

OKLAHOMA BOBCAT MANAGEMENT PLAN

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INTRODUCTION

The Oklahoma Department of Wildlife Conservation (ODWC) was created by Article XXVI of the Oklahoma Constitution and bobcats are defined as a furbearer in Oklahoma Statute §29-2-111. Bobcats (*Lynx rufus*) are a popular game species for trappers, are important for the economy, and are not a major problem species. They are a popular species for trappers in Oklahoma and important for the economy, bringing anywhere from \$27 to \$150 per pelt in the last ten years. They are rarely a concern for the public, especially in Oklahoma due to the fact they are rarely encountered and cause little concern for the farmers and ranchers there. Bobcats may constitute economic damage in the western states on goats and sheep that figure around 10% or less of losses due to predation (Virchow and Hogeland 1994), but do not cause enough damage to be of concern in Oklahoma (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication). If the population is not controlled and natural food resources become limited, then predation of domesticated animals could potentially become a problem in Oklahoma. A trapping and hunting season is implemented by the ODWC to ensure a balance between a sustainable population for trapping and reducing human wildlife conflict.

Trapping and hunting is used to maintain the population size of bobcats, but biological knowledge about the bobcat population in the United States and Oklahoma is limited. Studies have not been conducted for bobcat in Oklahoma since 1985 (Rolley 1985, Rolley and Warde 1985). Neither study determined a complete population estimate for Oklahoma, but an estimate for southeast Oklahoma was one adult per 11 square kilometers (Rolley 1985). Today the information regarding bobcat population comes from the number of animals tagged and from roadside surveys, neither of which give an estimate of total population numbers (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication). The number of

bobcat harvested and the season length is based largely off the fact that the number of bobcats tagged in Oklahoma is staying relatively constant (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication).

Although, bobcat hunting and trapping is important for the state of Oklahoma there are groups of people who do not understand the importance of bobcats in the state of Oklahoma. Often, the people in opposition to trapping live in the city and are not educated about the ethics of trapping and its role in conservation (Reginald Murray, Fur Takers of Oklahoma President, personal communication). People for the Ethical Treatment of Animals (PETA) is another group that is against hunting and trapping in Oklahoma. State statute §29-5-502 sets laws that regulate the types of traps that are permitted, which ensures the ethical treatment of animals that are trapped. Proper education about trapping will help to alleviate public concerns related to trapping.

To date a management plan for bobcat in Oklahoma has not been implemented. Bobcats are an important species for trappers, the economy of Oklahoma, and are not a significant cause for human wildlife conflict. This plan will help to increase knowledge of the population of bobcats in the state of Oklahoma and will be updated as information is gathered about the biology and ecology of the bobcat population. Implementing a management plan for bobcat in Oklahoma will ensure that the correct number are harvested each year, that bobcat are around for people to enjoy in the future, and that the public awareness of trapping will increase.

SUMMARY OF GOAL AND OBJECTIVES

Goal: Manage the bobcat population in Oklahoma in a sustainable way for future generations.

OBJECTIVE 1. Obtain population demographics (i.e. population estimates, sex ratio, and population density) for bobcats statewide in different geographic regions.

OBJECTIVE 2. Set bobcat harvest numbers and season based on biological data.

OBJECTIVE 3. Develop a cost-efficient strategy for long-term monitoring of the population.

OBJECTIVE 4. Increase public awareness of the opportunity for recreational trapping.

BIOLOGY AND ECOLOGY OF BOBCATS

Introduction

Bobcats are medium-sized felids found throughout the United States, except in Alaska and Hawaii (Lariviere 1997). Bobcats are typically colored yellow to reddish brown with black spots. Abundance varies greatly between states and is thought to be the result of prey abundance (Rolley 1985). The only estimate for abundance in Oklahoma was one adult per 11 km² in the mid1980s, which is closer to drier environments (Rolley 1985). There are twelve subspecies recognized, but since they interact throughout their range and differences are minute, distinguishing subspecies is not a concern for management in Oklahoma (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication).

Habitat

The geographic range of bobcats is throughout the contiguous United States except where extensive agriculture has taken place (Boyle and Fendley 1987). Habitat use is often variable in different geographic locations, but bobcats are highly adaptable (Lovallo and Anderson 1996). Bobcats that live in the north prefer conifer forests, in the southeast they inhabit bottomland forests, rocky terrain in the west, and in the southwest they are adapted to deserts. In Wisconsin, males preferred conifer forests at lower elevations and did not prefer higher elevated conifer forests and deciduous forests. Females shared comparable habitat preferences, but they did not use deforested areas and instead they used low elevation deciduous forests. Bobcats were shown to be utilizing habitats that consisted wooded areas in the Wichita Mountains of Oklahoma (Litvaitis 1981).

Home Ranges and Territories

The average home range size is generally larger for male bobcats in comparison to female bobcats. Food abundance and distribution often are factors that shift the sizes of home ranges (Fuller et al. 1985). In Minnesota, the size of the average home ranges is more expansive than those of lower latitudes due to their increased metabolic needs and lower food availability. The mean range size in Minnesota was 46-61 km² for males and 32-49 km² for females. In Idaho, the mean home range size for male was 42.1 km² and mean home range size for females was 19.3 km² (Bailey 1974). Regions in southeastern Idaho may have bobcat home ranges as small as 2.5 km² and areas in northeastern Idaho as big as 105 km². This most likely is due to a limited abundance of food resources for bobcat. Female home ranges rarely overlap and while male/female ranges do overlap, outside of breeding female and male bobcats rarely acknowledge each other. Bobcats have established territories within their home range, but they show a lot of overlap with other bobcat territories (Allen et al. 2014). Their territories are thought to be established more for accounting for their conspecifics rather than displaying their control over their range.

Scent Marking

Bobcats use scent markings as a form of communication to conspecifics within their home range (Allen et al. 2014). These scent markings are made by using feces, urine, scrapes, and anal glands. Young bobcats do not seem to leave scent markings until they reach at least five months old. Adults will leave conspicuous feces along their routes of travel, near caves, and rock piles. In California, most locations of recently deposited feces seemed to be deposited by females around their dens; this action appears to be marking special places within the home range rather than the boundary of the home range. Bobcats will also scent mark by urinating on rocks and

bushes. Urine squirting becomes very noticeable when adult bobcats have overlapping pathways. Females will also mark the entrances of dens they are staying in during breeding season with urine. Bobcats will also scrape the ground with their back feet and often urinate or defecate in the depression; these serve as visual cues and leave a scent for bobcats to investigate. Anal glands are also used by bobcats, but how they were used is not well observed (Bailey 1974). In California, scraping and marking with urine were the most common forms of marking by bobcats (Allen et al. 2014).

Population Structure

The composition of the population (i.e. male to female ratio and age class) varies across studies from different states, seemingly without regard to latitude. Male to female ratio was 0.9 males per female in southeastern Idaho, 0.87 males per female in Oklahoma, and in Arkansas 1.7 males per female (Bailey 1974, Fritts and Sealander 1978, Rolley 1985). It has been suggested that the variation in sex ratio can be attributed to harvest of the bobcat population and the nearly even sex ratio in Oklahoma could mean that harvest pressure is high (Rolley 1985). Across the state of Oklahoma, the composition of the population was estimated as 26% juveniles, 32% yearlings, and 43% adults in 1985 (Rolley 1985). Males are typically larger than females, with males in Oklahoma averaging 2 kg (37%) heavier than females (Rolley and Warde 1985, Lariviere 1987).

Reproduction

Breeding for bobcats can occur year round, but the majority of breeding happens between December and July (Lariviere 1997). Bobcats begin reproduction around the age of 1.5 years old with fecundity increasing as they age. For example, a study in Oklahoma found that 92% of adults reproduced and 46% of 1.5 year olds reproduced (Rolley 1985). Litters can range from 1

to 6 kittens with the average litter size being fairly consistent throughout different states and adults producing higher litter sizes (Lariviere 1997). Average litter size was 2.8 in Idaho and 2.5 in Arkansas (Bailey 1974, Fritts and Sealander 1978). Gestation averages 63 days in length with kittens weighing about 280-340g at birth (Lariviere 1997). The mother provides all the care for the young (Lariviere 1997)

Mortality

Bobcats can be preyed upon by larger mammals such as wolves and mountain lions, but most bobcat mortality is due to human related causes (Lariviere 1997). In southeastern Idaho, anthropogenic causes were the main sources of mortality with trapping being the number one cause and cub electrocution when climbing telephone poles being the second; some cubs died from accidents and some deaths were from unknown causes (Bailey 1974). In Oklahoma, the only source of mortality was harvest. In Massachusetts, mortality was caused by disease, predation, poaching, and starvation (Fuller 1995). Most mortality of young bobcats may be due to a decrease in prey (Rolley 1985).

In a study across Oklahoma adult survival was 0.59, survival from birth to 0.5 years old was 0.45, and from 0.5 to 1.5 years old was 0.66 (Bailey 1985). In Massachusetts, overall survival was .624 (Fuller 1995), which is not much different than Oklahoma. Bobcats can live up to 15.5 years in the wild and up to 32 years in captivity (Lariviere 1997).

Diet

The composition and selection of prey in a bobcat's diet can be variable. In northern California the majority of the prey keyed upon by bobcats as determined by scat analysis, was represented by ungulates, lagomorphs, and a variety of rodents (Neale and Sacks 2001). The rate of occurrences and the total biomass collected suggested that small mammals were more

frequently eaten than ungulates. This can be due to the body size of bobcats versus their prey and also their hunting strategy. In the Wichita Mountains of Oklahoma, bobcat scat consisted of 60% rodents (Litvaitis 1981). They are chiefly carnivores that specialize on relatively few prey, but it has also been reported that they occasionally consume carrion (Platt et al. 2010).

Bobcats are mostly known for their solitary hunting strategy that makes it conducive to prey upon smaller mammals as a predominant source of their diets (Major and Sherburne 1987).

Bobcats have adapted to quick bursts of speed and they usually roam their home ranges for hunting opportunities, or they use their stealth and pounce on their prey (Rockhill et al. 2013).

Bobcat activities have been categorized as being crepuscular. One reason they are not strictly nocturnal is because their eyesight is poor at night. If there are high illumination periods, then bobcats were more likely to move and take advantage of the increased illumination to search for prey.

The diets of bobcats are dependent on the abundance of prey within their home range (Fritts and Sealander 1978b). They are also quick to respond and change their strategies on more abundant prey species within their habitat in years with higher prey populations (Beasom and Moore 1977). This trend is also apparent with seasonal shifts, climatic variation, and geographic differences within their habitat (Mckinney and Smith 2007). Drought can be a big concern, not only as an environmental stress to bobcats in arid regions, but it can also be a variable that determines the abundance of prey species in their habitat.

Another element in the diet of bobcats is poultry, small livestock, and domestic animals. It seems that they do not make up a significant portion of their diet if natural prey species are available, but if the opportunity presents itself then they can predate domestic animals, including poultry, calves, sheep, and goats (Virchow and Hogeland 1994). Bobcats may constitute

economic damage in the western states on goats and sheep that figure around 10% or less of losses due to predation.

Parasites/Diseases

There are multiple diseases and pathogens that impact bobcats in their natural habitat and when populations are in close proximity to humans and urban areas. Among some of the longest documented diseases that affect bobcats in the United States is rabies (Krebs et al. 2003). A study analyzed 488 reported cases of rabies in the U.S. from 1960-2000; out of all those cases, only four were reported in Oklahoma. Other diseases and parasites that are known to infect bobcats are Notoedric mange (*Notoedres cati*), which is a mite that can be transferrable within the population and from urbanized areas with domestic cats (Ridley et al. 2007). Other forms of pathogens associated with bobcats and domestic cats include endoparasites such as flukes (*Alaria marciana*), roundworms (*Toxocara cati*), tapeworms (*Taenia rileyi*), and stomach worms (*Physaloptera felis*) (Carver et al. 2012, Hiestand et al. 2014). Bobcats are reservoirs of *Cytauxzoon felis* (derived from ticks) in Oklahoma, as well as in neighboring states such as Missouri and Kansas (Mueller et al. 2013).

MANAGEMENT OF BOBCATS IN OKLAHOMA

Information about the history of bobcat management in Oklahoma is limited. In a 1912 game warden report, bobcat was not listed as a game species, but bobcat were described as being in every covert (Doolin 1912). A 1948 game warden report lists records for bobcat harvest back to 1938 and describes bobcat as being unimportant as a furbearer in Oklahoma (Duck and Fletcher 1948). Bobcat made up between 1% and 6% of the total harvest each year between 1938 and 1944, with prices for pelts ranging from \$0.28 to \$1.40. Current pelt prices (2005 to 2014) have ranged from \$27.69 to \$157.40. In 2012 there were 3,569 bobcat harvested, in 2013 there were 6,016 harvested, and in 2014 there were 5,642 bobcat harvested.

Lifetime licenses allow a residential hunter to be exempt from buying trapping and fur license for the season. While advantageous to the hunter in not having to buy licenses annually, in terms of revenue brought in by fur sales and bobcat trapping yearly, lifetime licenses are hard to track (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication).

Current management of bobcat in Oklahoma is regulated by the Oklahoma Department of Wildlife Conservation (ODWC). Bobcat share a season with other furbearers, which include raccoon (*Procyon lotor*), badger (*Taxidea taxus*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), mink (*Neovison vison*), muskrat (*Ondatra zibethicus*), opossum (*Didelphis virginiana*), and weasel (*Mustela frenata*) and the season runs from 1 December to 28 February (ODWC 2014). Lifetime licenses allow a residential hunter to be exempt from buying trapping and fur licenses for the season. While advantageous to the hunter in not having to buy licenses annually, in terms of revenue brought in by fur sales and bobcat trapping yearly, lifetime licenses are hard to track (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication). Currently there is no daily limit on bobcats, with a season and possession limit

of 20 per license. While the tag limit is seen as reasonable, it is viewed that it could be raised to 30 or more without too much damage done to the population or other impacts done to ecosystems (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication). Pelt tags and roadside surveys are the two main means of estimating bobcat populations in Oklahoma, but these are not the most reliable methods of population determination. The activity of trappers will vary with the price of pelts, which can cause a skewing of population count through pelt tags (Shannon Sheffort, Oklahoma Fur Bearers Alliance Treasurer, personal communication). Roadside surveys are also difficult to discern a population for bobcats, being as most of their activity is at night and behavior to avoid human interaction (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication).

ISSUES, CONCERNS, AND OPPORTUNITIES

There are multiple issues, concerns and opportunities related to bobcat management in Oklahoma. The concerns related to bobcat management are the lack of knowledge about the bobcat population, spread of diseases from bobcat to domestic cats, and potential predation of livestock. When implementing the management plan issues might arise when dealing with animal's rights group and the Conservation Commission. Despite the concerns and issues there are opportunities for managing bobcat in Oklahoma including raising the season limit and public education about trapping in Oklahoma.

There are not a lot of diseases of concern in Oklahoma that involve bobcats. The one that can be a concern is *Cytauxzoon felis*, which is transmitted from bobcats to feral or domesticated cats in rural areas (Rizzi et al. 2015). This disease is passed from ticks to bobcats and can be fatal to domestic and feral cats.

Predation of livestock by bobcats historically has not been a concern in Oklahoma, but in other states has been a small concern. For example, in western state bobcats may constitute economic damage ion goats and sheep that figure around 10% or less of losses due to predation and may deplete the turkey population (Virchow and Hogeland 1994).

The biggest concern about the bobcat population in Oklahoma is the lack of biological knowledge. Currently there is not an estimate of the actual number of bobcat in the state of Oklahoma and the basis for the hunting regulations is a steady trend in the number of bobcat harvested from year to year (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication). If the bobcat population becomes too large then issues such as disease spread to domestic animals and predation of domestic animals may become more of an issue in

Oklahoma. If the population becomes too low then the chance for trappers to harvest bobcat decreases.

There are animal rights groups and individuals that are not in favor of harvesting bobcats. There is not a lot of gray area on the subject; most people are for or against trapping and hunting bobcats (Reginald Murray, Fur Takers of Oklahoma President, personal communication). The concern is not necessarily whether or not people are for or against the management, but for their lack of knowledge or interpretation surrounding it. This can be an issue when it comes to spreading a negative outlook on conservation efforts. Knowledge is not the only factor swaying individuals regarding management. Cultural values and individual backgrounds can sometimes be more influential than scientific information. Being able to coincide with these stakeholders in the future is a necessity to maintain sustainable management for bobcat in Oklahoma.

Politics play a major role in legislation that concerns wildlife and specifically regulations regarding bobcats in Oklahoma. In Oklahoma, there are eight Wildlife Conservation Commissioners appointed by the governor that are separated into eight districts throughout the state (Oklahoma Department of Wildlife 2015). The downside with the Commissioner's being appointed is that not all of them have a biology or ecology background. Passing new regulations regarding bobcats could be more difficult or detrimental when a commissioner does not have a grasp on the biological or ecological effects.

It has been discussed that the season bag limit of 20 bobcats could be increased to 30 bobcats in the future (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication). An increase in a season bag limit will give hunters and trappers more recreational and management opportunities to harvest bobcat in areas of need. This increase could be dependent on a comprehensive population estimate in Oklahoma. An increase in the

season bag limit of bobcat in Oklahoma could also have an impact on more licenses and permit sales from residents and nonresidents. The revenue from the sales will go back into conservation efforts.

There are avenues to facilitate the outreach of trapping and the reasoning behind the management practice. There are two main organizations in Oklahoma that promote education opportunities and membership to individuals who are interested in trapping. The first organization is the Furtakers of Oklahoma (FTO). They are an affiliate of the National Trappers Association (Furtakers of Oklahoma 2015). Their goals are to inform their members on the ethical taking of furbearers, strive to maintain policies and pursue new legislation that help give the best management practices to trappers, and to maintain a cohesive relationship with the Oklahoma Department of Wildlife Conservation (ODWC) for long term management for furbearers in Oklahoma. The other main furbearer organization is the Oklahoma Furbearers Association (OFBA). In the past, the OFBA has conducted youth camps and trapper workshops (Oklahoma Fur Bearers Association 2015). In addition, they also held a booth at the Oklahoma Wildlife Expo, which is sponsored by the ODWC, to help inform the public on trapping and guidance on skinning furbearers.

The regulating agency in Oklahoma is the Oklahoma Department of Wildlife Conservation (ODWC). There is currently no trappers' education course being offered by the state at this time, but it is something that is being discussed by the state furbearer biologist (J. L. Davis, Oklahoma Department of Wildlife Conservation, personal communication). If this step is initiated, it would help ensure another educational opportunity for the ethical trapping and hunting for bobcat and other furbearer species in Oklahoma.

MANAGEMENT RECOMMENDATIONS

OBJECTIVE 1. Obtain population demographics (i.e. population estimates, sex ratio, and population density) for bobcats statewide in different geographic regions.

RATIONALE

Little is known about the population of bobcat in Oklahoma and to effectively manage a population information about the demographics is crucial. Without this information, harvest may take too many animals or take too little. If too many animals are removed, the population's existence might be threatened. If not enough are taken, then spread of disease or predation of domestic animals may become a problem.

STRATEGY 1. Have mandatory online check-in for all bobcats harvested in Oklahoma. Data that would be required would be harvest location, harvest time, sex, and age class (juvenile or adult). This information would allow managers to better understand the population and how harvest should be set in order to manage the population

STRATEGY 2. Trap bobcats using leg-hold traps then sedate, weigh, measure, check for disease, ear-tag, and release. The number of bobcats marked would be compared to the number recaptured using traps and other techniques.

STRATEGY 3. If economically feasible, use detector dogs to find bobcat scat and if not, use trail cameras placed in strategic areas around the state to detect bobcats.

STRATEGY 4. Use the data gathered to estimate bobcat population in Oklahoma, as well as sex ratio and age structure.

OBJECTIVE 2. Set bobcat harvest numbers and season based on biological data.

RATIONALE

Setting harvest numbers for any game species based on biological data is the best way to harvest the population sustainably. Setting bobcat harvest based on the data collected in objective one will allow us to determine if the harvest can be increased, needs to be decreased, or should remain the same.

STRATEGY 1. Based on the population estimate derived in objective one, strategy for, determine if the season limit should be changed based on the age structure and sex ratio of the population.

STRATEGY 2. If an adjustment to the harvest is needed make that recommendation to the Wildlife Commission and back up with biological data.

OBJECTIVE 3. Develop a cost-efficient strategy for long-term monitoring of the population.

RATIONALE

Following the first season when the new hunting regulations are implemented the population will need to be monitored closely to assess the short-term and long-term effects of the harvest in order to avoid the negative effects detailed in the rationale for objective one.

STRATEGY 1. Assess the effectiveness and cost-efficiency of each of the methods used to obtain initial population data.

STRATEGY 2. Establish monitoring protocols that can be implemented annually or biannually by district biologists, technicians, and managers. Data will be analyzed by the furbearer biologist, and used to inform future bobcat harvest. A summary of the harvest and population data will be available on the ODWC webpage.

OBJECTIVE 4. Increase public awareness of the opportunity for recreational trapping.

RATIONALE

Trapping is one of the most effective ways of harvesting and controlling bobcat populations. In order to have a sustainable harvest, sportsmen and sportswomen need more exposure to trapping tactics and techniques. Trapping might seem intimidating to some starting out without any experience. Providing a means for outreach could help encourage more individuals to take part in trapping.

STRATEGY 1. Provide a trapper education course either from the Oklahoma Department of Wildlife and Conservation (ODWC) or contracted through an approved alternative. Providing hands on training will increase confidence with equipment and ethical harvesting of bobcats.

STRATEGY 2. Starting an organization that is focused on introducing trapping to interested children at schools would help facilitate the transition for them. The program could be a condensed version of the trapper education, streamlined for their age level and promoting the message of why it is an important activity for conservation.

LITERATURE CITED

- Allen, M. L., C. F. Wallace, and C. C. Wilmers. 2014. Patterns in bobcat (*Lynx rufus*) scent marking and communication. *Journal of Ethology* 33:9-14.
- Bailey, T. N. 1974. Social organization in a bobcat population. *Journal of Wildlife Management*. 38:435-446.
- Beasom, S. L., and R. A. Moore. 1977. Bobcat food habit response to a change in prey abundance. *The Southwestern Naturalist* 21:451-457.
- Boyle, K. A., and T. T. Fendley. 1987. Habitat suitability index models: bobcat. U.S. Fish Wildlife Service Biological Report 82:1-16.
- Carver, S., A. V. Scorza, S. N. Bevins, S. P. D. Riley, K. R. Crooks, S. Vandewoude, and M. R. Lappin. 2012. Zoonotic parasites of bobcats around human landscapes. *Journal of Clinical Microbiology* 50:3080-3083.
- Duck, L. G. and J. B. Fletcher. 1943. A survey of the game and furbearing animals of Oklahoma. Southwestern Stationery a Bank Supply, Ponca City and Lawton, Oklahoma, USA.
- Fritts, S. H., and J. A. Sealander. 1978a. Reproductive biology and population characteristics of bobcats (*Lynx rufus*) in Arkansas. *Journal of Mammalogy* 59:347-353.
- Fritts, S. H., and J. A. Sealander. 1978b. Diets of bobcats in Arkansas with special reference to age and sex differences. *Journal of Wildlife Management* 42:533-539.
- Fuller T. K., W.E. Berg, and D.W. Kuehn. 1985. Bobcat home range size and daytime cover-type use in northcentral Minnesota. *Journal of Mammalogy* 66:568-571.
- Furtakers of Oklahoma [FTO]. 2015. FTO homepage. <<http://oklahomatrapper.com/>>. Accessed 23 March 2015.

- Hiestand, S. H., C. K. Nielson, and F. A. Jiménez. 2014. Modelling potential presence of metazoan endoparasites of bobcats (*Lynx rufus*) using verified records. *Folia Parasitologica* 61:401-410.
- J.B. Doolin. 1912. *Field, forest, and stream in Oklahoma*. Cooperative Publishing Company, Guthrie, Oklahoma, USA.
- Krebs, J. W., S. M. Williams, J. S. Smith, C. E. Rupprecht, and J. E. Childs. 2003. Rabies among the infrequently reported mammalian carnivores in the United States, 1960-2000. *Journal of Wildlife Diseases* 39:253-261.
- Lariviere, S., and L. R. Walton. 1997. *Lynx rufus*. *Mammalian Species*. 563:1-8.
- Litvaitis, J. A. 1981. A comparison of coyote and bobcat food habits in the Wichita Mountains, Oklahoma. *Proceedings of the Oklahoma Academy of Science* 61:81-82.
- Lovallo, M. J., and E. M. Anderson. 1996. Bobcat (*Lynx rufus*) home range and habitat use in northwest Wisconsin. *American Midland Naturalist* 135:241-252.
- Major, J. T., and J. A. Sherburne. 1987. Interspecific relationships of coyotes, bobcats, and red foxes in western Maine. *Journal of Wildlife Management* 51:606-616.
- McKinney, T., and T. W. Smith. 2007. Diets of sympatric bobcats and coyotes during years of varying rainfall in central Arizona. *Western North American Naturalist* 67:8-15.
- Mueller, E. K., K. A. Baum, M. Papes, L. A. Cohn, A. K. Cowell, and M. V. Reichard. 2013. Potential ecological distribution of *Cytauxzoon felis* in domestic cats in Oklahoma, Missouri, and Arkansas. *Veterinary Parasitology* 192:104-110.
- Neale, J. C. C., and Sacks, B. N. 2001. Resource utilization and interspecific relations of sympatric bobcats and coyotes. *Oikos* 94:236-249.

- Oklahoma Fur Bearers Alliance [OFBA]. 2015. OFBA homepage. <<http://oktrapper.com/>> Accessed 23 March 2015.
- Oklahoma Department of Wildlife Conservation. 2014. Oklahoma Hunting. <http://www.wildlifedepartment.com/laws_regs/hunt1415.pdf>. Accessed 26 March 2015.
- Oklahoma Department of Wildlife Conservation [ODWC]. 2015. ODWC The Commission <<http://www.wildlifedepartment.com/aboutodwc/commission.htm>> Accessed 26 March 2015.
- Platt, S. G., G. T. Salmon, S. M. Miller, and T. R. Rainwater. 2010. Scavenging by a bobcat, *Lynx rufus*. Canadian Field-Naturalist 124:265–267.
- Ridley, S. P. D., C. Bromley, R. H. Poppenga, F. A. Uzal, L. Whited, and R. M. Sauvajot. 2007. Anticoagulant exposure and notoedric mange in bobcats and mountain lions in urban southern California. Journal of Wildlife Management 71:1874-1884.
- Rizzi, T. E., M. V. Reichard, L. A. Cohn, A. J. Birkenhauer, J. D. Taylor, and J. H. Meinkoth. 2015. Prevalence of *Cytauxzoon felis* infection in healthy cats from enzootic areas in Arkansas, Missouri, and Oklahoma. Parasites & Vectors 8:1-6.
- Rockhill, A. P., C. S. Deperno, and R. A. Powell. 2013. The effect of illumination and time of day on movements of bobcats (*Lynx rufus*). PLOS ONE 8:e69213.
- Rolley, R. E. 1985. Dynamics of a harvested bobcat population in Oklahoma. Journal of Wildlife Management 49:283-282.
- Rolley, R. E., and W. D. Ward. 1985. Bobcat habitat use in southeastern Oklahoma. Journal of Wildlife Management 49:913-920.
- Virchow, D., and D. Hogeland. 1994. Bobcats. Pages C-35-C-44 in S. E. Hygnstrom, R. M.

Timm, and G. E. Larson, editors. The handbook: prevention and control of wildlife damage. University of Nebraska-Lincoln, Lincoln, Nebraska, USA.