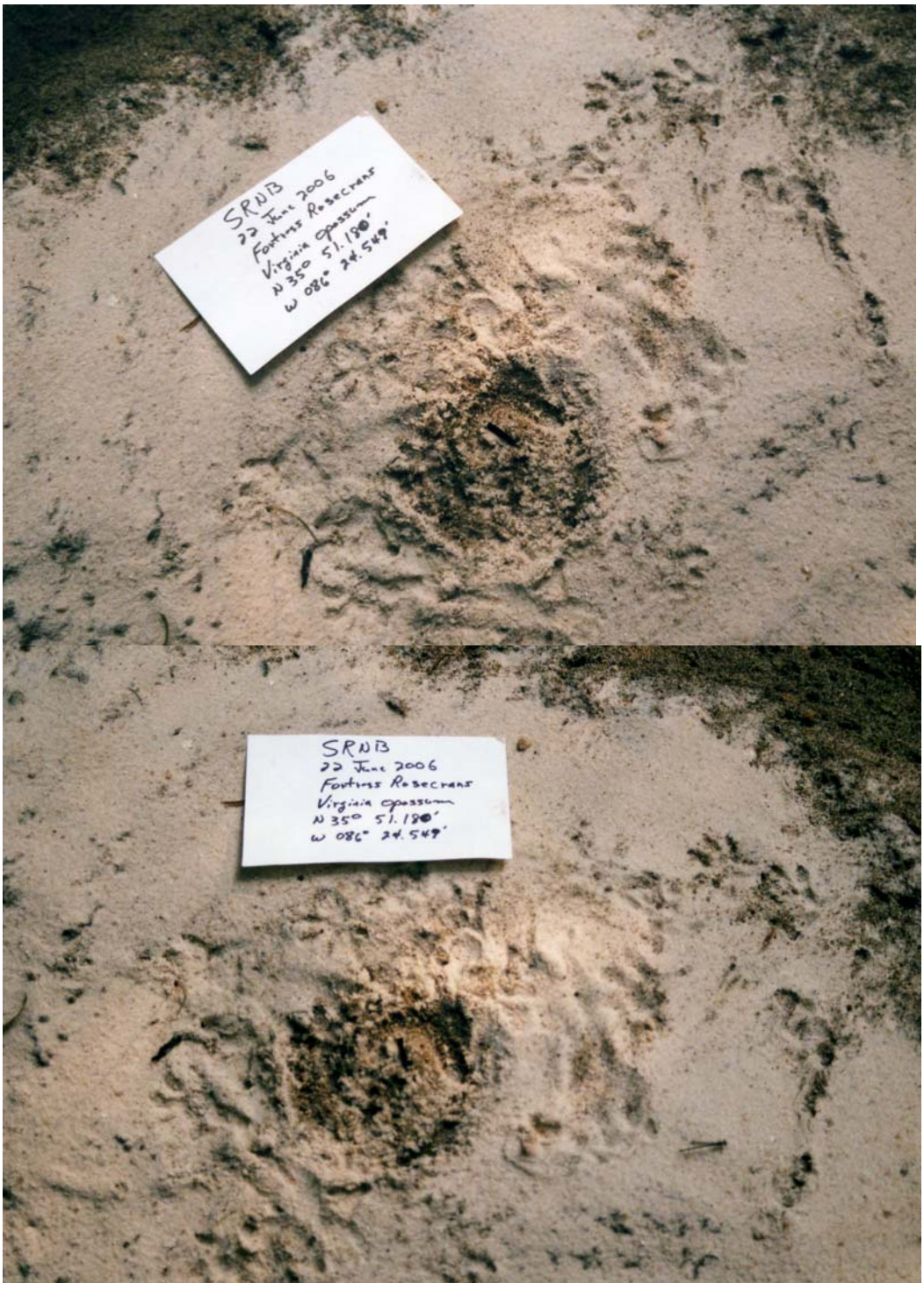
Canis latrans 6/22/2006
N 35° 52.294' W 86° 26.146'



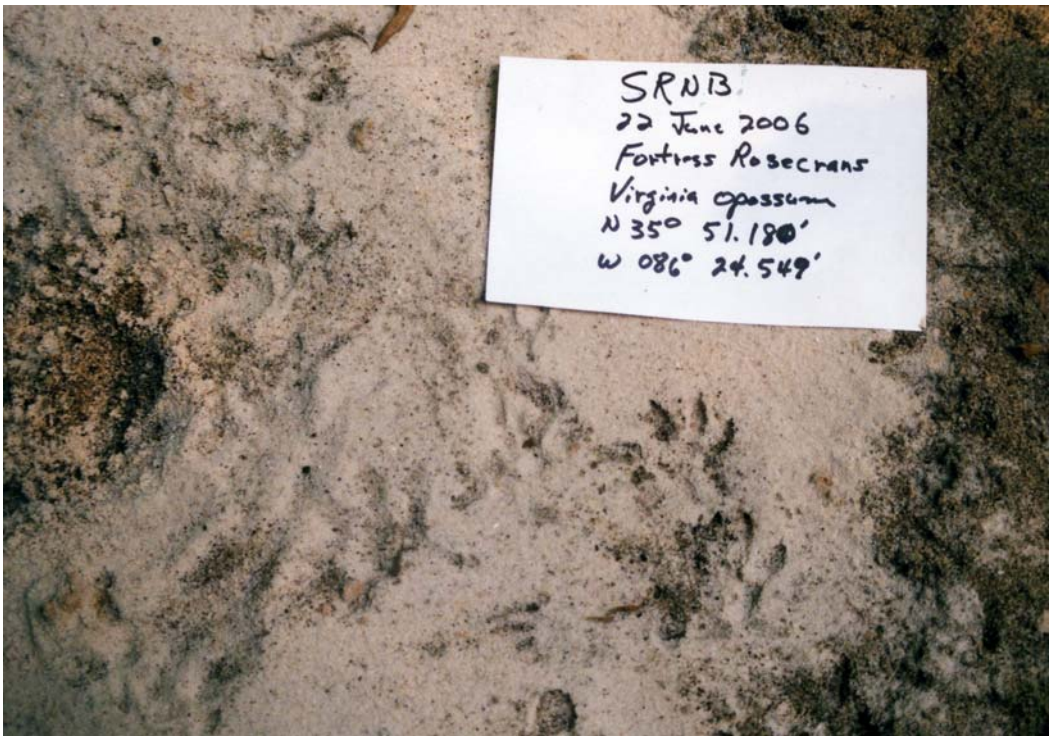
Canis latrans 7/11/2004
N 35° 52.321’ W 86° 26.150’



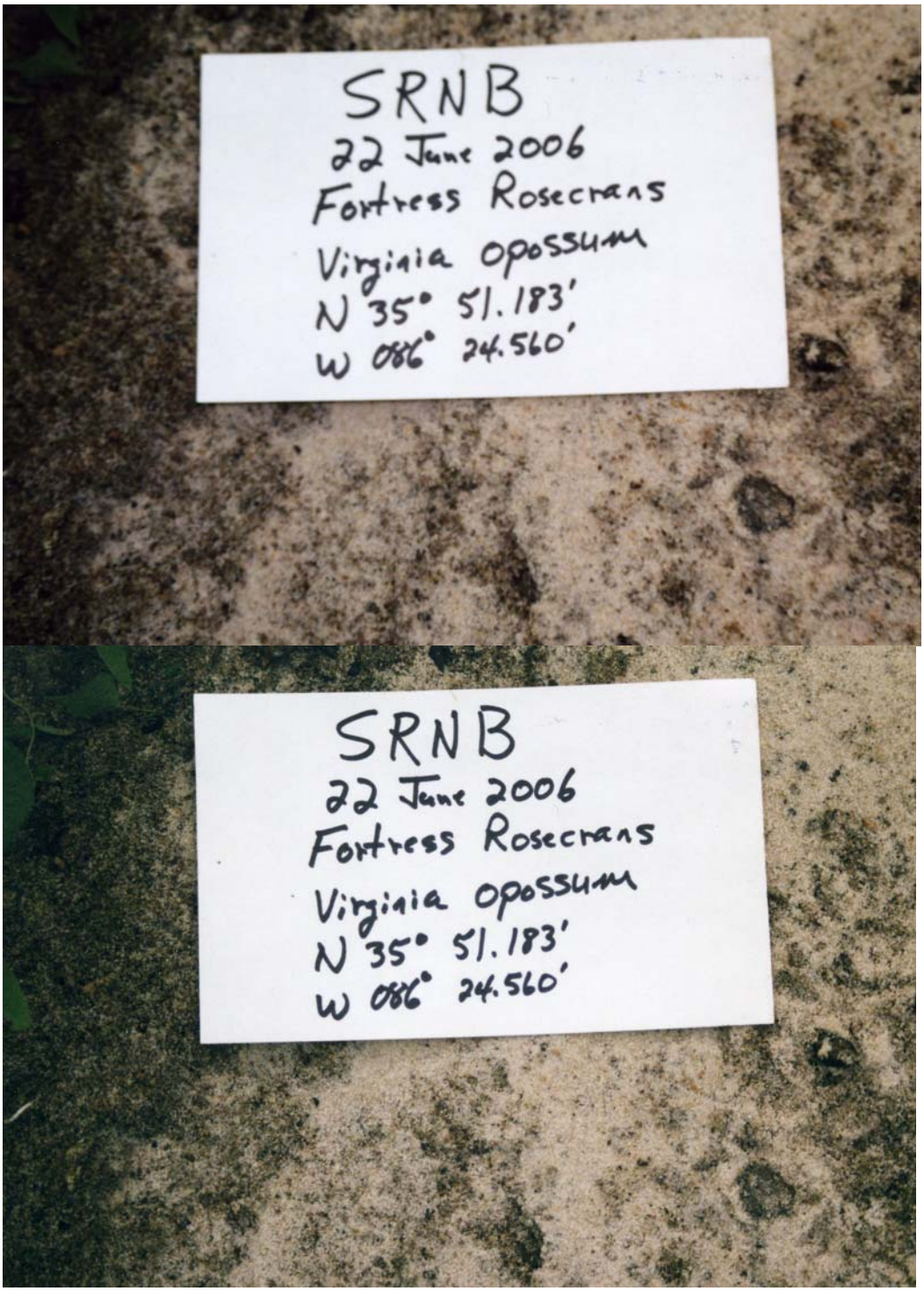
Didelphis virginiana 6/22/2006
N 35° 51.180' W 86° 24.549'



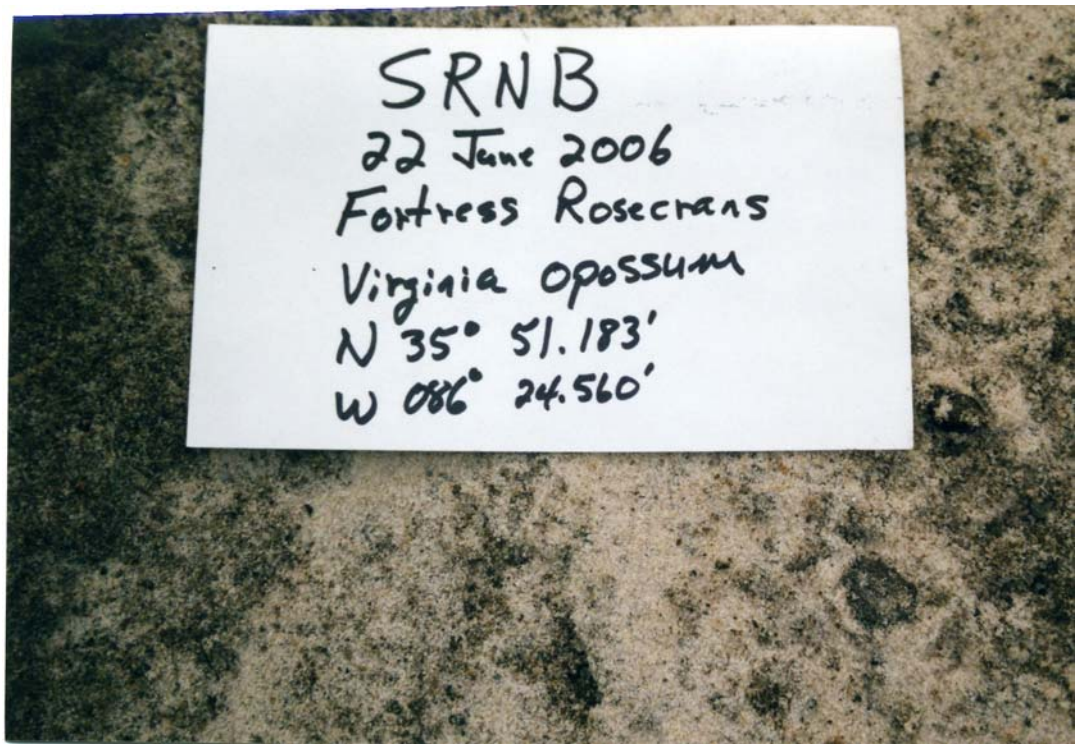
Didelphis virginiana 6/22/2006
N 35° 51.180' W 86° 24.549'



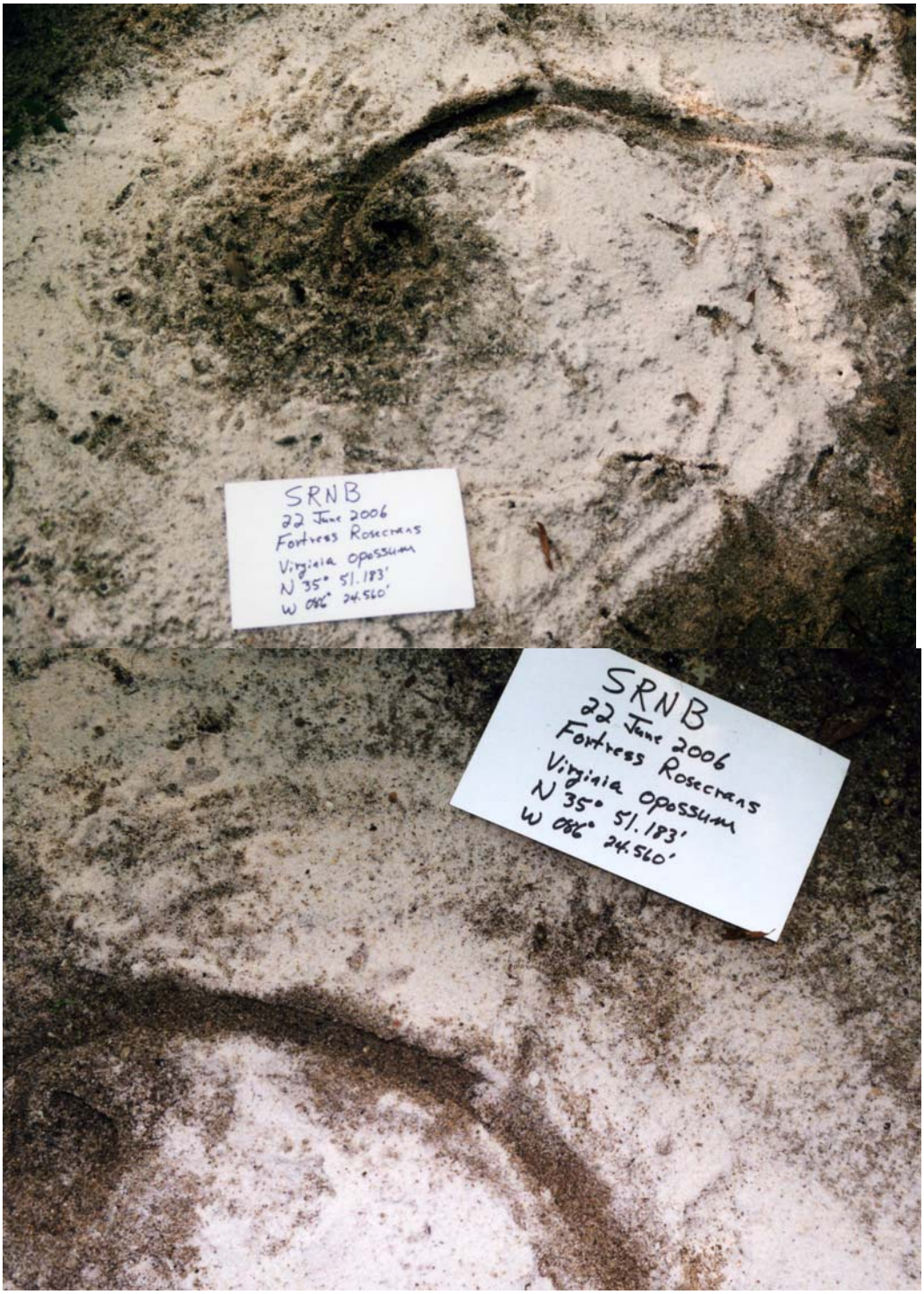
Didelphis virginiana 6/22/2006
N 35° 51.180' W 86° 24.549'



Didelphis virginiana 6/22/2006
N 35° 51.183' W 86° 24.560'



Didelphis virginiana 6/22/2006
N 35° 51.183’ W 86° 24.560’



Didelphis virginiana 6/22/2006
N 35° 51.183' W 86° 24.560'
Tail dragging



Didelphis virginiana 6/22/2006
N 35° 52.225' W 86° 25.814'
Tail dragging



Felis catus 6/23/2006
N 35° 51.090’ W 86° 24.550’



Lasiurus borealis 5/25/2005
N 35^{o} 53.340’ W 86^{o} 25.433’



Lasiurus borealis 5/25/2005
N 35° 53.340’ W 86° 25.433’



Lontra canadensis 6/22/2006
N 35° 51.522’ W 86° 24.644’



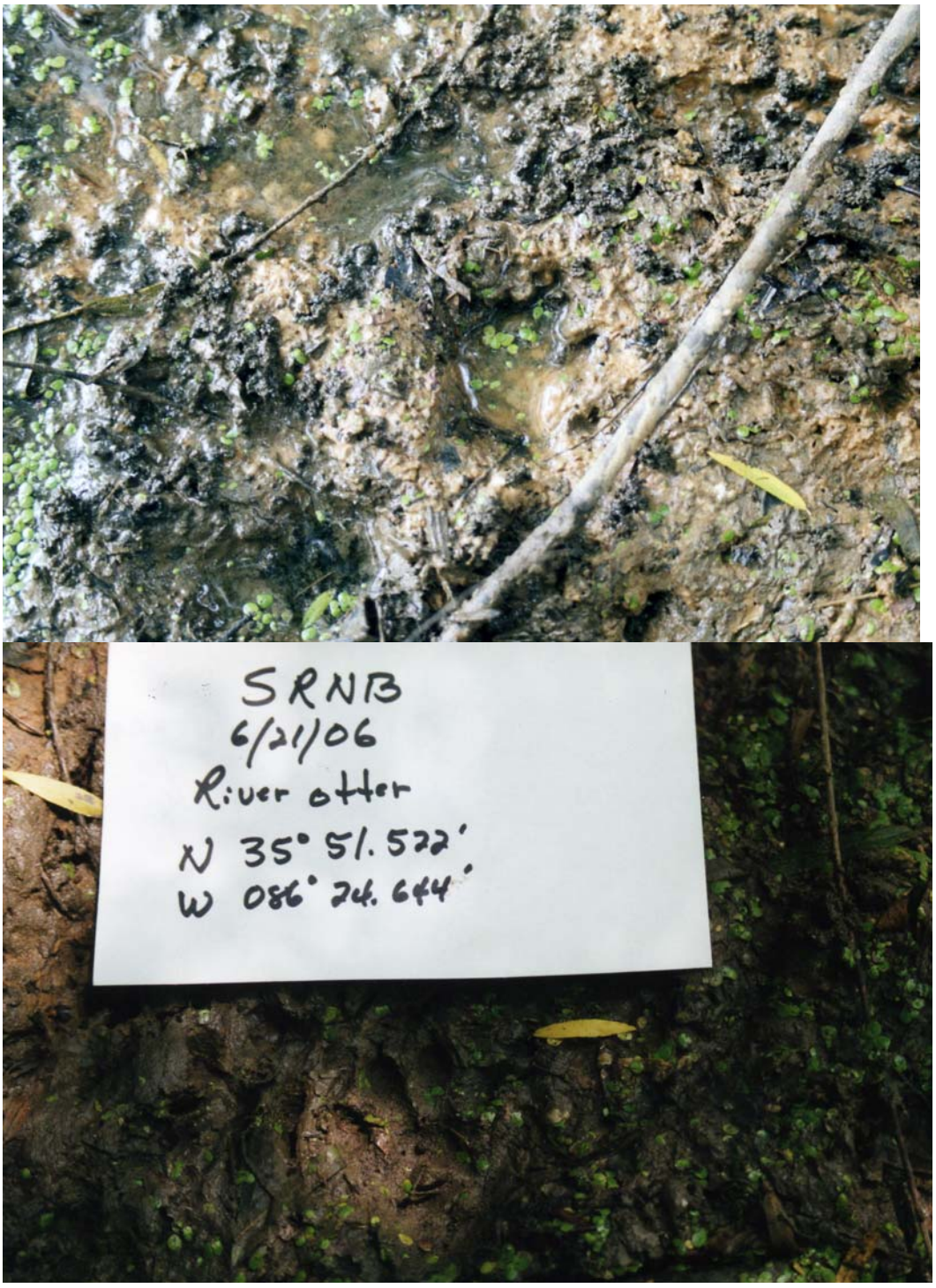
Lontra canadensis 6/22/2006
N 35° 51.522’ W 86° 24.644’



Lontra canadensis 6/22/2006
N 35° 51.522' W 86° 24.644'



Lontra canadensis 6/22/2006
N 35^{o} 51.522’ W 86^{o} 24.644’



Lontra canadensis 6/22/2006
N 35° 51.522' W 86° 24.644'



Lontra canadensis 6/22/2006
N 35° 51.092' W 86° 24.474'



Lontra canadensis 6/22/2006
N 35° 51.092' W 86° 24.474'



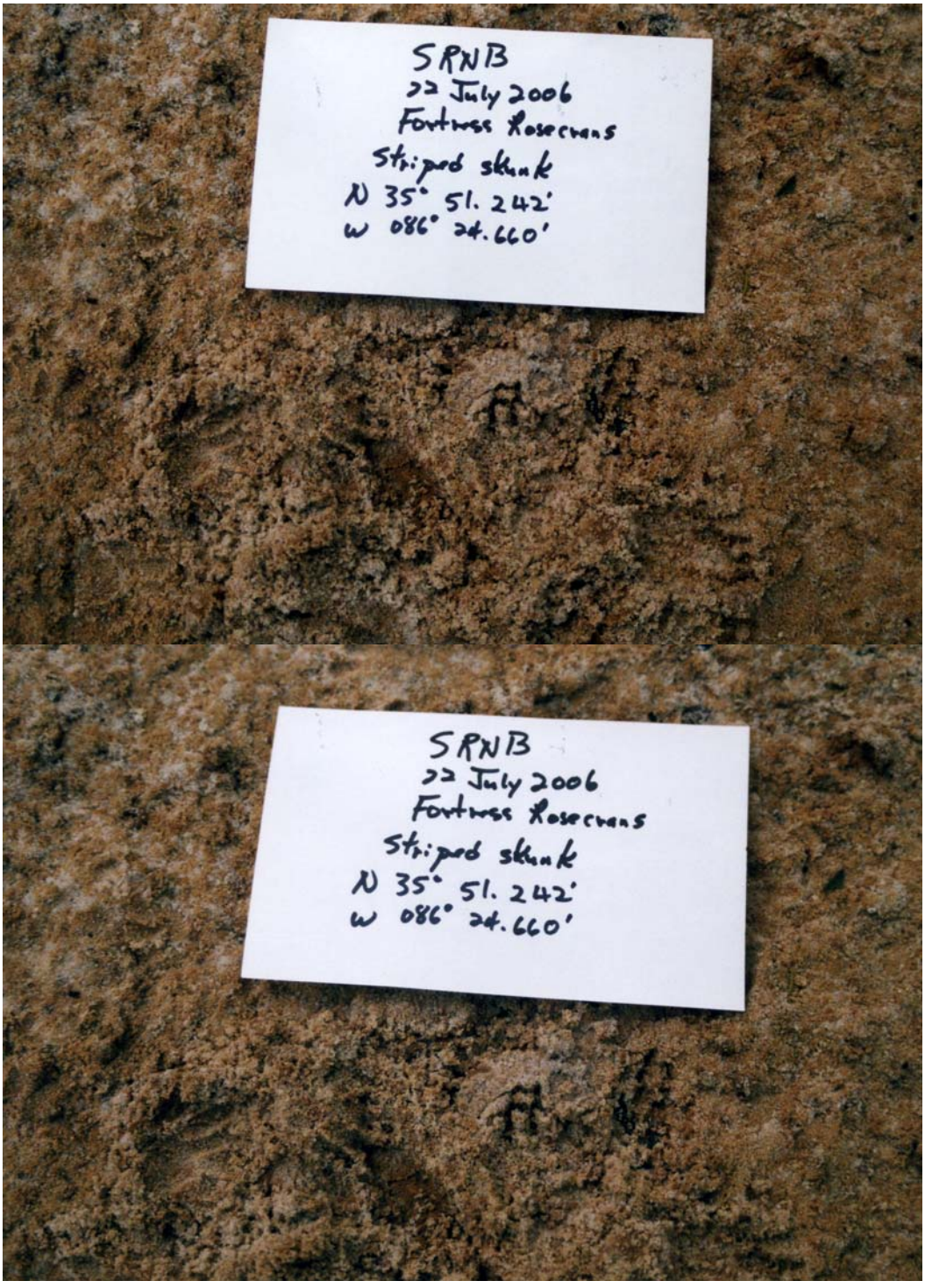
Lontra canadensis 6/22/2006
N 35° 51.522' W 86° 24.644'



Lontra canadensis 6/22/2006
N 35° 51.522’ W 86° 24.644’



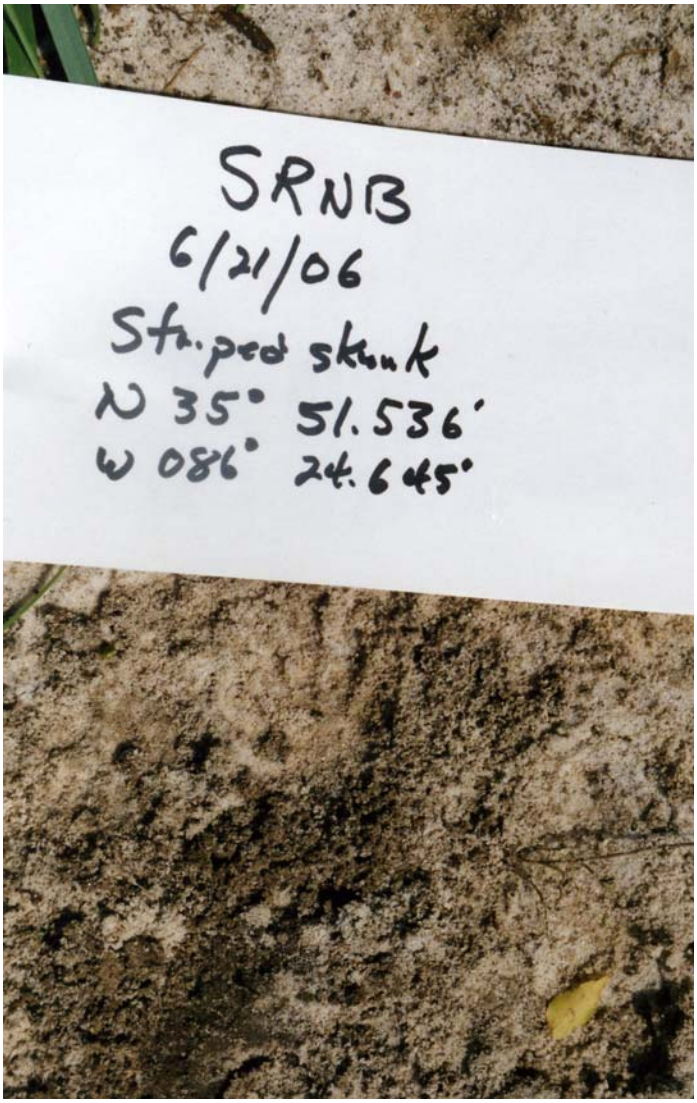
Lontra canadensis 6/22/2006
N 35° 51.522’ W 86° 24.644’
Redoubt Brannan



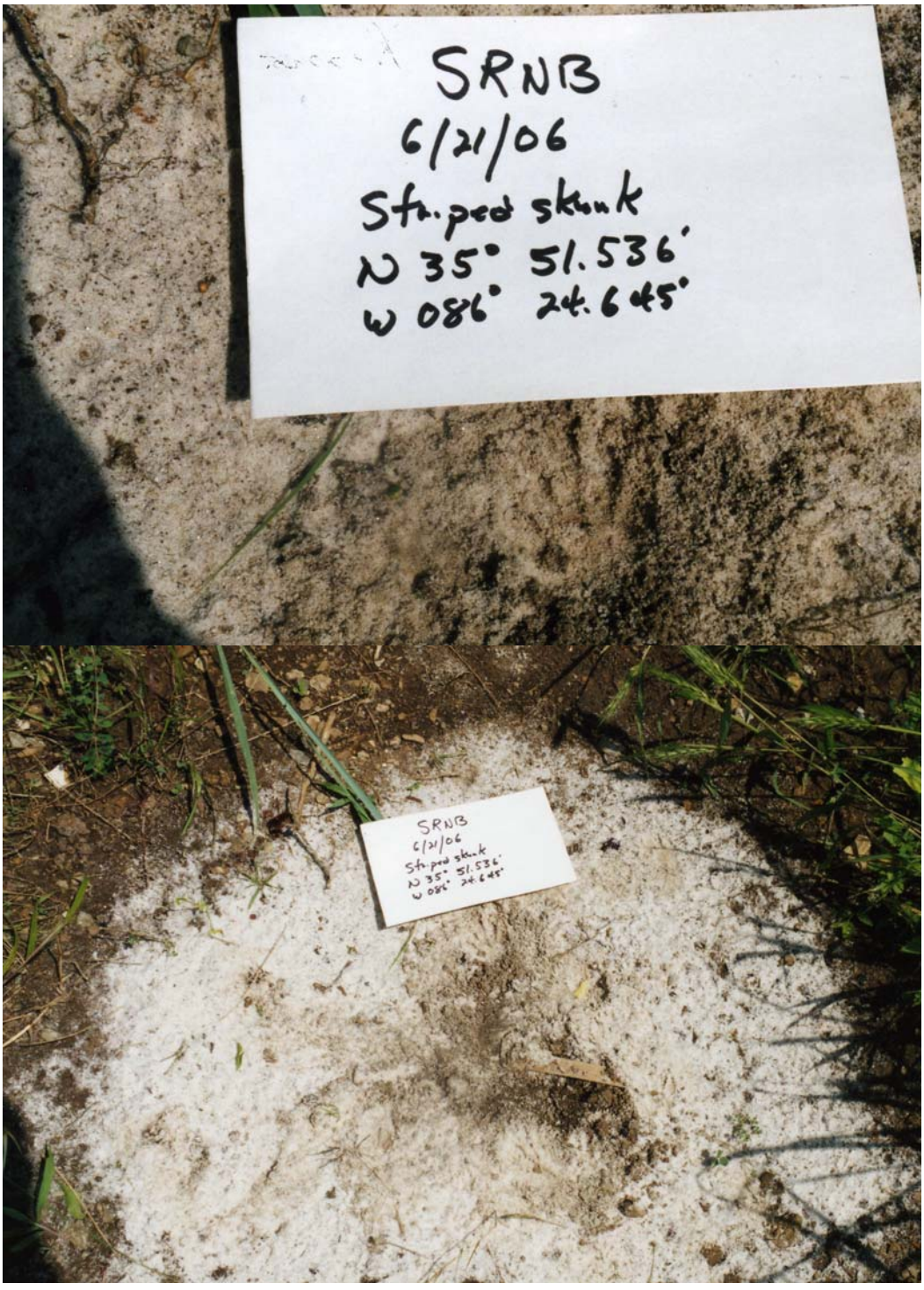
Mephitis mephitis 6/22/2006
N 35° 51.242' W 86° 24.660'



Mephitis mephitis 6/22/2006
N 35° 51.242’ W 86° 24.660’



Mephitis mephitis 6/21/2006
N 35° 51.536' W 86° 24.645'



Mephitis mephitis 6/21/2006
N 35° 51.536' W 86° 24.645'



Marmota monax 5/21/2004
N 35° 53.433’ W 86° 25.530’



Odocoileus virginianus 5/20/2004
N 35° 52.690’ W 86° 25.995’



Odocoileus virginianus 5/20/2004
N 35° 52.690’ W 86° 25.995’



Odocoileus virginianus 5/24/2004
N 35° 52.122’ W 86° 25.989’



Odocoileus virginianus 7/13/2004
N 35° 52.321’ W 86° 26.150’



Ondantra zibethicus 6/21/2006
N 35° 53.433’ W 86° 25.530’
Scat



Peromyscus leucopus 5/20/2004
N 35° 52.209’ W 86° 25.844’



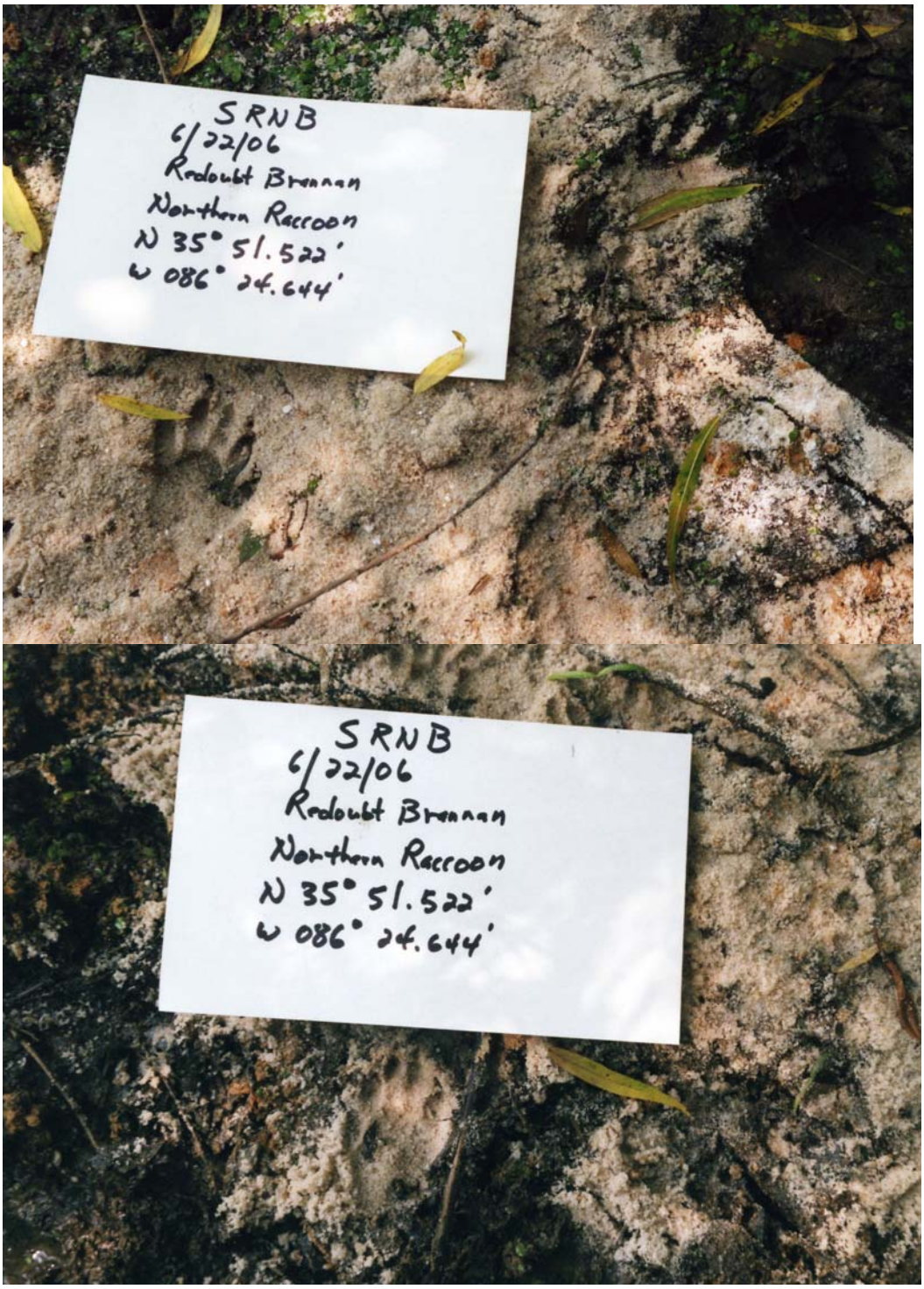
Peromyscus leucopus 5/20/2004
N 35° 52.209’ W 86° 25.844’



Peromyscus leucopus 5/21/2004
N 35° 52.773’ W 86° 26.185’



Procyon lotor 5/26/2005
N 35° 50.207’ W 86° 25.550’



Procyon lotor 6/22/2006
N 35° 51.522' W 86° 24.644'



Pipistrellus subflavus 5/25/2005
N 35° 53.340’ W 86° 25.433’

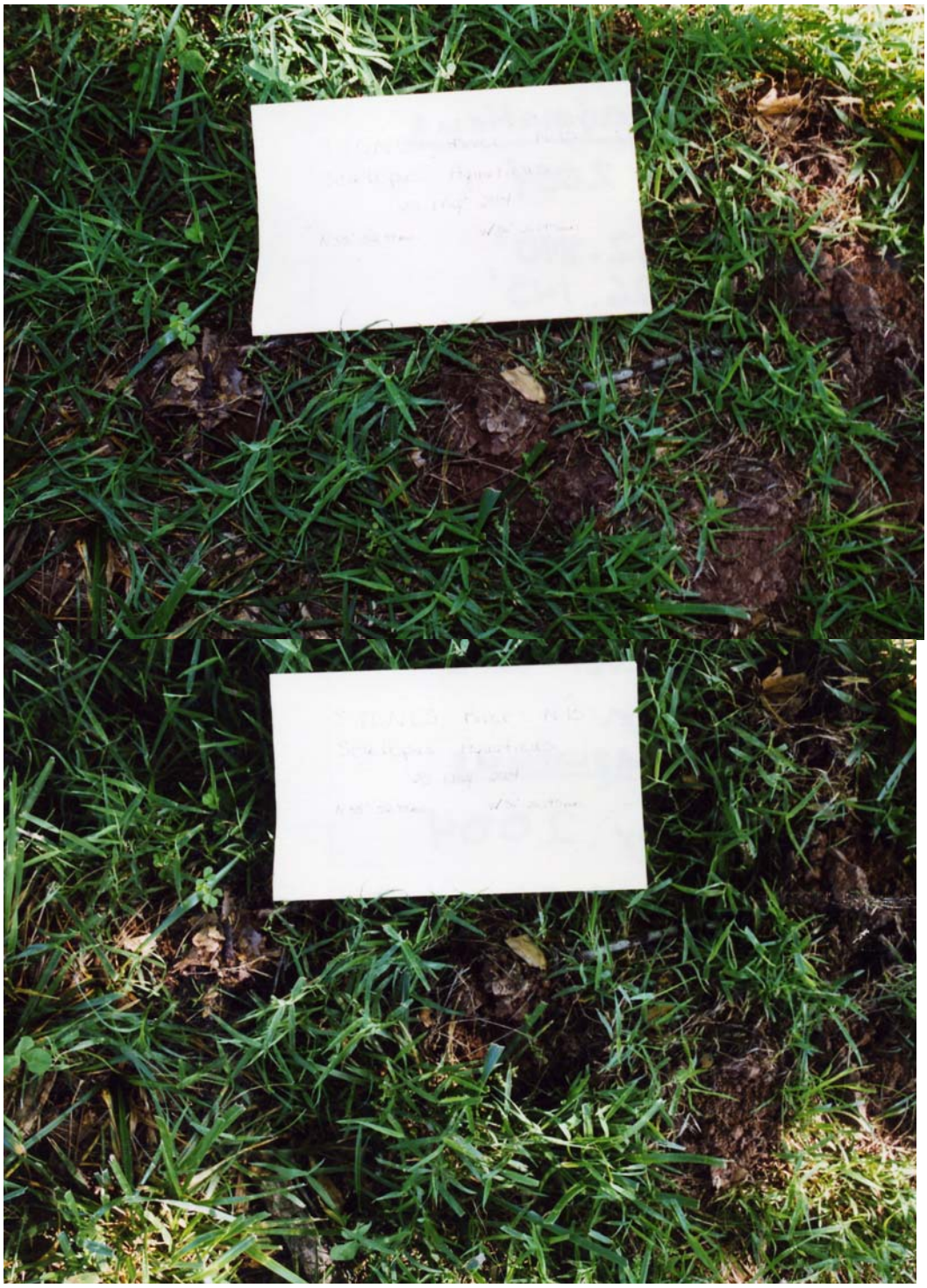


Pipistrellus subflavus 5/25/2005
N 35° 53.340’ W 86° 25.433’

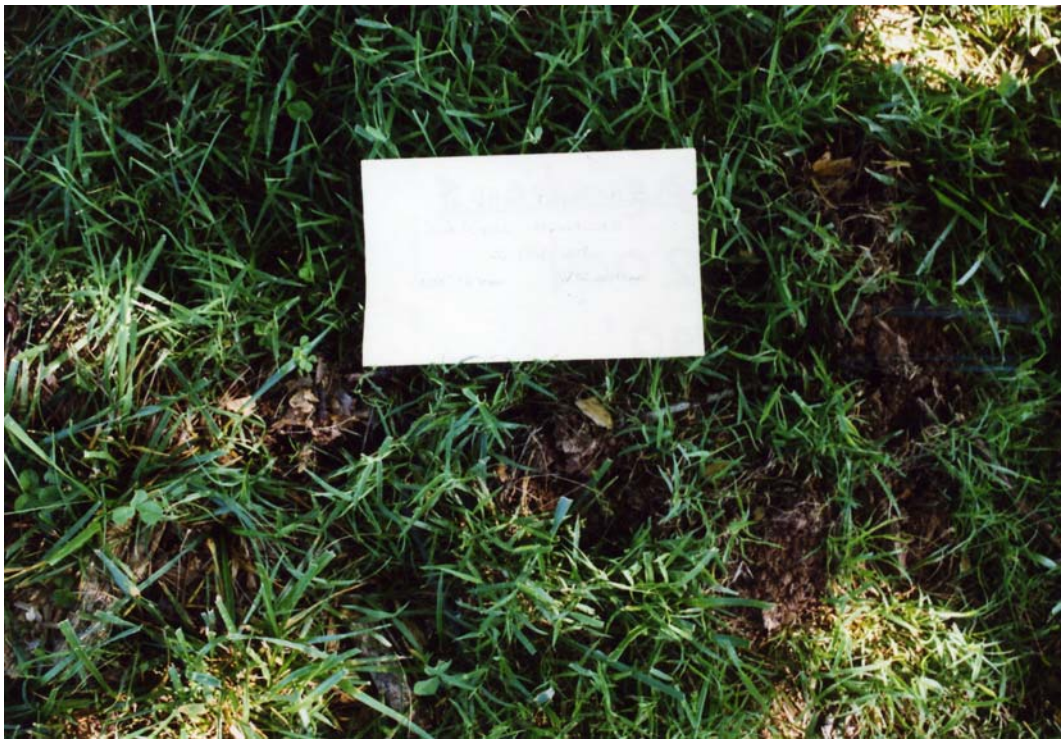




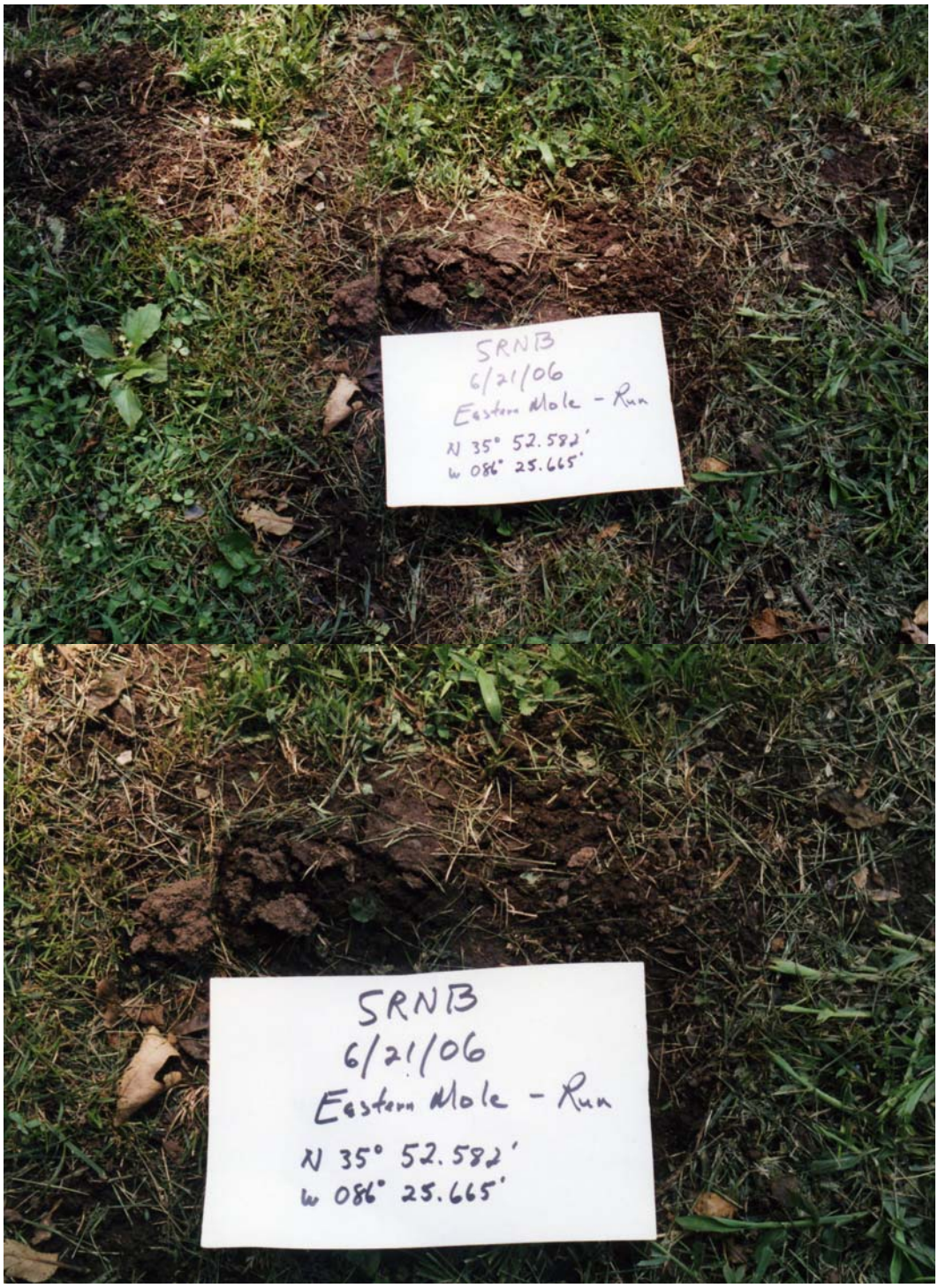
Scalopus aquaticus 5/20/2004
N 35° 52.181’ W 86° 25.931’



Scalopus aquaticus 5/20/2004
N 35° 52.890’ W 86° 25.145’



Scalopus aquaticus 5/20/2004
N 35° 52.890’ W 86° 25.145’
Mole run



Scalopus aquaticus 6/21/2006
N 35° 52.582' W 86° 25.665'



Sciurus carolinensis 7/14/2004
N 35° 52.394’ W 86° 26.219’



Sciurus carolinensis 6/21/2006
N 35° 51.96’ W 86° 24.598’



Sylvilagus floridanus 5/20/2004
N 35° 52.728 W 86° 26.099'



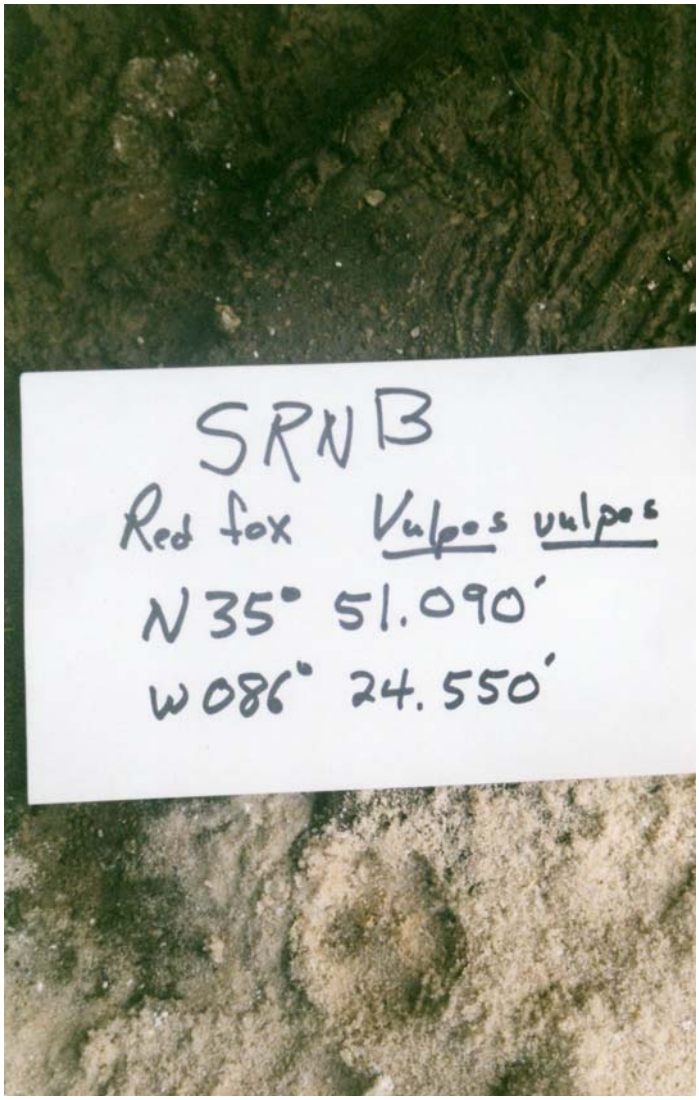


Sylvilagus floridanus 5/23/2004
N 35° 52.728 W 86° 26.099'





Sylvilagus floridanus 5/20/2004
N 35° 52.728 W 86° 26.099'



Vulpes vulpes 6/21/2006
N 35° 51.090’ W 86° 24.550’



Vulpes vulpes 6/21/2006
N 35° 51.090’ W 86° 24.550’