The Dimensions of Bald Eagle Conservation in Kansas: Intersections of Ecology, Culture, and Public Perception

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Abstract

This study examines how nesting behavior, habitat characteristics, forest health, and human activity shape the long term success of Bald Eagles (*Haliaeetus leucocephalus*) across North America and locally in Manhattan, KS. While the species has recovered from near extinction, changes in land use, declining forest conditions, and increasing human presence continue to influence where Bald Eagles nest and how successful their nests are. After in-depth literature review and field work, Bald Eagles consistently choose tall, mature trees that are near water, they have strong nest site fidelity, and they are highly capable of adapting to new environments, including urban areas. However, there are major threats, like tree disease, habitat destruction, large scale weather events, and human disturbances that all contribute to the decline of Bald Eagles and their nest survival. Locally, we found most nests are out of the way of human disturbance and that those nests were far larger than the nest that was found in an area with large human disturbance. Survey results showed that most people who spend time in these natural areas really care a lot about Bald Eagles and want to help protect their habitat. Respondents support switching to non-lead fishing and hunting gear as well, even if cost or convenience can be difficult. This research will highlight the importance of effective conservation, supporting healthy environments, and managing human activity, especially during breeding season. Bald Eagle success and population persistence heavily depends on all of these factors.

Introduction

Relevance and Literature Review

Bald Eagles (*Haliaeetus leucocephalus*) have a mix of behaviors that help them survive in all types of environments. One of the biggest behaviors that they have is the way that they build their massive nests. These nests at times can weigh hundreds of pounds, and they continue to add to these year after year (Wilson et al., 2018). Bald Eagles will choose tall, strong trees and sometimes structures, where they can be close to water so that they can hunt easily (Figure 1; Kralovec et al., 1992). Studies from across the United States indicate that Bald Eagles have extreme nest site fidelity as long as the habitat stays in good condition and there are enough resources available (Airola et al., 2025, Saalfield and Conway, 2010).

Figure 1. A) A Bald Eagle nest in a group of mature trees, B) a large Bald Eagle nest in a solitary tree. Both are examples of tall, strong, and mature trees that Bald Eagles will inhabit to ensure that their nests will thrive.

Understanding the factors that can influence Bald Eagle nesting success is important because the species, despite its recovery since the 1960s, still faces many of the issues. As forests change, urban areas expand, and human activity increases near lakes and rivers, the conditions that Bald Eagles rely on for success are becoming more unpredictable. Since Bald Eagles depend heavily on mature trees, riparian forests, and consistent food sources, studying these relationships can help identify what habitats are the most vulnerable and we need to protect most.

This research is relevant to wildlife managers, foresters, landowners, and communities who interact with Bald Eagles. Nest locations can affect construction plans, recreation areas, and land use decisions, making it essential to understand how human disturbance, forest decline, and environmental changes impact nesting behaviors. Bald Eagles have ecological, cultural, and symbolic importance, therefore protecting Bald Eagles is not only a biological need but it is also a public and social priority. Looking at habitat quality, forest health, and human presence, all of which influence nesting site selection, our research demonstrates how effective conservation planning can help maintain Bald Eagle populations, so the species continues to thrive throughout various environments.

While Bald Eagles have persisted through many ecological challenges, the long term population success still depends on the quality of their nest sites and what is happening in the environment around them. Studies have shown that Bald Eagle nesting is shaped by a combination of tree characteristics, forest health, weather patterns and how close human development is to nest sites (Fraser et al., 1998, Kravolec et al., 1992, Castle et al., 2023). Our

literature review thus reports on previous research by looking closely at how each of these factors influence Bald Eagle populations.

Understanding what habitat features Bald Eagles look for when choosing where to nest is imperative to understanding their nesting ecology. Many studies show that eagles prefer tall, sturdy trees near water where they can hunt easily and keep their nests safe (Kralovec et al., 1992, Airola et al., 2025). A study from the Great Lakes region using Bayesian modeling found that factors like tree height, canopy cover, and distance to water are some of the strongest predictors of nest site suitability (Grubb et al., 2003). Another study highlights that Bald Eagles also care about how open the area is and how well they can see their environment from their nest (Saalfield and Conway, 2010, Goulet et al., 2021). In a place like Kansas, bigger trees are not as common, and the Kansas Forest Service notes how important large hardwoods are for wildlife, especially tree species like cottonwoods and oaks (Kansas Forest Service, 2023).

On a broader scale, understanding how forest health affects Bald Eagle nesting opportunities is important. Forests across the United States are dealing with all kinds of issues, including pests, droughts, invasive species, and diseases like oak wilt (USDA Forest service, 2023, University of Minnesota Extension, 2023). These problems weaken trees and reduce the number of durable nesting trees that are available. This is important because Bald Eagles build large nests that are commonly reused year after year, therefore tree health is very important to ensure reusability (Wilson et al., 2018). Kansas State University Extension has highlighted how insects, diseases and environmental stress can affect tree stability and lifespan (Kansas State University, 2016).

Another factor impacting Bald Eagles is human activity, especially during the breeding season. Several studies indicate how human disturbance like boating, construction, or individual people walking or hiking at close proximity to nests can reduce nest success especially during the incubation stages or early during chick development (Fraser et al., 1985). Current research also shows that Bald Eagles who nest near intense human activity tend to have lower nest

success overall, even though it is shown that some mating pairs of Bald Eagles can have a higher tolerance (Gedir et al., 2023). Some studies have shown that even small interruptions can change feeding patterns and create stress for adult birds, and for the Bald Eagles that continue to nest near people, they often are affected by traffic, noise, recreation and development (Steidl and Anthony, 2000, Goulet et al., 2021).

One aspect of human disturbance that has direct impacts on Bald Eagles is lead poisoning from materials that can be left behind from consumptive recreational activities such as hunting and fishing. Lead poisoning has a widespread impact on Bald Eagles and has been reported in 34 states (Feierabend and Myers, 1984, Franson et al., 1995). Both in the past and recently, lead poisoning is often considered a significant source of mortality in Bald Eagles (Kramer and Redig, 1997, Russell and Franson, 2014, Slabe et al., 2022). One study found that giving non-toxic rifle bullets to big game hunters in Wyoming resulted in reduced lead exposure to Bald Eagles wintering in the study area (Bedrosian et al., 2012). Many state and federal regulations have outlawed the use of lead products on state and federal land (Figure 2). A better understanding of why consumptive recreators may choose lead products over safer alternatives would be useful for Bald Eagle conservation.

Figure 2. A sign indicating that lead shot is prohibited by state law in Kansas. Lead is toxic and can be consumed by Bald Eagles when hunting or foraging for food.

Objectives

The overall goal of this research project is to understand how different factors, like local and landscape scale habitat features, human activity, and how human perceptions all come together to influence Bald Eagle population persistence in the Manhattan, KS region. To do this our objectives were two-fold; we 1) conducted local scale nest site selection and summarized landscape scale nest site characteristics on Bald Eagle nests and 2) collected the public's perceptions of Bald Eagles and Bald Eagle conservation through their use or non use of lead products.

Methods

Site Selection

Our project focused on Bald Eagle nest sites within the greater Manhattan, Kansas region, with an initial emphasis on public land surrounding the region. Early in the process, we encountered a challenge with access to Bald Eagle nest location data, due to special legal status that is granted to eagles in the United States. Fortunately, we were able to obtain approximations of Bald Eagle nest site locations through a long term monitoring dataset and through collaboration with several local and federal agencies.

Using these locations, we conducted fieldwork at nest sites that were verifiable, accessible, and legally permissible to visit. This approach ensured that all surveyed nests met the criteria needed for consistent data collection. Using this approach we selected eight potential nest site locations for field data collection. However, one site had to be excluded because a road closure restricted access. However, at another location, we located two nests in close proximity, allowing us to replace the missed site. In total, we successfully surveyed eight Bald Eagle nest sites. We conducted fieldwork mid November during the non breeding season and when Bald Eagles have vacated the nest, to eliminate disturbance to Bald Eagles.

Nest Site Measurements

At each nest site, we recorded a standardized set of structural, environmental, and spatial measurements to characterize Bald Eagle nest tree selection and surrounding habitat conditions. Each nest tree was assigned a unique ID number to differentiate between individual nest sites. We measured diameter at breast height (DBH) in meters and documented whether the nest was present or not present at the time of our visit. For each nest tree, we recorded observers and location.

We measured tree height, nest height, canopy height, and nest diameter using a handheld digital hypsometer, which allowed us to estimate vertical measurements by sighting the base and top of the tree or nest. Tree species were identified visually. We noted whether

water was visible from the base of the nest tree and described the nest materials (e.g., medium sticks, mixed medium and small sticks). We also documented whether the tree was situated on a slope and recorded the slope direction when present.

Vegetation cover surrounding the nest tree was estimated using percentage classes (e.g., 71–80%, 81–90%), and we provided brief descriptions of the dominant vegetation types present at ground level. Using a GIS (ArcGIS Pro), we later calculated the distance from the nest tree to the nearest water body and the nearest road. We also estimated percentages of nearby human development, shrubland, grassland, cropland, and woodland within the immediate 22km buffer area around each nest tree. The buffer distance was chosen as it was the average breeding season home range for Bald Eagles (Middleton et al., 2024).

To compare nest trees with non-nest trees, we identified two additional trees at each site that were similar in height and general structure. For these comparison trees, we recorded the same measurements except for all nest-specific variables (nest height, nest diameter, nest materials, and visibility of nest). We used a logistic regression to portray the relationship between trees that were selected for DBH and tree height, which indicated the probability of use of the trees as a nest site related to that characteristic.

Collectively, these measurements were selected to capture a broad range of factors that may influence Bald Eagle nest site selection. We aimed to determine whether eagles consistently selected taller trees, trees with larger DBH, or trees with particular canopy characteristics, as well as whether ground vegetation, tree species, and proximity to water or human activity played a role. Recording nest size and materials also helped document structural patterns among nests in our region. Distance to water was of particular interest given the well-known tendency of Bald Eagles to nest near visible water sources for food. Together, these variables provided a comprehensive dataset for analyzing habitat preferences and trends across the eight surveyed nest sites.

Survey Development

In addition to field measurements, we decided to incorporate a social science survey component to gather data on public perceptions of Bald Eagles and natural areas around Manhattan, Kansas. This decision was motivated by our interest in exploring human dimensions of wildlife conservation. Early in the process, we consulted with Dr. Sarah Jackson, a professor of Parks Management and Conservation with extensive experience in survey design. She provided guidance on survey structure, question formatting, and overall length, helping ensure that our instrument would produce reliable and meaningful data.

Our survey employed a Likert scale format, ranging from 1 (strongly disagree) to 5 (strongly agree), to measure attitudes and perceptions. With input from Dr. Jackson, we developed a preliminary set of questions, then refined them to focus on two primary themes: place identity and connection, and attitudes toward lead products. Place-related questions addressed participants' sense of connection to natural areas near Manhattan, including Tuttle Creek State Park, and their perceptions of Bald Eagles in the region. For example, participants were asked whether eagles held special cultural or spiritual meaning, inspired pride in the region, or influenced their sense of responsibility for habitat preservation.

The second theme focused on lead use, a critical conservation concern because Bald Eagles can accumulate lead through bioaccumulation with their various food sources. Participants were asked about their use of lead-based fishing tackle or hunting ammunition, perceptions of non-lead alternatives, and barriers to adopting non-lead products, including availability and cost. This section also included questions designed to ensure attention and engagement by varying question phrasing.

The survey consisted of 30 Likert-scale questions and an additional demographics section capturing age, gender, education, income, frequency of visits to nearby recreational areas (Riley, Geary, and Pottawatomie counties), and motivations for outdoor activities. Participants were also asked whether they had observed a Bald Eagle that day and if they had,

they marked the location on a map of Tuttle Creek State Park. This allowed us to assess how demographic factors might relate to perceptions of Bald Eagles, place attachment, and lead usage.

Before deployment, our survey underwent IRB training and review. Dr. Hutchison, who was listed on our IRB submission, reviewed the survey to ensure compliance and validity. After making minor revisions, the survey was approved for distribution. The instrument was administered in the field, resulting in 17 completed surveys. This data provided a meaningful snapshot of public attitudes toward Bald Eagles, recreational spaces, and lead use, complementing our ecological field measurements.

Results

Nest Site Selection Field Results

The field results showcased many different aspects. The field results gave us an insight into the habitats that Bald Eagles inhabit and the type of tree structural characteristics that they prefer as well as landscape habitat results. For the landscape scale habitat results, we found that the nest had a greater percentage of grasslands and crop which is reflective of the surrounding landscape in the Manhattan, KS area (Figure 3). More interestingly we found that Bald Eagles nested on average ~400m from roads and ~200m to water (Figure 4).

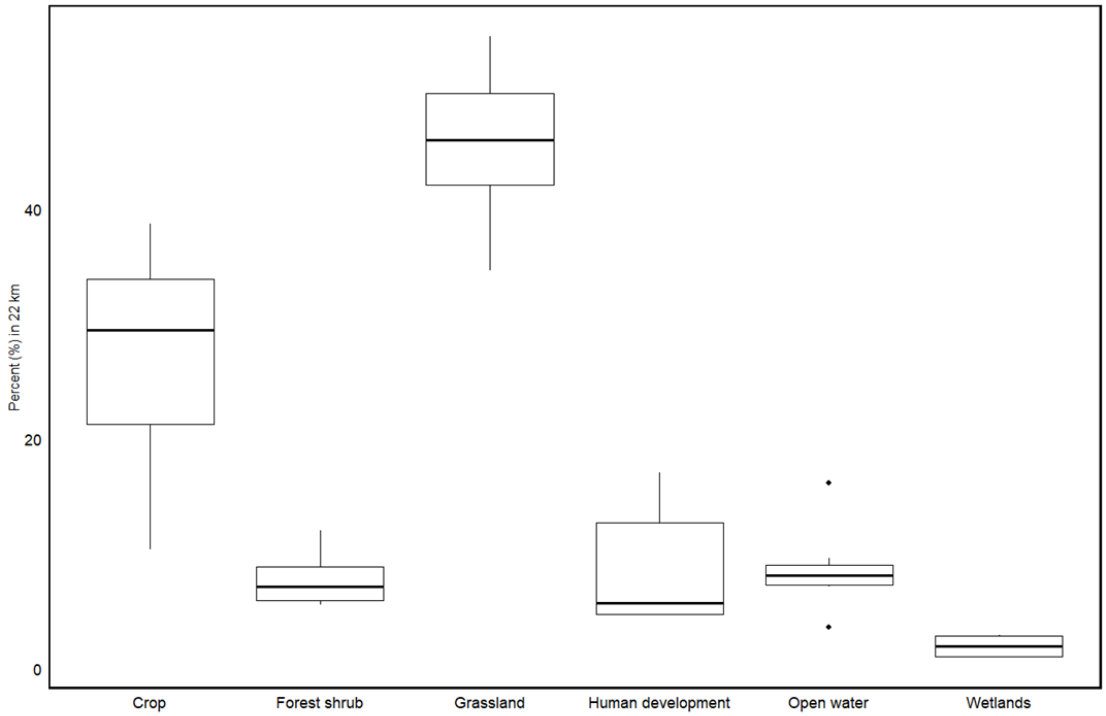

Figure 3. Total average percentage of landcover type in a 22km^2 area around Bald Eagle nest trees in the Manhattan, KS region.

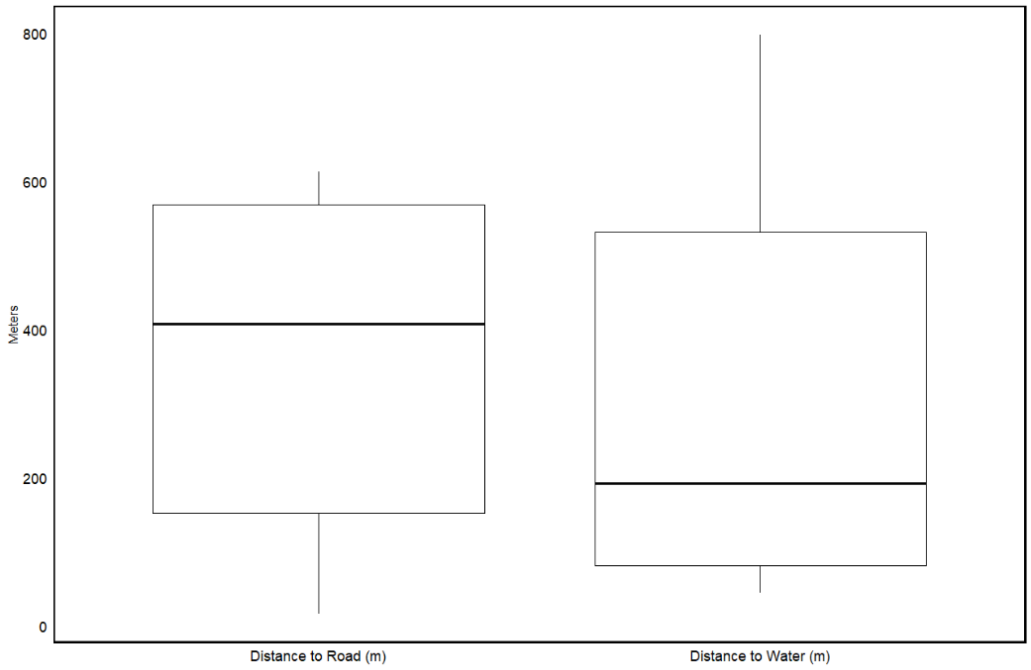

Figure 4. Average distance to roads and open water for Bald Eagle nest sites in the Manhattan, KS region.

Bald Eagles are more likely to select trees with greater DBH (Figure 5A). The surrounding trees around a nest site often have slightly smaller DBHs and were not selected (Figure 5C). Similarly, tree height was also an important factor in Bald Eagle nest site selection where the taller the tree, the more likely it is to be chosen as a nest site (Figure 5B) and nest trees were taller than available trees (Figure 5D).

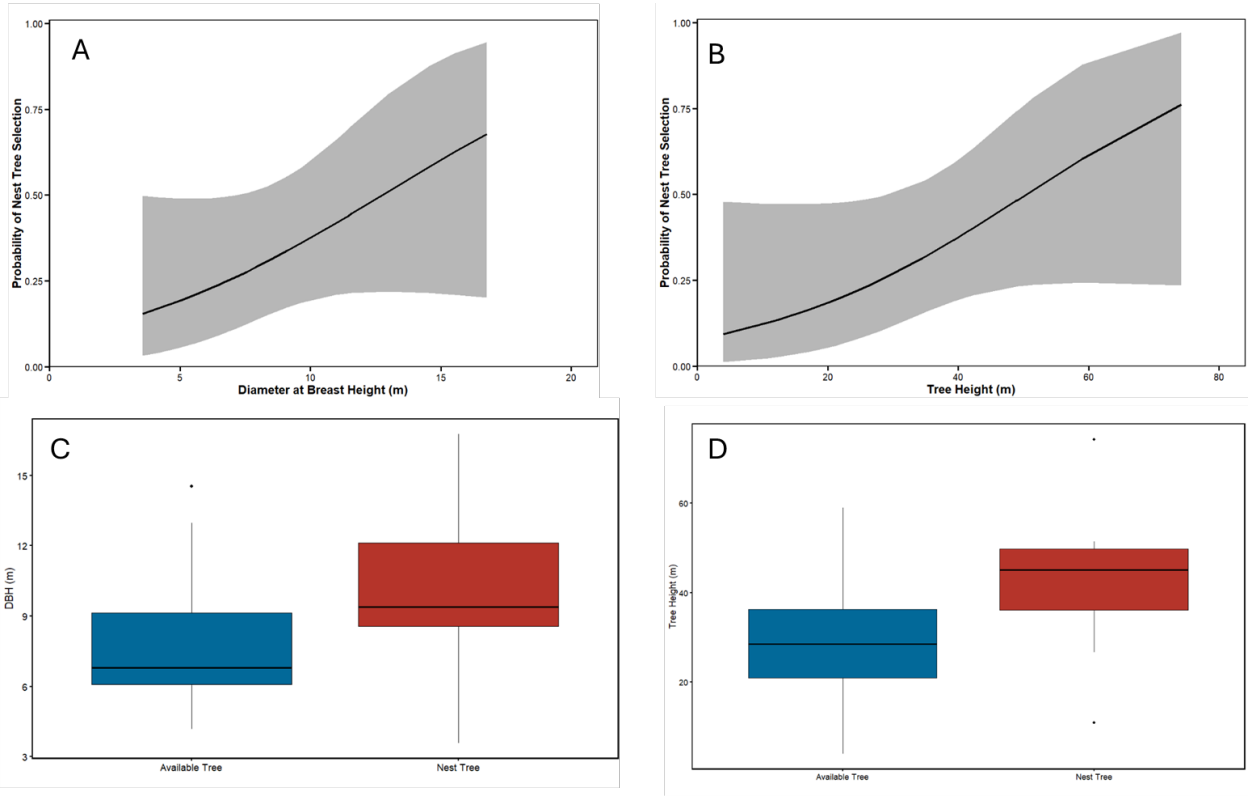

Figure 5. A) DBH as a metric of tree selection for a Bald Eagle nest site. As DBH increases the probability of a tree being used as a nest site increases. C) Nest trees had greater DBH on average compared to the trees surrounding the nest site. B) Probability of use increases as tree height increases and D) tree height was greater in nest trees than available trees.

Social Science Survey Results

A total of 17 participants completed the survey at public recreation areas around Tuttle Creek State Park, near Manhattan, KS. The survey captured visitor demographics, recreation habits, attitude toward Bald Eagles, and perspectives on the use of non-lead products for hunting and fishing. Surveys were voluntary and anonymous.

Demographics

Participants were predominantly male (76.5% males, 23.5% females; Figure 6), with a wide range of ages represented. Nearly one-third (31.3%) of participants fell within the 18–24 age range, which was the largest proportion of our responses (Figure 7). Ages were additionally represented in the 25–34, 35–44, 45–54, 55–64, 65–74, and 75+ age ranges, with varying participation rates. The majority of participants reported weekly or daily recreation in the Manhattan area, with activities such as wildlife watching, exercise, and general nature recreation being the most common.

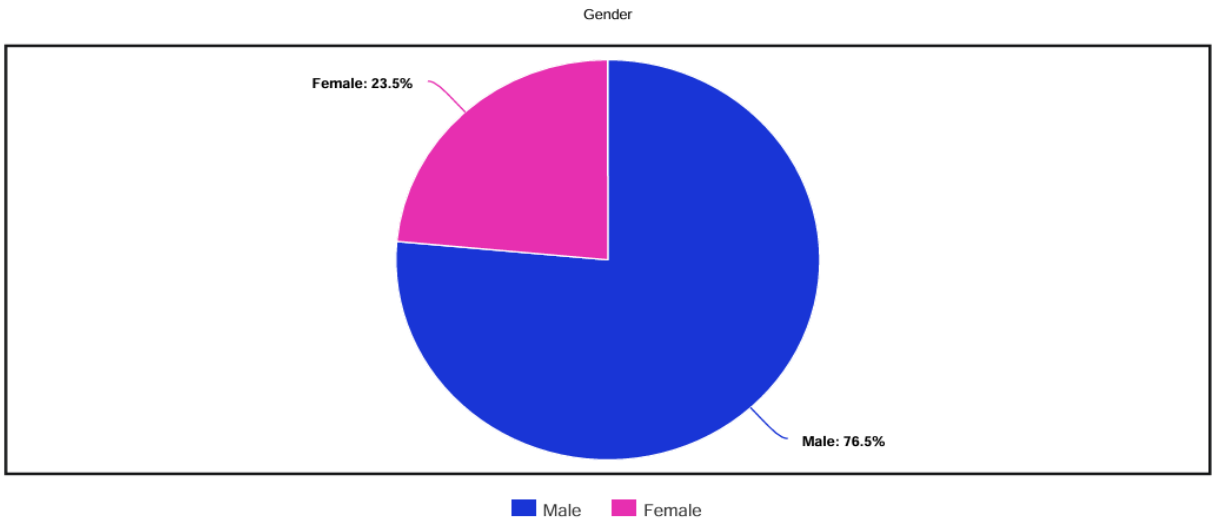

Figure 6. Gender of respondents that participated in the survey.

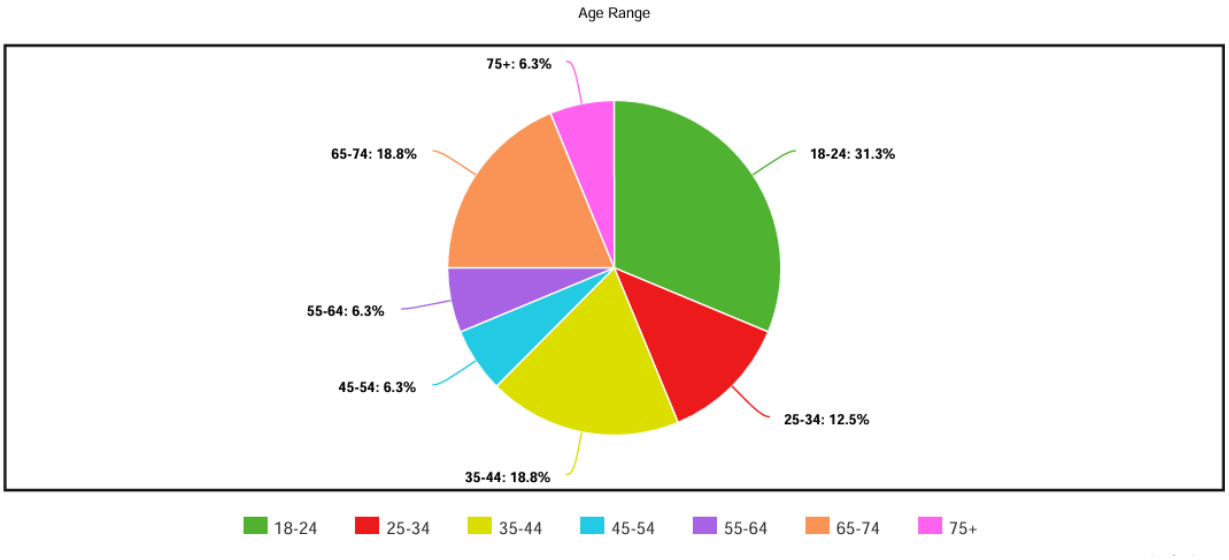

Figure 7. Ages of respondents that participated in the survey, with ages 18-24 being the majority at 31.3%.

Survey Question Data Results

Analyzing the data numerically provides further insights. For question 1, 10 participants strongly agreed, 6 somewhat agreed, and 1 selected neutral or lower ratings. Predominantly, these respondents were aged 18–24 and 35–44, suggesting a generational trend in place attachment. Question 7 also saw a high concentration of 4s and 5s, with symbolic associations with freedom stronger among participants aged 25–44 (Figure 8). Question 9 showed more spread, with 4 participants neutral, 8 somewhat agreeing, and 5 strongly agreeing, indicating varying degrees of connection to cultural heritage.

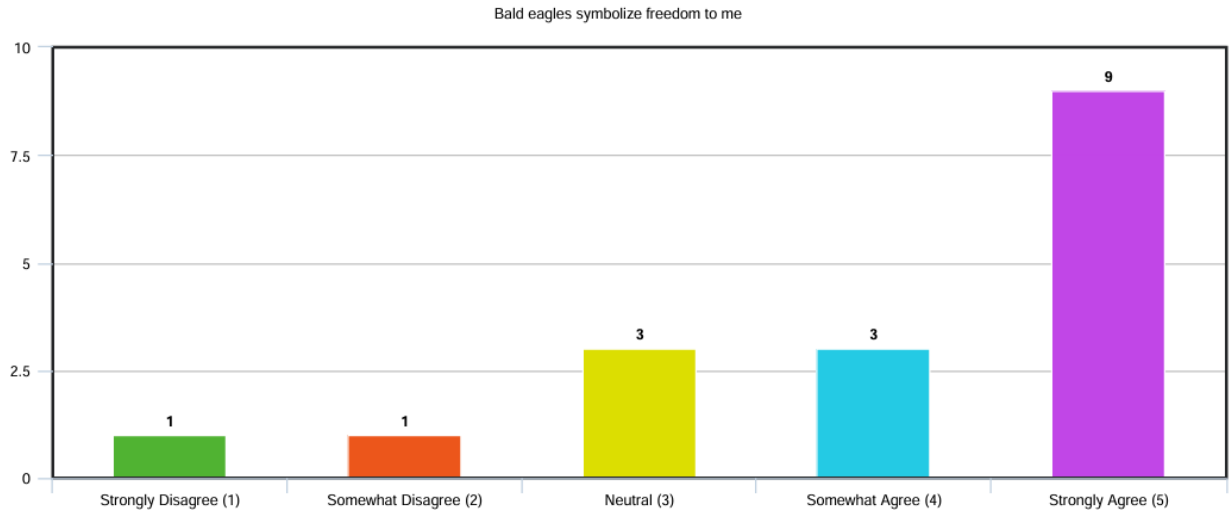

Figure 8. Question 7 responses indicating symbolic associations with freedom and Bald Eagles from respondents.

Question 11, addressing stewardship, had 7 participants strongly agreeing and 8 somewhat agreeing, confirming that a large majority of participants feel personally responsible for preserving Bald Eagle habitat (Figure 9).

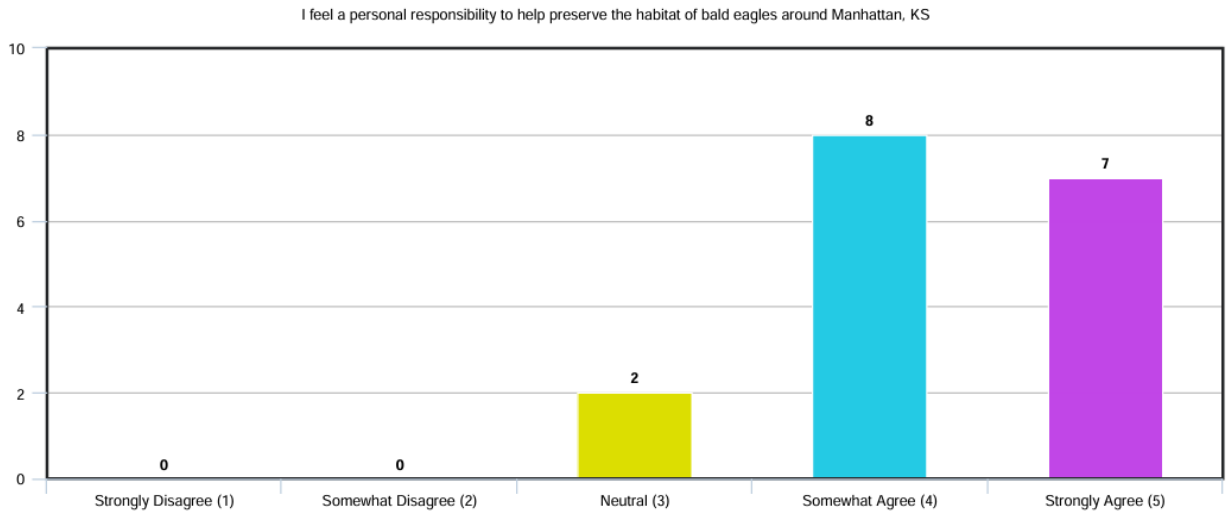

Figure 9. Question 11 responses about the personal responsibility of conserving Bald Eagle habitat.

Responses to the non-lead product questions showed mixed trends. For question 13, most participants expressed agreement, with 10 strongly agreeing and 4 somewhat agreeing, while fewer respondents were neutral (2) or somewhat disagreed (1). Question 15 showed greater variability, with 5 participants strongly agreeing and 4 somewhat agreeing, but a relatively large neutral group (6) and a small number expressing disagreement (1 somewhat disagreeing and 1 strongly disagreeing). For question 16, responses again leaned toward agreement, with 8 participants strongly agreeing and 5 somewhat agreeing, while fewer respondents were neutral (3) and only one strongly disagreed.

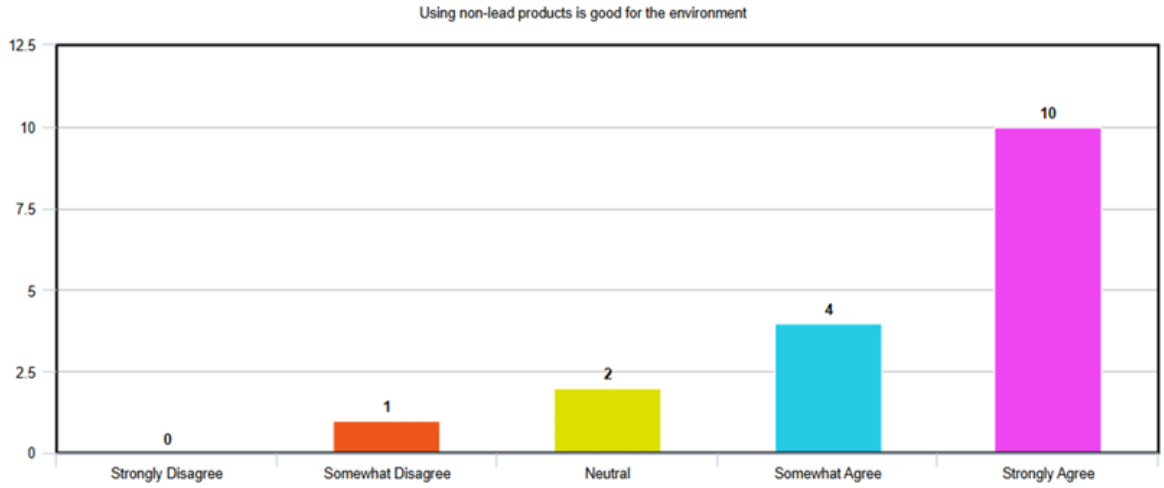

Figure 10. Question 13 where respondents indicated if they felt non-lead products were good for the environment.

Social influence and peer support (Question 21, Question 22) showed more diversity. For question 21, 6 participants strongly agreed, 4 somewhat agreed, and 7 neutral or somewhat disagreed. For question 22, responses were almost evenly distributed between “agree” and “neutral,” highlighting that lead use persists socially despite awareness of non-lead alternatives.

Barriers to adoption (Question 25, Question 26) had variable responses: Question 25 (*"Using non-lead products requires more effort than I prefer"*) had 2 strongly agree, 1 somewhat agree, 7 neutral, 3 somewhat disagree, and 4 strongly disagree. Question 26 had 1 strongly agree, 2 somewhat agree, 9 neutral, 3 somewhat disagree, and 2 strongly disagree, showing that cost and effort may affect some participants but not all. Question 30, future intent, was strongly positive, with 6 participants strongly agreeing, 4 somewhat agreeing, and the remaining participants marking neutral, demonstrating a commitment to transition toward non-lead products.

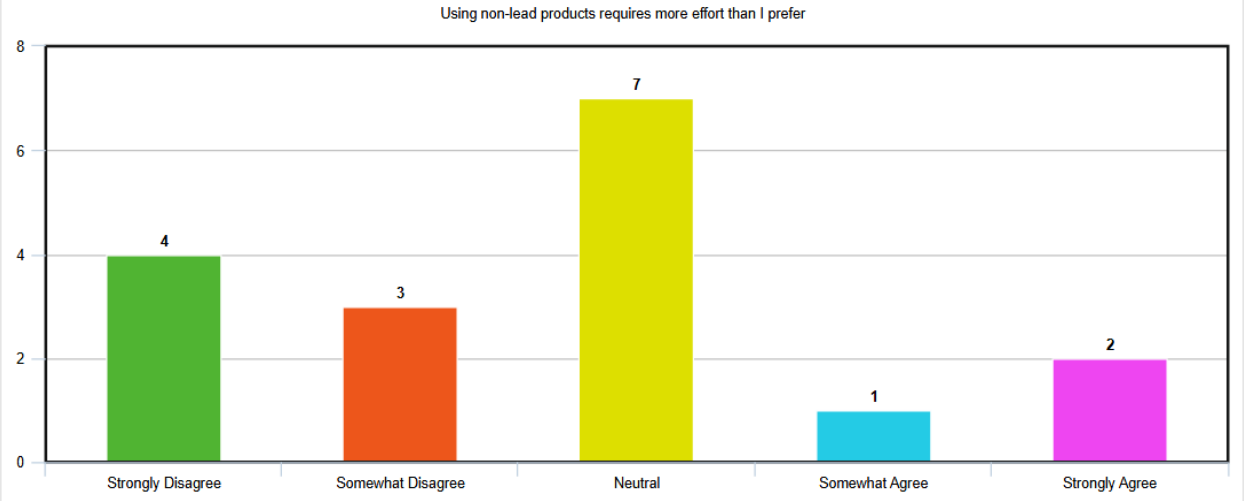

Figure 11. Question 25 where respondents indicated if they felt non-lead products required more effort than they preferred.

Discussion

Nest Site Selection Fieldwork

The field results from this research highlight a few patterns in how Bald Eagles choose their nesting trees, including the height of the tree, how DBH relates to the chances of a tree being selected, and how the tree's position in its surroundings plays a role. DBH is important because a larger diameter usually means the tree is taller, stronger, and better able to hold the

weight of a large Bald Eagle nest. Trees with wider DBH are much more likely to be chosen by nesting Bald Eagles. Tree height is another major factor in Bald Eagle nest site selection. The taller the tree, the more likely it is to be chosen. Height gives Bald Eagles a safer position, helps protect the nest from predators, and creates better conditions for chicks during their early development. Taller trees also give clearer visibility for the nest itself.

The final major factor is the tree's location to roads and its distance from water. Bald Eagles prefer nest trees with a clear view of water, as this makes hunting and accessing food much easier. However, Bald Eagles are capable of adjusting when needed, and sometimes they will select a tree without direct water visibility.

Key Survey Responses

The survey data illustrate several important themes regarding recreation, wildlife perception, and conservation behavior in the Manhattan, KS region. In terms of place identity and connection to natural areas, most participants responded positively. For example, question 1 (*"I am very attached to or identify with these natural areas around Manhattan, KS"*) received high ratings, with most participants selecting 4 (somewhat agree) or 5 (strongly agree). This suggests that these areas hold significant personal meaning, especially for younger participants (18–24) who were highly represented. Similarly, question 7 (*"Bald Eagles symbolize freedom to me"*) was rated 5s predominantly, showing that the species holds symbolic importance for most visitors, reinforcing the idea that wildlife can influence emotional connections to nature.

Regarding cultural and historical connections, question 9 (*"Bald Eagles in this area connect me to broader cultural and/or historical heritage"*) elicited more moderate responses, with many participants choosing 3 or 4. This indicates that while some participants feel that Bald Eagles connect them to the region's heritage, it is not a universally strong motivator, and responses may vary by age, as older participants tended to respond more strongly to heritage-related questions. Similarly, question 11 (*"I feel a personal responsibility to help preserve the*

habitat of Bald Eagles around Manhattan, KS") was highly rated, with a majority selecting 4 or 5, reflecting a strong sense of stewardship among survey respondents, which is critical for conservation-focused initiatives. Responses related to non-lead product use highlighted both positive attitudes and perceived barriers. Question 13 *("Using non-lead products is good for the environment"*) received consistently high ratings, with almost all participants agreeing or strongly agreeing. Participants who rated Question 13 lower were in the 75+ range, further showing the impact age has on beliefs. Question 15 (*"Non-lead products perform just as well as lead-based products"*) also received high ratings, indicating a general confidence in the efficacy of non-lead alternatives. Ethical considerations were also reflected in question 16 (*"Using non-lead products is an important part of ethical hunting or fishing"*), with most participants rating it 4 or 5. Social influence was addressed in question 21 (*"I would feel supported by my peers if I switched to non-lead products"*), which showed moderate to high ratings, suggesting that peer support could encourage wider adoption of non-lead products. However, question 22 (*"People, like me, still use lead products"*) received mixed responses, highlighting that while participants recognize the benefits of non-lead products, traditional practices and habits persist in the community.

Practical barriers to adoption were explored through questions 25 and 26. Question 25 (*"Using non-lead products requires more effort than I prefer"*) and question 26 (*"Cost makes it hard for me to use non-lead products"*) had more variable responses, with some participants indicating that effort and cost are minor challenges, while others see them as significant obstacles. Finally, question 30 (*"I will make an effort to purchase non-lead products within the next year"*) demonstrated that despite some perceived barriers, the majority of respondents are motivated to act, reinforcing the potential for conservation interventions targeting local hunters and anglers.

Place Identity and Wildlife Connections

High ratings on questions 1, 7, and 11 demonstrate that participants strongly identify with the natural areas they frequent and feel a personal responsibility to preserve Bald Eagle habitat. Emotional attachment, symbolic associations with freedom (Q7), and stewardship (Q11) suggest that environmental identity and wildlife presence are powerful motivators for conservation engagement. Interestingly, younger participants (18–24) and males were particularly likely to strongly agree, suggesting demographic influences on environmental connection. Moderate responses on cultural heritage (Q9) indicate that while some participants link Bald Eagles to broader historical and cultural values, this may be less salient than personal attachment or ethical responsibility.

Non-lead Product Adoption

Participants overwhelmingly recognize the environmental benefits of non-lead products (Q13) and their performance equivalence (Q15). Ethical considerations (Q16) also reinforce conservation-oriented attitudes. Peer support (Q21) and persistent lead use (Q22) suggest that social norms are nuanced; although participants feel motivated to use non-lead products, they are aware that others continue using lead-based options. Practical barriers (Q25, Q26) such as effort and cost were acknowledged by some participants, highlighting opportunities for targeted education and accessibility initiatives. Despite these barriers, participants' strong intention to purchase non-lead products within the next year (Q30) indicates readiness for behavioral change.

Implications

These findings suggest that conservation messaging emphasizing personal connection, ethical responsibility, and social support could be effective in promoting non-lead product adoption. Highlighting symbolic value (freedom, pride in the region) and providing resources to reduce cost or effort barriers may enhance engagement. Additionally, age and gender

differences in responses can inform targeted outreach strategies. Overall, this survey underscores the importance of leveraging both emotional and practical factors to foster conservation behaviors in local recreation communities.

Conclusion

Overall, this project showed that Bald Eagle nest site selection comes down to having a good habitat, healthy forests, and how much human disturbance is around. From what we saw in the field, Bald Eagles prefer tall, strong trees that are usually close to water, and they rely on these trees for their nests, but dying trees, storms, and human disturbance makes nesting harder for them. Survey results showed that most people who spend time in these natural areas really care a lot about Bald Eagles and do want to help protect their habitat. A lot of people support switching to non-lead fishing and hunting gear as well, even if cost or convenience can be a hurdle.

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Appendix

Our survey was created by our group and formatted in Word.

This survey is anonymous and voluntary. Responses will help us understand how recreation experiences and wildlife perceptions influence conservation behaviors around Manhattan, KS. Your feedback will help support local wildlife and environmental education efforts

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I am very attached to or identify with these natural areas around Manhattan, KS.	1	2	3	4	5
2. Spending time in these natural areas says a lot about who I am.	1	2	3	4	5
3. These places where I can see bald eagles are very special to me.	1	2	3	4	5
4. Seeing or knowing bald eagles are here strengthens my connection to these places.	1	2	3	4	5
5. I would not substitute any other area for the activities I do here.	1	2	3	4	5
6. These natural areas best support the ways I like to connect with nature and wildlife, especially bald eagles.	1	2	3	4	5
7. Bald eagles symbolize freedom to me.	1	2	3	4	5
8. Observing bald eagles in the wild in this region has a special meaning for me.	1	2	3	4	5
9. Bald eagles in this area connect me to broader cultural and/or historical heritage.	1	2	3	4	5
10. The presence of bald eagles in these natural areas makes me feel proud of this region.	1	2	3	4	5
11. I feel a personal responsibility to help preserve the habitat of bald eagles around Manhattan, KS.	1	2	3	4	5

12. The cultural or spiritual significance of bald eagles affects how I view their conservation.	1	2	3	4	5
13. Using non-lead products is good for the environment.	1	2	3	4	5
14. Using non-lead products reflects responsible outdoor behavior.	1	2	3	4	5
15. Non-lead products performs just as well as lead-based products.	1	2	3	4	5
16. Using non-lead products is an important part of ethical hunting or fishing.	1	2	3	4	5
17. Using non-lead products is beneficial for bald eagles.	1	2	3	4	5
18. People who are important to me think I should use non-lead products.	1	2	3	4	5
19. Most hunters and anglers I know approve of using non-lead products.	1	2	3	4	5
20. Conservation organizations I respect encourage using non-lead products.	1	2	3	4	5
21. I would feel supported by my peers if I switched to non-lead products.	1	2	3	4	5
22. People, like me, still use lead products.	1	2	3	4	5
23. It would be easy for me to find non-lead products locally.	1	2	3	4	5
24. I feel confident I could switch to non-lead products if I wanted to.	1	2	3	4	5
25. Using non-lead products requires more effort than I prefer	1	2	3	4	5
26. Cost makes it hard for me to use non-lead products.	1	2	3	4	5
27. I have access to reliable information about where to buy non-lead products.	1	2	3	4	5

28. I intend to use non-lead products the next time I hunt or fish.	1	2	3	4	5
29. I plan to tell others about the benefits of using non-lead products.	1	2	3	4	5
30. I will make an effort to purchase non-lead products within the next year.	1	2	3	4	5

Age: What is your age range?

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+

Gender: What is your gender identity?

- Male
- Female
- Non-binary/third gender
- Prefer not to say
- Other (please specify)

Education: What is your highest level of education completed?

- High school or equivalent
- Some college/associate degree
- Bachelor's degree
- Master's degree
- Doctorate or professional degree

Income: What is your annual household income?

- Under $25,000
- $25,000 - $49,999
- $50,000 - $74,999
- $75,000 - $99,999
- $100,000 - $149,999
- $150,000 or more
- Prefer not to say

How many times have you visited public recreation areas around Manhattan in the last year?

☐ Daily ☐ Weekly ☐ Monthly ☐ Yearly

Where?

- Riley County
- Geary County
- Pottawatomie County

How often do you recreate in the Manhattan, KS region?

☐ Daily ☐ Weekly ☐ Monthly ☐ Yearly

What motivated your visit today? (Select all that apply)

- Wildlife watching (including bald eagles)
- General nature/recreation
- Exercise (hiking, biking, etc)
- Social (with friends/family)
- Other: _____

Do you currently hunt, fish, or both?

☐ Hunt ☐ Fish ☐ Both ☐ Neither

Have you ever used non-lead products before?

☐ Yes ☐ No

Did you observe a bald eagle today? (Yes / No)

If yes, briefly describe where and what you saw: _____