

**Wildlife Diversity Inventory of
Hickory Flats Wildlife Management Area and
May Prairie State Natural Area**



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Region 2

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Ephemeral wetlands located on Hickory Flats Wildlife Management Area are an important habitat feature for pond breeding amphibians and harbor significant populations of species of greatest conservation need.

Hickory Flats Wildlife Management Area (WMA) is located in Manchester, Tennessee. Comprising 800 acres, Hickory Flats WMA is divided in two sections by Asbury Road and is

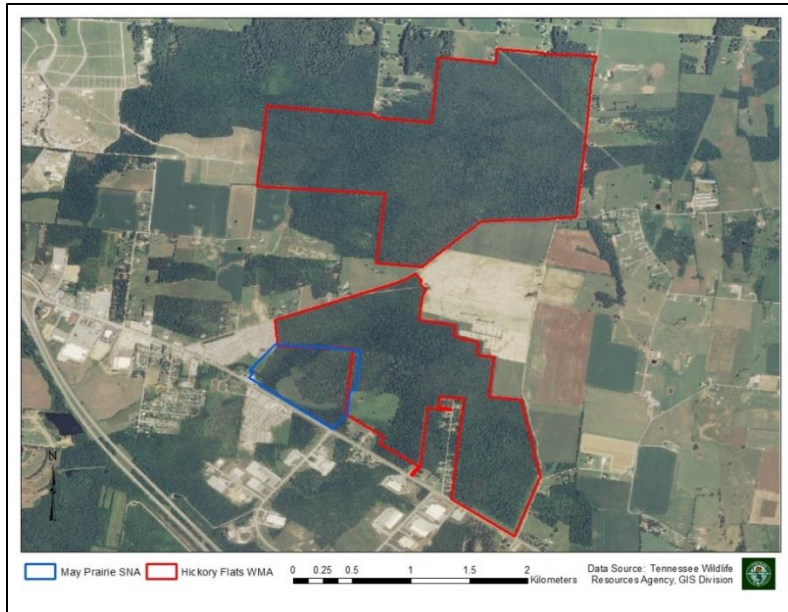


Figure 1: Location of Hickory Flats WMA and May Prairie SNA.

bordered by the State's most floristically diverse state natural area, May Prairie State Natural Area. This state natural area is managed by the Department of Environment and Conservation, Natural Heritage Division. Both the WMA and state natural area were surveyed simultaneously. There are a number of differing habitats that include tall grass prairie, upland forests, and

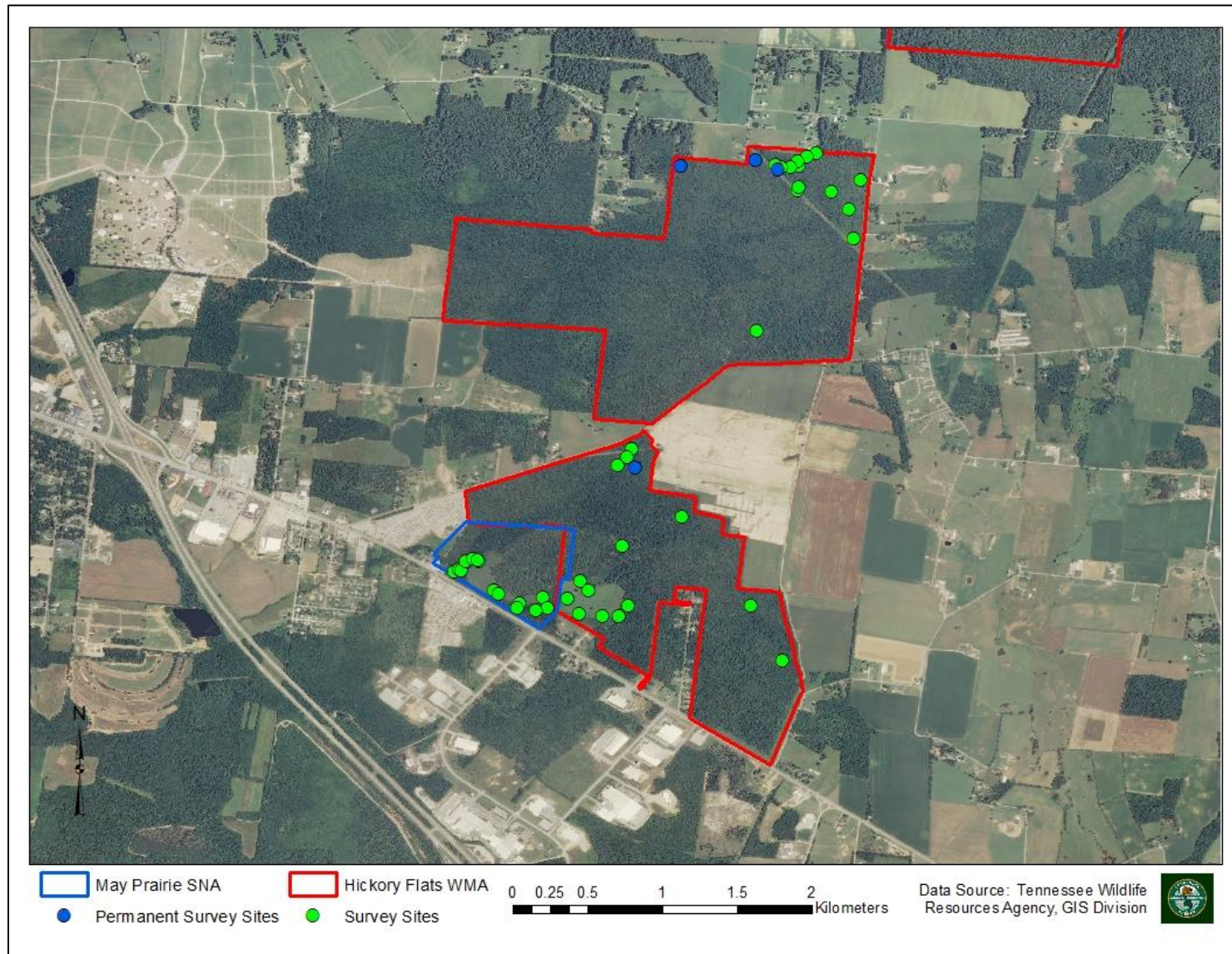
forested wetlands. Big game and small game hunting occurs on the WMA.

Both the WMA and state natural area are surrounded by private lands and homes, as well as a newly developed industrial park. Location of the homes and industrial park increase the difficulties in which the lands are managed.

Wildlife Diversity Surveys

Wildlife Diversity surveys on the WMA began in December 2005 with small mammal trapping and increased with the installation of four permanent survey sites (Figure 2). These four survey sites were representative of the main habitat types located on Hickory Flats WMA; wetland, upland forest, mesic forest, and forest edge. All four sites had a drift fence and pitfalls installed and both wooden and metal coverboards placed, and no coverboards were used at the wetland site. The drift fence at the wetland was constructed along a portion of the site because the wetland was located on the boundary of the WMA and grazing occurred on private property along the boundary. All pitfalls, once opened, were run until the first rain to ensure amphibian migrations were assessed.

Figure 2: Locations of Wildlife Diversity surveys sites on Hickory Flats WMA and May Prairie SNA.



Forty species of nongame wildlife were captured during the inventory of Hickory Flats WMA and May Prairie State Natural Area. Five species of greatest conservation need were captured and include: Four-toed Salamander (*Hemidactylium scutatum*), Eastern Box Turtle (*Terrapene carolina*), Masked Shrew (*Sorex cinereus*), Southeastern Shrew (*Sorex longirostris*), and Golden Mouse (*Onchrotomys nuttalli*) (Table 1). Over twelve-hundred captures were made during the inventory. The majority of the captures made represent amphibians from the permanent sites, particularly the wetland site. This site also accounted for the highest total of greatest conservation need species captured. The wetland, based on capture totals, appeared to be a very important breeding site for Four-toed Salamanders. Because of the number of ephemeral wetlands, Hickory Flats WMA is an important area for pond-breeding amphibians.

The tall grass prairie of the state natural area supports a high diversity of non-volant mammals. High densities of hispid cotton rats (*Sigmodon hispidus*) and prairie voles (*Microtus ochrogaster*) were observed on the state natural area during small mammal trapping. Small pitfalls were also used on the state natural area to survey the genus *Sorex*. No permanent site was constructed on the state natural area, but wooden coverboards were used to assess amphibian and reptile species using May Prairie. Unfortunately, this technique produced few captures. It is likely the diversity of May Prairie SNA is low simply because of the small footprint of the survey design. Because of the sensitivity of the state natural area, surveys were designed to minimize any impact to the flora located here.

Volant mammals were the only faunal group not assessed during the inventory of these two areas. There were few sites suitable for net placement because of the density of vegetation and lack of forested corridors present on the WMA.

Future Management

TDEC actively manages the grasslands associated with the state natural area. The primary management is confined to the use of prescribed fire and mechanical removal of woody vegetation in two small grasslands, the historically famous May Prairie and the field that lies directly to its east, commonly referred to as the Haggard tract. Wetland restoration has

Table 1: Species captured during the Wildlife Diversity survey of Hickory Flats WMA and May Prairie SNA.

Common Name	Scientific Name	No. Captured
Frogs and Toads		
Fowler's Toad	<i>Anaxyrus fowleri</i>	1
Eastern Narrow-mouthed Toad	<i>Gastrophryne carolinensis</i>	6
Cope's Gray Treefrog	<i>Hyla chrysoscelis</i>	1
American Bullfrog	<i>Lithobates catesbeianus</i>	7
Green Frog	<i>Lithobates clamitans</i>	4
Pickerel Frog	<i>Lithobates palustris</i>	3
Southern Leopard Frog	<i>Lithobates sphenoccephalus</i>	8
Northern Spring Peeper	<i>Pseudacris crucifer</i>	2
Upland Chorus Frog	<i>Pseudacris feriarum</i>	4
Salamanders		
Spotted Salamander	<i>Ambystoma maculatum</i>	317
Marbled Salamander	<i>Ambystoma opacum</i>	368
Mole Salamander	<i>Ambystoma talpoideum</i>	64
Four-toed Salamander	<i>Hemidactylum scutatum</i>	77
Northern Slimy Salamander	<i>Plethodon glutinosus</i>	32
Turtles		
Eastern Snapping Turtle	<i>Chelydra serpentina</i>	1
Eastern Mud Turtle	<i>Kinosternon subrubrum</i>	2
Eastern Box Turtle	<i>Terrapene carolina</i>	6
Skinks and Lizards		
Common Five-lined Skink	<i>Plestiodon fasciatus</i>	5
Broad-headed Skink	<i>Plestiodon laticeps</i>	1
Northern Fence Lizard	<i>Sceloporus undulatus</i>	3
Snakes		
Eastern Racer	<i>Coluber constrictor</i>	2
Yellow-bellied Kingsnake	<i>Lampropeltis calligaster</i>	1
Black Kingsnake	<i>Lampropeltis nigra</i>	3
Dekay's Brownsnake	<i>Storeria dekayi</i>	3
Red-bellied Snake	<i>Storeria occipitomaculata</i>	2

Non-volant Mammals		
Northern Short-tailed Shrew	<i>Blarina brevicauda</i>	10
Least Shrew	<i>Cryptotis parva</i>	2
Prairie Vole	<i>Microtus ochrogaster</i>	31
Woodland Vole	<i>Microtus pinetorium</i>	12
Golden Mouse	<i>Onchrotomys nuttalli</i>	1
Cotton Mouse	<i>Peromyscus gossypinus</i>	1
White-footed Mouse	<i>Peromyscus leucopus</i>	112
Deer mouse	<i>Peromyscus maniculatus</i>	28
Black Rat	<i>Rattus rattus</i>	1
Eastern Harvest Mouse	<i>Reithrodontomys humulis</i>	2
Hispid Cotton Rat	<i>Sigmodon hispidus</i>	76
Masked Shrew	<i>Sorex cinereus</i>	2
Southeastern Shrew	<i>Sorex longirostris</i>	9
Eastern Chipmunk	<i>Tamias striatus</i>	1
	Total	1,211

Yellow denotes species of greatest conservation need.

occurred just north of the Haggard tract. The primary objective was to remove Red Maple through the application of herbicides. Also, the Natural Heritage Division is trying to restore the hydrology to the SNA to maintain the diversity of rare and disjunct plant species that has led to the notoriety of the SNA. Currently, stream bank mitigation efforts are being implemented that will aid with restoration of a stream on the prairie.

Management of the northern portion of Hickory Flats WMA is highly limited. This is due to the locations of Asbury and Clifton Scott Roads and the lack of access to the WMA minimizing the use of large equipment. Safely implementing controlled burns within this area is difficult with no access for large equipment to establish firebreaks. The implementation of prescribed fire would have to involve city and county police departments and public service announcements to allow these roads to be traveled safely. Also, smoke management is a large concern since a number of homes are located around this portion of the WMA. The parameters associated with prescription fire, such as transport winds and ceiling heights, would be so stringent it would make implementation of this technique difficult. This northern portion of the WMA includes a large complex of wetlands located primarily in its central interior, minimizing the effects of fire, and allowing wetland tree species to grow at higher densities. The more open woodland and savanna habitats were likely located along the boundaries and where restoration efforts, if they take place, should be focused.