

# **FINAL PERFORMANCE REPORT**



**Federal Aid Grant No. F17AF01061 (T-102-R-1)**

**Assessment of the Current Distribution of the Eastern  
Spotted Skunk in Southeast Oklahoma**

**January 1, 2018 through December 31, 2021**

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**State:** Oklahoma

**Grant Number:** F17AF01061 (T-102-R-1)

**Grant Program:** State Wildlife Grants

**Grant Title:** Assessment of the Current Distribution of the Eastern Spotted Skunk in Southeast Oklahoma

**Grant Period:** January 1, 2018 – December 31, 2021

**Principal Investigator:** Dr. Vicki Jackson, Department of Biology, Center for Wildlife Forensic Science and Conservation Studies, University of Central Oklahoma

### **Abstract:**

In an effort to collect data regarding the distribution and habitat association of eastern spotted skunks (*Spilogale putorius*) in Oklahoma, we used camera traps to survey the areas on and surrounding the Ouachita National Forest and Cookson Wildlife Management Area in eastern Oklahoma. These areas were selected for this project because eastern spotted skunks have been found in each in recent years. During a pilot camera-trapping season in LeFlore County between January and March of 2018, we accomplished 770 camera-trap nights of effort at 52 sites that resulted in 356 pictures and the detection of 19 species of mammals including six images of eastern spotted skunks at three separate locations. During two formal camera-trapping seasons that spanned the periods from October 2018 through May 2019, and from October 2019 through April 2020, we collected 2,375 mammal observations during a total of 5,287 trap nights from 95 locations. We captured 69 pictures of eastern spotted skunks that represented 12 detections at five survey locations. Although our observations of the eastern spotted skunk were limited, we were successful at recording their presence at eight locations in the Ouachita Mountains region (Seven locations in LeFlore County and one location in McCurtain County) along with many other fur-bearing mesocarnivore species including coyotes (*Canis latrans*), gray foxes (*Urocyon cinereoargenteus*), bobcats (*Lynx rufus*), northern raccoons (*Procyon lotor*), Virginia opossums (*Didelphis virginiana*), and striped skunks (*Mephitis mephitis*). This study may provide a baseline from which to continue periodic camera trapping to assess this species. In addition, we conducted a human dimensions survey to understand public perception and attitudes toward eastern spotted skunks and other mesocarnivores from individuals living in eastern Oklahoma.

### **Objective:**

To estimate occupancy and detection probabilities of eastern (plains) spotted skunks through a focused survey effort in southeastern Oklahoma and the use of occupancy modelling. Although eastern (plains) spotted skunks will be the focal species in this project, all mesocarnivore species detected will be recorded. All species locations will be a part of a final report and provided to ODWC and Oklahoma Natural History Inventory at OU Biological Survey.

## **Introduction:**

The eastern spotted skunk (*Spilogale putorius*) was once a commonly occurring species in eastern Oklahoma and was regularly harvested for fur in the first half of the 20<sup>th</sup> century. In the mid-20<sup>th</sup> century, this species experienced a drastic and sudden decline which prompted conservation agencies to classify it as a species of conservation concern across much of its range. Range-wide studies are on-going with the goal of gathering accurate distributional and ecological data on the species in order to better understand its decline and determine reliable conservation strategies. In an effort to contribute data regarding their distribution and habitat presence in Oklahoma, we used camera traps to survey sites in the Ouachita Mountains in LeFlore and McCurtain counties (primarily on the Ouachita National Forest (NF) / Ouachita Wildlife Management Area (WMA)), and in the Boston Mountains of Adair, Cherokee, and Sequoyah counties (primarily on the Cookson Wildlife Management Area (WMA)). Both of these regions were chosen as study areas because eastern spotted skunks have been documented within each in recent years. This study provides a basis for conducting regular species detection efforts using camera traps and occupancy modeling. In addition, we conducted a human dimensions survey to understand public perception and attitudes toward mesocarnivores from individuals living in eastern Oklahoma, and we used that opportunity to gather additional eastern spotted skunk location data that may be important for future distribution studies.

## **Approach:**

### *Preliminary Camera Trapping Pilot Work*

From 12 January through 26 March 2018, we conducted a preliminary camera-trapping assessment to determine best practices for camera placement and lure use. We set 5 Reconyx Hyperfire cameras on the LeFlore Unit of the Ouachita Wildlife Management Area and moved them to new locations approximately every 2-3 weeks. We selected sites for camera placement that resembled the habitat structure of locations where eastern spotted skunks had been found by previous research projects in Oklahoma and Arkansas (Kinlaw 1995, Lesmeister et al 2009, Tyler and Lodes 1980). Cameras were set in trees directly facing a nearby tree or rockpile approximately two meters away. In an effort to determine the best bait/lure combination to attract spotted skunks, a variety of each were used including canned sardines nailed to trees, WCS<sup>TM</sup> Rosebud Skunk Paste Bait, and On-Target<sup>TM</sup> Liquid Grub Lure for Skunk (Wildlife Control Supplies). At the conclusion of the preliminary trapping period, the cameras were removed, and their cards were pulled, and their images downloaded for identification and analysis.

### *Formal Camera Trapping*

We began our formal camera trapping effort in October 2018 based on the information that we had gained during the preliminary pilot season. We maintained 23 to 25 Reconyx Hyperfire cameras (Reconyx, Holmen, WI) in the field from 19 October 2018 through 13 May 2019 (camera-trapping season 1), and from 4 October 2019 through 19 April 2020 (camera-trapping season 2). Functional camera numbers varied from 23 to 25 at a time due to periodic mechanical and battery failures of some cameras. During the first trapping season, the camera traps were deployed on the LeFlore County and McCurtain County units of the Ouachita WMA / Ouachita National Forest and a small number of privately owned sites surrounding the WMA where permission was obtained. During the second trapping season, all of the cameras were placed in LeFlore and McCurtain counties initially (October through December of 2019), then all but four

of the camera traps were relocated to Cookson WMA in Adair, Cherokee, and Sequoyah counties from January through April of 2020. In total, we surveyed 95 locations with camera traps during the two trapping seasons (fall 2018/spring 2019 and fall 2019/spring202) using an adaptive sampling method where we specifically selected sites with a close proximity to streams, dense canopy cover, and/or dense understory vegetation.

We followed same protocols for camera placement and lure use as we did during the pilot trapping study, except that we did not use canned sardines as a bait. We used Reconyx Hyperfire cameras that we secured to a tree approximately 60 cm above ground-level, depending on terrain, and set each camera to focus on a tree approximately two meters away that had been baited with WCS™ Rosebud Skunk Paste Bait and On-Target™ Liquid Grub Lure for Skunk (Wildlife Control Supplies, East Granby, CT). The 95 camera-trapping sites were distributed near roads and trails in each study area (Ouachita NF and Cookson WMA) and each location was no closer than 500 meters from another location that had previously been or was currently being surveyed in order to reduce the potential for double-counting the same individual animals (Lesmeister et al. 2010). Cameras were placed at each location for a variable length of time. Some cameras were placed permanently in one location for the duration of a camera-trapping season. These were sites that appeared to have the highest likelihood of supporting eastern spotted skunks based upon our assessment of the habitat, or they were sites at which an eastern spotted skunk was photographed earlier in the season, and we wanted to document the potential reappearance of skunks and their frequency of use of the site. The other cameras were relocated to new sites at a temporal interval of approximately two months. During the two formal camera-trapping seasons, we documented mammalian use at 21 sites on Cookson WMA and 74 sites on the Ouachita NF/Ouachita WMA.

#### *Habitat/Environmental Measurements*

At each of the 95 formal camera-trapping locations, we measured average tree height, canopy cover, and average visual obstruction. We calculated average tree height using the mean of four Suunto PM-5/360 PC Clinometer (Suunto Oy, Vantaa, Finland) readings taken from the location of the camera immediately north, south, east, and west. We measured the distance to these trees using a Simmons 801600 Volt 600 Laser Rangefinder (Bushnell, Overland Park, KS). We recorded canopy cover as the average of 16 spherical crown densiometer (Forestry Suppliers, Jackson, MS) readings that were taken at four locations within 20 meters of the camera in each cardinal direction (four readings per direction). We calculated average visual obstruction measurements in the same locations as the densiometer measurements using the mean of 16 Robel pole readings at four locations 20 meters from the camera in each cardinal direction. Time, temperature, and estimated moon phase were calculated and associated with each photograph. We obtained climatic and elevation data for each of the locations from the PRISM Climate Group's PRISM Time Series Data (<https://prism.oregonstate.edu/explorer/>).

#### *Human Dimensions*

We utilized a human dimensions survey to gather information that contributes to making better and more up to date management decisions for eastern spotted skunks and other harvested fur-bearing mesocarnivore species in the area, as well as to identify various stakeholders and understand recreational land use of the area. Between the months of March and October 2021, our human-dimensions survey was sent to randomly selected recipients in the five counties

included in our eastern spotted skunk distribution study: Adair, Cherokee, LeFlore, McCurtain, and Sequoyah counties. Our study was determined to be exempt from Internal Review Board review under 45 CFR 46.110, for research involving no more than minimal risk (December 14, 2020, Office of Research Integrity and Compliance, University of Central Oklahoma, Edmond, OK). Informed consent (and HIPAA authorization) was obtained from subjects and documented prior to their research involvement. The online survey was conducted through Qualtrics (Provo, Utah, USA), which provided us with the results as they were submitted. Our survey was divided into four sections: pre-survey verification and informed consent form, general perceptions of mesocarnivore species, eastern spotted skunk observations, and demographic information.

## **Results and Discussion:**

### *Preliminary Work Results*

Between 2 January and 26 March 2018, we accomplished 770 camera-trap nights of effort at 52 sites that resulted in 356 pictures and the detection of 19 mammals (23 pictures were unidentifiable) (Table 1). We captured six images of eastern spotted skunks at three distinct locations (Table 2).

### *Camera Trap Results*

During the two camera-trapping sessions that spanned the periods from 19 October 2018 through 13 May 2019, and from 4 October 2019 through 19 April 2020, we collected 2,375 mammal observations during a total of 5,287 trap nights from 95 locations (Table 3; Table 4; Figure 3). Camera traps were deployed at each site between 28 and 253 days, depending on eastern spotted skunk detection and the site's accessibility in response to spring flooding. We captured 69 pictures of eastern spotted skunks; however, they represented only 12 (0.0058%) detections and were only detected at five survey locations (5.265%) during 12 trap nights (0.464%) (Table 5; Figure 1). Of these five locations, only one location had more than one eastern spotted skunk detection. This location resulted in eight separate detections; however, we were unable to determine if these multiple detections represented more than one individual. To decrease multiple detection records from a single visitation, pictures that occurred within 30 minutes were combined as a single detection event. We did not capture eastern spotted skunk presence in either area between January and April 2020.

Each of the five locations where eastern spotted skunks were detected occurred within the Ouachita Mountains Level III Ecoregion in southeastern Oklahoma. All five locations represented slightly different habitat characteristics (Figure 2), with no overall patterns of canopy cover, tree height, or visual obstruction by understory vegetation (Table 6). The only habitat features that remained constant across the locations with detections were the presence of a pine-oak dominated forest and the location's close proximity to a stream. However, 66 cameras were set in similar habitats, but did not detect eastern spotted skunks.

Our results did not indicate a relationship between species detection and the environmental variables recorded in our study, but it should be noted that some detections occurred at noticeably warmer temperatures relative to the temperature trends surrounding those detection events (Figure 4). We did not recognize a pattern between detections and average daily precipitation (Figure 5).

### *Human Dimensions Results*

We obtained 123 total responses (24.6% of our goal) from individuals who agreed to participate after reading the informed consent information. Only 66 responses (13.2%) included the individualized random code in the pre-survey verification, however, 79 responses (15.8%) were within our survey area according to postal code answers. All 79 individuals located in the study area answered each of the four questions assessing the general perceptions of each meso-carnivore species.

General perceptions of mesocarnivore species: Responses for coyotes and bobcats seemed to indicate that these two species are the most threatening, while Virginia opossums and striped skunks are perceived to be the least threatening. The second question assessing general perceptions indicated that respondents disagreed more than agreed with the concept that each of the species (except Virginia opossums) was overabundant in their area. When asked whether or not each species is beneficial to the habitat it occupies, at least 50% of all respondents indicated that all species are beneficial. The last question in this section was intended to determine whether or not respondents have noticed changes in observation rates for each species. Most responses indicated that their rate of gray fox observations had decreased the most, detections had not change for striped skunk observations, the rate of coyote observations had increased the most, and many respondents did not have enough observations to perceive a pattern for eastern spotted skunks.

Eastern spotted skunk observations: Of the 79 respondents, 13 (16.5%) indicated that they had personally observed an eastern spotted skunk. Of those 13 respondents, three (23.1%) indicated that their last observation occurred within the last year, three (23.1%) indicated that their last observation occurred between last year and five years ago, one (8.0%) indicated that their last observation occurred between five and ten years ago, three (23.1%) responses were vague or unclear, and three (23.1%) declined to indicate when their last observation occurred. Only three individuals included additional observation information, however two of these responses were irrelevant. Of the 13 responses, four individuals stated that they would be interested in speaking with a researcher about their observation, and all four provided their contact information. Of these four individuals, two had observed an eastern spotted skunk within the last year, one had observed an eastern spotted skunk between five and ten years ago, and one provided an unclear answer as to when their last observation occurred.

Surveyor biases: Of the 73 respondents, 59 (80.8%) described their living situation as rural, 10 (13.7%) described living in a suburban setting, and four (5.5%) indicated that they lived in an urban setting. For the question assessing time spent outdoors, 47 (64.4%) of respondents indicated that they spent more than 60% of their time outdoors, 19 (26.0%) indicated that they spend between 30% and 59% of their time outdoors, 11 (15.1%) indicated that they spend between 10% and 29% of their time outdoors, and no one indicated that they spent less than 10% of their time outdoors. When asked if the respondent own(ed) livestock, 42 (57.5%) indicated that they do/did own livestock. Of these livestock owners, 15 (35.7%) indicated that they owned poultry, 12 (28.6%) indicated that they owned cattle, eight (19.0%) indicated that they owned an unlisted "other" species, three (7.1%) indicated that they owned goats, two (4.8%) indicated that they owned pigs, two (4.8%) indicated that they owned sheep. Gardening and exercise were the most reported outdoor activities, while mountain biking and trapping were the least reported. Of

the 73 respondents who answered this question, 56 (76.7%) participated in gardening, 50 (68.5%) walking/running/jogging, 41 (56.2%) camping, 40 (54.8%) fishing, 36 (49.3%) hiking, 30 (41.1%) bird watching, 27 (37.0%) hunting, 26 (35.6%) canoeing/kayaking, 25 (34.2%) photography, 17 (23.3%) “other,” eight (11.0%) climbing, four (5.5%) mountain biking, and three (4.1%) trapping.

Demographic information: Of the 73 respondents, 26 (35.6%) described themselves as male, and 47 (64.4%) described themselves as female. Of these respondents, one (1.4%) was under 18, five (6.8%) were between the ages of 18 and 24, seven (9.6%) were between the ages of 25 and 34, 16 (21.9%) were between the ages of 35 and 44, 18 (24.7%) were between the ages of 45 and 54, 17 (23.3%) were between the ages of 55 and 64, eight (11.0%) were between the ages of 65 and 74, none were between the ages of 75 to 84, and one (1.4%) was 85 or older. For the question attempting to gauge ethnicity of the respondents, 49 (67.1%) of respondents described themselves as White, 21 (28.8%) described themselves as American Indian or Alaskan Native, two (2.7%) described themselves as Hispanic, one (1.3%) described themselves as someone other than the ethnicities listed, and none of the respondents described themselves as either Asian or Black or African American. Most respondents indicated that the highest degree or level of school completed was a 4-year degree followed by some college, while the education level indicated least was less than high school. Two (2.7%) respondents selected that the highest education level was less than high school, ten (13.7%) selected high school graduate, 17 (23.3%) selected some college, seven (9.6%) selected a 2-year degree, 20 (27.4%) selected a 4-year degree, ten (13.7%) selected a professional degree, and seven (9.6%) selected a doctorate.

### **Recommendations:**

We recommend that camera trapping and other noninvasive efforts that contribute to eastern spotted skunk distribution and detectability studies continue with the goal of discovering additional locations with confirmed presence of this species in Oklahoma. We also recommend that all new observations be reported as these reports serve a crucial role in improving what we currently know about the distribution of eastern spotted skunks. Studies involving radio collars and frequent location monitoring with the goal of finding den sites and/or determining activity patterns would aid in more-effective comparison studies on the Ouachita Mountains' eastern spotted skunk population in both Oklahoma and Arkansas. Using human dimensions studies may serve as a practical tool to accumulate unique data regarding these animals, however, more efforts are needed to increase response rates. In future human-dimensions studies, we recommend a more intensive follow-up procedure to increase participation. Stedman et al. (2004) sent surveys to hunters in order to understand hunter behavior with a higher success rate. They attribute their higher response rate to informing camp owners of the surveys before the survey was sent out. Due to the important data that human-dimension surveys can contribute, a critical component to continued success is understanding how to increase public engagement with human-dimensions work. Involving stakeholders is integral to planning and implementing wildlife management strategies and efficient conservation landscape design (Bartuszevige et al. 2016). This involvement will increase productivity of conservation efforts for species of conservation concern and may help manage species that may be detrimental to an ecosystem such as an overabundant or invasive species (Jonker et al. 2010).

**Significant Deviations:**

There was a substantial delay in both data analysis and the implementation of the human-dimension survey due to a combination of complications from COVID-19 pandemic, University closings, and personal health challenges. However, these delays did not prevent us from completing the project after a no-cost extension was granted.

**Equipment Purchased (Cumulative):**

None.

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**Date Prepared:** January 30, 2022

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Oklahoma Department of Wildlife Conservation



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### **Presentations:**

V. Jackson presented information to the Texas Comptroller's office for her video to update the Eastern Spotted Skunk Working Group on the status of skunks across their range (Dec 19, 2018).

Assessing status of eastern spotted skunks (*Spilogale putorius*) in Oklahoma. Tri-Center Symposium, University of Central Oklahoma. A. P. Jones and V. L. Jackson (February 2019)

Camera Trapping for Eastern Spotted Skunks in the Ouachita National Forest in Eastern Oklahoma. Southeast/Midwest Joint Furbearer Meeting. A. P. Jones and V. L. Jackson (April 2019)

Multi-species Occupancy, Detection, and Habitat Selection of Mesocarnivores in Eastern Oklahoma with a Focus on Eastern Spotted Skunks. Southeast/Midwest Joint Furbearer Meeting. K. D. Branham, A. P. Jones, V.L. Jackson (April 2019)

K. Branham and V. Jackson presented information to the Texas Comptroller's office for her video to update the Eastern Spotted Skunk Working Group on the status of skunks across their range (Sept. 23, 2019).

Multi-Species Occupancy, Detection, and Habitat Selection of Mesocarnivores in Eastern Oklahoma with a Focus on Eastern Spotted Skunks. Joint TWS/AFS meeting in Reno, NV. K. D. Branham and V. L. Jackson. (October 2019)

Multi-species Occupancy, Detection, and Habitat Selection of Mesocarnivores in Eastern Oklahoma with a Focus on Eastern Spotted Skunks. Oklahoma Natural Resources Conference in Norman, OK. K. D. Branham and V. L. Jackson. (February 2020)

Camera trapping survey for plains spotted skunk (*Spilogale putorius interrupta*) in eastern Oklahoma. Central Ecology and Evolution Conference online. K. D. Branham and V. L. Jackson. (April 2021)

Camera trapping survey for plains spotted skunk (*Spilogale putorius interrupta*) in eastern Oklahoma. American Society of Mammalogists online. K. D. Branham and V. L. Jackson. (August 2021)

**Publications:**

Branham, K. D., and V. L. Jackson. Camera trapping survey for plains spotted skunk (*Spilogale putorius interrupta*) in eastern Oklahoma. Southeastern Naturalist 20 (Special Issue 11):64-73.

Unpublished thesis Branham, K.D. 2022. Multi-Species Occupancy, Detection, and Habitat Selection of Mesocarnivores in Eastern Oklahoma with a Focus on Eastern Spotted Skunks. M.Sc. Thesis. University of Central Oklahoma, Edmond, OK. expected defense date March 2021.

**Table 1.** Photographs Taken During Pilot Camera-trapping Session Between January and March of 2018, LeFlore County.

Mammal	# pictures
<i>Canis familiaris</i>	20
<i>Canis latrans</i>	5
<i>Dasypus novemcinctus</i>	14
<i>Didelphis virginianus</i>	23
<i>Felis catus</i>	1
<i>Glaucomys volans</i>	6
<i>Lontra canadensis</i>	1
<i>Lynx rufus</i>	8
<i>Mephitis</i>	10
<i>Neotoma spp.</i>	2
<i>Odocoileus virginianus</i>	28
<i>Peromyscus spp.</i>	2
<i>Procyon lotor</i>	144
<i>Sciurus carolinensis</i>	12
<b><i>Spilogale putorius</i></b>	<b>6</b>
<i>Sus scrofa</i>	1
<i>Sylvilagus spp.</i>	14
<i>Tamias striatus</i>	15
<i>Urocyon cinereoargenteus</i>	21
unknown	23
	356

**Table 2.** Date and Location of Eastern Spotted Skunks Photographed in 2018, LeFlore, County

Species	Date	Location
<i>Spilogale putorius</i>	23 February 2018	34.67316, -94.68206
<i>Spilogale putorius</i>	16 March 2018	34.66738, -94.70025
<i>Spilogale putorius</i>	23 March 2018	34.65966, -94.63491

**Table 3.** Mammal species detected and number of detections in and in the vicinity of Cookson Wildlife Management Area and the Ouachita National Forest. Species detected at locations where Eastern Spotted Skunks were detected are denoted by an asterisk. Camera trapping was conducted October–April 2018–2019 and 2019–2020.

<b>Mammal</b>	<b># detections Ouachita Mountains NF</b>	<b># detections Cookson WMA</b>	<b>Total</b>
<i>Sciurus carolinensis</i> (Eastern Grey Squirrel)*	450	121	571
<i>Procyon lotor</i> (Raccoon)*	352	46	398
<i>Odocoileus virginianus</i> (White-tailed Deer)*	263	59	322
<i>Urocyon cinereoargenteus</i> (Gray Fox)*	222	14	236
<i>Sus scrofa</i> (Feral Pig)*	132	18	150
<i>Peromyscus</i> spp. (deer mice)*	112	23	135
<i>Didelphis virginiana</i> (Virginia Opossum)*	100	17	117
<i>Dasypus novemcinctus</i> (Nine-banded Armadillo)*	70	10	80
<i>Sciurus niger</i> (Eastern Fox Squirrel)	52	9	61
<i>Neotoma</i> spp.(woodrats)*	46	2	48
<i>Canis latrans</i> (Coyote)*	39	11	50
<i>Glaucomys volans</i> (Southern Flying Squirrel)*	28	5	33
<i>Lynx rufus</i> (Bobcat)*	21	5	26
<i>Mephitis</i> (Striped Skunk)	22	1	23
<i>Canis familiaris</i> (Domestic Dog)	18	5	23
<i>Spilogale putorius</i> (Eastern Spotted Skunk)	<b>12</b>		<b>12</b>
<i>Ursus americanus</i> (Black Bear)	9	1	10
<i>Tamias striatus</i> (Eastern Chipmunk)		6	6
<i>Sylvilagus floridanus</i> (Eastern Cottontail)	8		6
<i>Cervus canadensis</i> (Elk)		5	5
<i>Bos taurus</i> (Domestic Cattle)		1	2
unknown	49	12	61

**Table 4.** Mammal species detections separated by year within each October-April survey season. Includes detections in the Ouachita National Forest (2018-2020) and Cookson Wildlife Management Area (2020). Species detected at locations where Eastern Spotted Skunks were detected are denoted by an asterisk.

<b>Mammal</b>	<b>Oct-Dec (2018)</b>	<b>Jan-Apr (2019)</b>	<b>Oct-Dec (2019)</b>	<b>Jan-Apr (2020)</b>	
	<i>Ouachita NF</i>	<i>Ouachita NF</i>	<i>Ouachita NF</i>	<i>Ouachita NF</i>	<i>Cookson WMA</i>
<i>Bos Taurus</i> (Domestic Cattle)			1		1
<i>Canis familiaris</i> (Domestic Dog)		14	2	2	5
<i>Canis latrans</i> (Coyote)*	9	6	22	2	11
<i>Cervus canadensis</i> (Elk)					5
<i>Dasyopus novemcinctus</i> (Nine-banded Armadillo)*	10	47	13		10
<i>Didelphis virginiana</i> (Virginia Opossum)*	15	39	44	2	17
<i>Glaucomys volans</i> (Southern Flying Squirrel)*	5	11	12		5
<i>Lynx rufus</i> (Bobcat)*	2	8	7	4	5
<i>Mephitis mephitis</i> (Striped Skunk)*	5	8	9		1
<i>Neotoma</i> spp.(woodrat)*	2	9	35		2
<i>Odocoileus virginianus</i> (White-tailed Deer)*	42	76	128	17	59
<i>Peromyscus</i> spp. (deer mouse)*	19	37	52	4	23
<i>Procyon lotor</i> (Raccoon)*	55	125	159	13	46
<i>Sciurus carolinensis</i> (Eastern Grey Squirrel)*	111	59	270	10	121
<i>Sciurus niger</i> (Eastern Fox Squirrel)	6	18	25	3	9
<i>Spilogale putorius</i> (Eastern Spotted Skunk)		10	2		
<i>Sus scrofa</i> (Feral Pig)*		62	70		18
<i>Sylvilagus floridanus</i> (Eastern Cottontail)	2	3	3		
<i>Tamias striatus</i> (Eastern Chipmunk)					6
<i>Urocyon cinereoargenteus</i> (Gray Fox)*	18	88	102	14	14
<i>Ursus americanus</i> (Black Bear)		4	5		1
unknown	4	12	30	3	12

**Table 5:** Eastern spotted skunk detection details for each event including average abiotic environmental variables such as time, temperature, and moon phase. Survey conducted October–April 2018-2019 and 2019-2020.

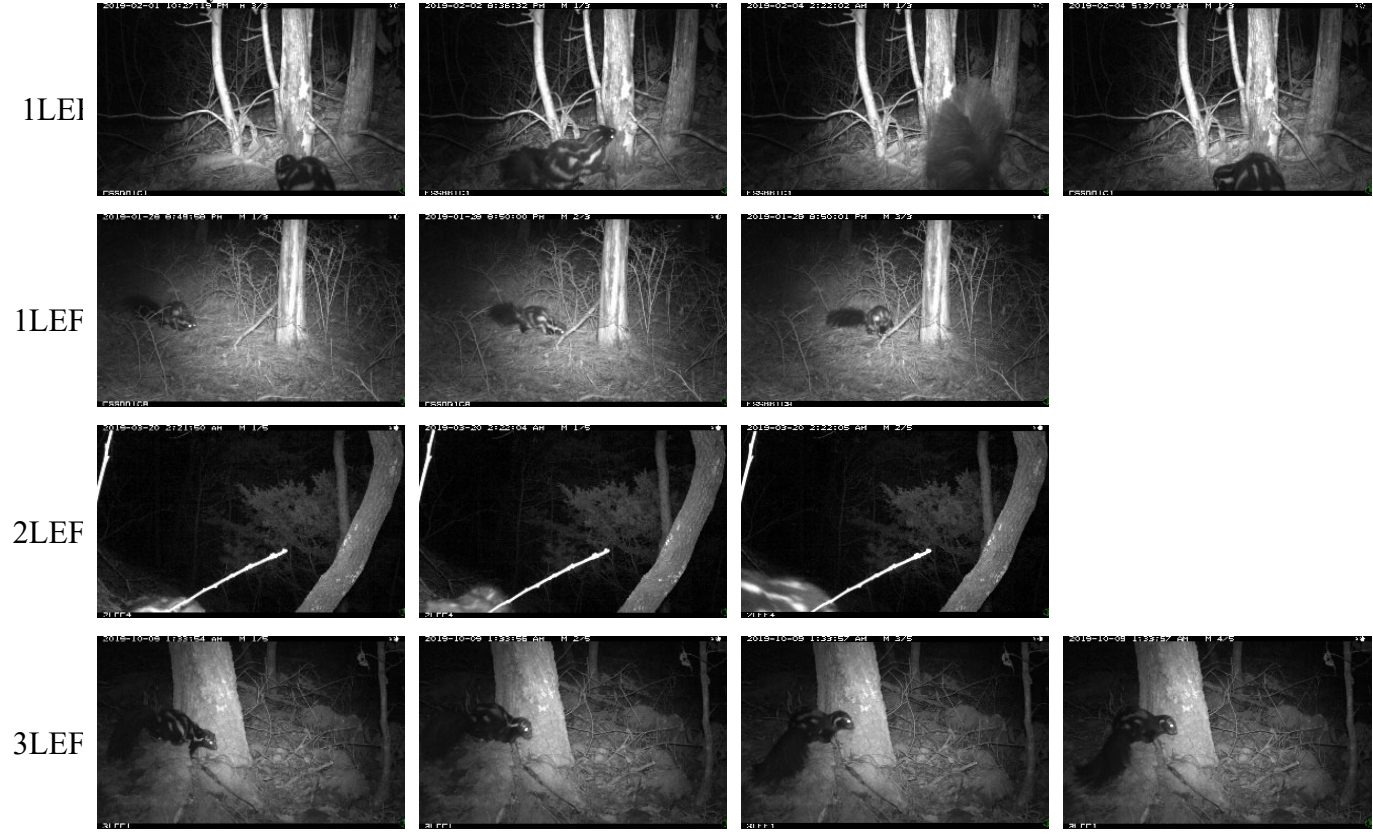
Location	Latency	Date	Time	Temperature (C°)	Moon illumination
1LEF3	<8 hrs	28-Jan-19	20:49	0	Low
1LEF2	3 days	31-Jan-19	20:28	7	Low
		1-Feb-19	22:27	11	Low
		2-Feb-19	20:36	12	Low
		4-Feb-19	2:20	17	Low (0%)
		4-Feb-19	5:37	17	Low (0%)
		5-Feb-19	23:24	20	Low
		10-Feb-19	1:55	1	Low
		10-Mar-19	21:11	7	Low
2LEF4	4 days	20-Mar-19	2:21	14	High (100%)
3LEF1	3days	9-Oct-19	1:33	14	High
6MCC3	13 days	31-Oct-19	2:09	2	Low

**Table 6.** Habitat characteristics for each location that resulted in an eastern spotted skunk detection. Survey conducted October–April 2018-2019 and 2019-2020.

<b>Camera</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Date Deployed</b>	<b>Date Collected</b>	<b>Days Deployed</b>	<b>Habitat Characteristics</b>
1LEF2 (Perm1)	34.66805	-94.70077	27-Jan-19	15-Mar-19	47	Understory thick with pine saplings; pine-dominated forest
			6-Oct-19	19-Apr-20	196	
1LEF3 (Perm2)	34.68255	-94.68447	27-Jan-19	15-Mar-19	47	Next to stream in moderately sparse understory; pine-dominated forest
			6-Oct-19	19-Apr-20	196	
2LEF4 (Perm3)	34.83972	-94.89444	16-Mar	12-May-19	57	On Steep incline with small ephemeral streambed at the bottom; large pines; young hardwoods
			6-Oct-19	19-Apr-20	196	
3LEF1	34.86306	-94.79361	6-Oct-19	2-Nov-19	27	On a steep rocky incline; woody vines and little understory vegetation; oak/hickory-dominated forest
6MCC3	34.36583	-94.83806	18-Oct-19	19-Apr-20	184	Next to small stream in young hardwood forest

**Figure 1.** Camera trap pictures of *Spilogale putorius* spotted skunks from four locations in the Ouachita National Forest, LeFlore Co., Oklahoma and one location in the Ouachita National Forest, McCurtain Co, Oklahoma.

**Leflore County**

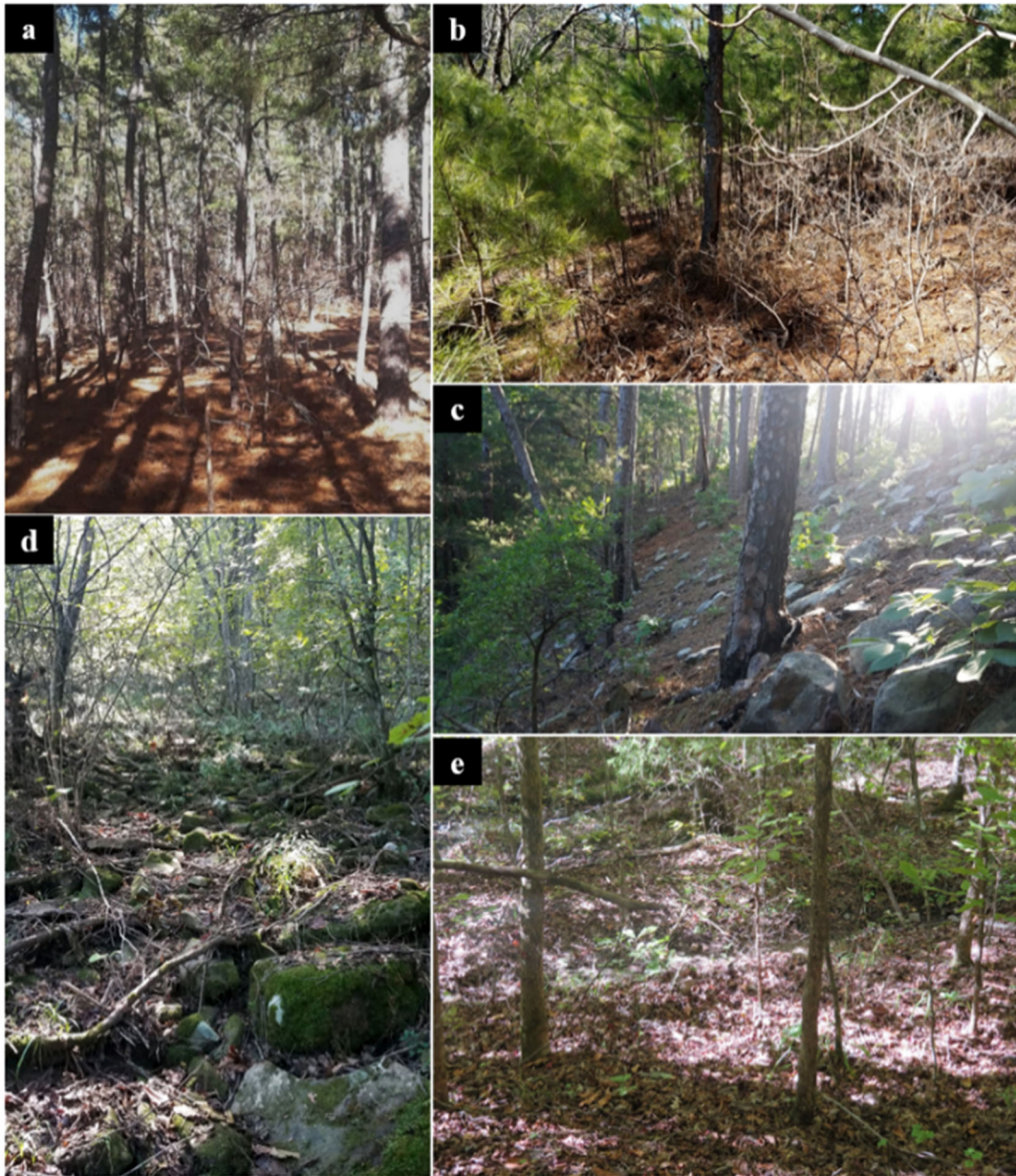


**McCurtain County**

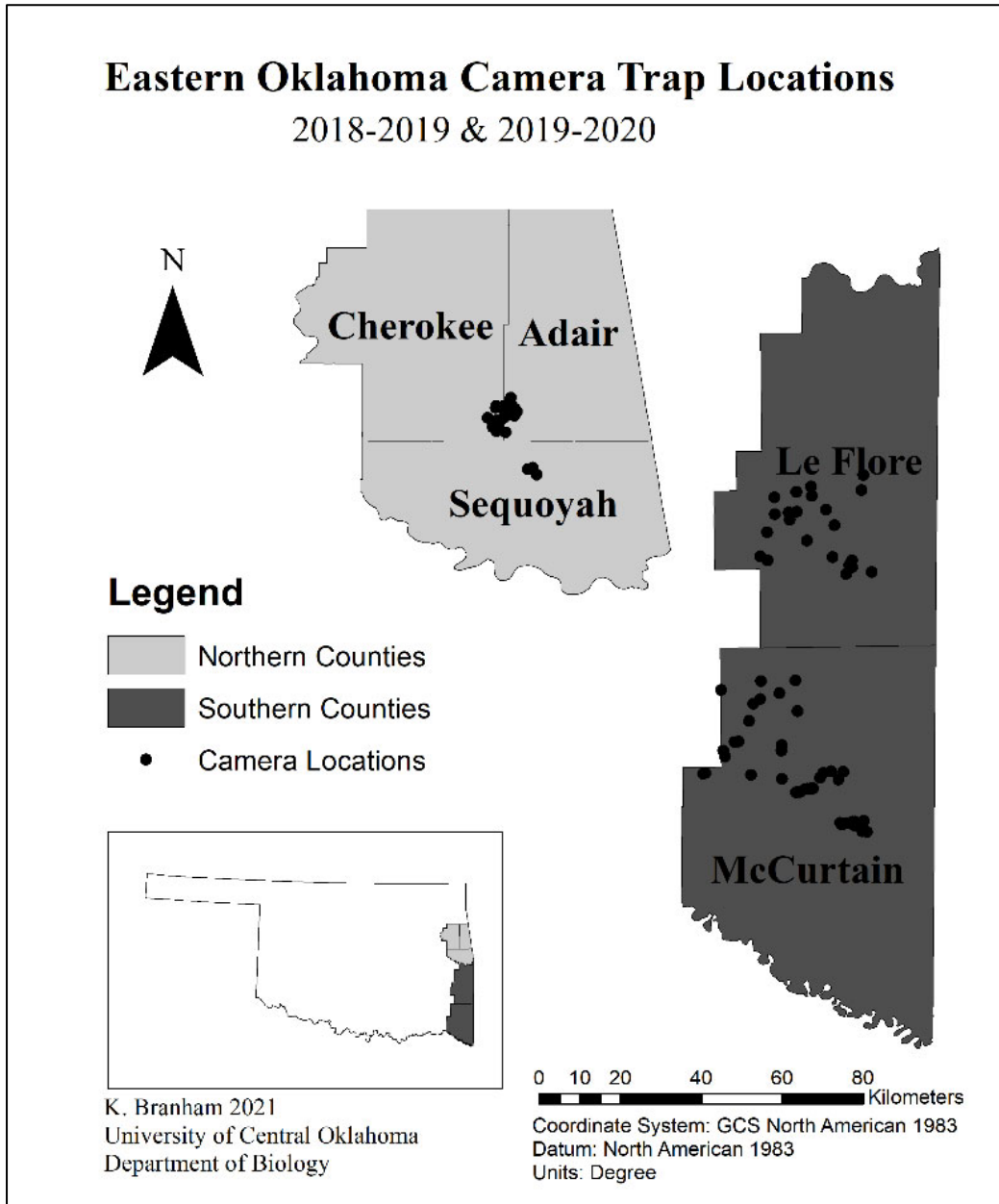




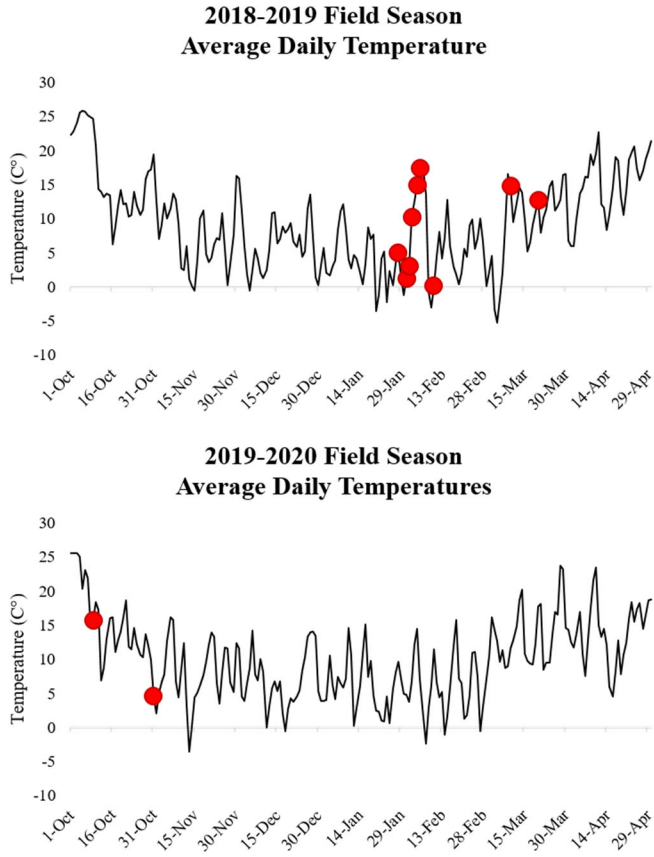
**Figure 2.** Photos of habitat characteristics representing five locations with eastern spotted skunk detections. (a) 1LEF2 (b) 1LEF3 (c) 2LEF4 (d) 3LEF1 (e) 6MCC3



**Figure 3.** Study area for mesocarnivore camera trapping survey in eastern Oklahoma indicating camera-trap locations in the three more northern counties (light gray) and two southern counties (dark gray).



**Figure 4.** Average daily temperature for each location with confirmed eastern spotted skunk locations during the 2018–2019 and 2019–2020 field seasons. Temperature data was collected from the PRISM Climate Group’s PRISM Time Series Data (<https://prism.oregonstate.edu/explorer/>).



**Figure 5.** Average daily precipitation for each location with confirmed eastern spotted skunk locations during the 2018–2019 and 2019–2020 field seasons. Precipitation data was collected from the PRISM Climate Group’s PRISM Time Series Data (<https://prism.oregonstate.edu/explorer/>).

