

**Bird-Friendly Indianapolis:
Developing a Guide to Supporting Urban Avian Populations
for the Benefit of Birds and Humans Alike**

A Creative Project

Submitted to the Graduate School

In Partial Fulfillment of the Requirements

For the Degree

Master of Urban and Regional Planning

By

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December 2023

Abstract

Creative Project: Bird-Friendly Indianapolis: Developing a Guide to Supporting Urban Avian Populations for the Benefit of Birds and Humans Alike

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Degree: Master of Urban and Regional Planning

College: R. Wayne Estopinal College of Architecture and Planning

Date: December 2023

Pages: 214

Bird-friendly cities are an emerging concept in the field of urban planning. Stemming from the biophilic urbanism movement, which seeks to seamlessly integrate nature into all dimensions of urban life, bird-friendly cities emphasize the pivotal role that birds play in natural and built environments. From reducing human stress to maintaining thriving ecosystems, birds offer a range of environmental, economic, and health benefits to communities around the world. Existing literature has explored bird-friendly cities across the globe, from Vancouver to Singapore, but cities in the Midwestern United States, including Indiana, have yet to be comprehensively studied. To ensure that Indiana's capital city is doing enough to protect native birds and maximize the benefits that birds provide, this study explores the extent to which Indianapolis is a bird-friendly city. Through mapping and analysis, stakeholder interviews, and descriptive inventories, existing conditions are assessed, and Indianapolis is assigned a bird-friendliness rating. This creative project culminates in the creation of a public-facing Bird-Friendly Indianapolis Guide which summarizes key findings and identifies recommendations for future initiatives.

Acknowledgements

I would like to express my deepest appreciation to my advisor, Dr. Sanglim Yoo, for supporting me on this journey. Your confidence in my work, and belief in the importance of bird-friendly cities, helped push me across the finish line. I'd also like to extend special thanks to Dr. John West and Dr. Timothy Beatley. Your expertise and feedback elevated this project. With your help, I was able to incorporate and share new ideas in my work.

Lastly, I'd be remiss in not mentioning my family and friends, especially my partner, Steven Cowburn. Thank you all for your support throughout graduate school. Your belief in me, and ability to make me laugh, kept my spirits high. Steven, in addition to providing feedback on countless drafts, thank you for being my constant companion. You kept me motivated to see this through. Lots of love to you and our two cats for providing the emotional support I needed.

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1. Introduction

“Where birds thrive, people prosper.” This motto, often associated with the National Audubon Society, reflects the innate relationship between the well-being of birds and humans. Prior research has revealed that birds have a direct, as well as indirect, effect on human well-being. For example, studies have shown that people living in neighborhoods with more birds, shrubs, and trees were less likely to suffer from depression, anxiety, and stress (Cox et al., 2017). Additionally, birds thrive in a variety of habitats, but tend to do well in areas with extensive tree canopies, native prairies, and preserved wetlands. Each of these habitats provides unique benefits to humans, from reducing urban heat island effects to flood prevention (Bowler et al., 2010; EPA, 2006). Emerging research focuses on applying the benefits of birds to urban environments. In particular, planners, scientists, and bird watchers alike are invested in creating bird-friendly cities. A bird-friendly city is one which minimizes physical risks to birds and encourages the public to engage with and appreciate birds in daily life.

The Indiana Audubon Society encourages communities in Indiana to be more bird-friendly through their Bird Town program. While Fort Wayne and Bloomington have both made efforts to become certified Bird Towns, Indianapolis has yet to do the same. Out of a concern that Indianapolis may not be doing enough to protect native birds or maximize the benefits that birds provide, this creative project explores the extent to which Indianapolis is a bird-friendly city. Techniques used in this exploration include mapping and analysis, stakeholder interviews, and descriptive inventories. Ultimately, Indianapolis is given a bird-friendliness rating of “Satisfactory,” which captures how well the physical environment, policies, programs, and organizations support birds and encourage residents

to engage with wildlife. Recommendations are provided across the following four action areas: Planning for Bird Conservation, Protecting and Promoting Nature in the City, Reducing Hazards to Birds, and Education and Engagement. Recommendations vary from proposed programmatic enhancements to physical improvements which can be implemented throughout the City of Indianapolis.

The creative project culminates in the *Bird-Friendly Indianapolis Guide* (found in the Appendix). This guide synthesizes key findings in a highly visual, public-facing document. The purpose of the guide is to make the research more accessible and actionable. By describing threats to birds and reflecting on current bird-friendly initiatives, the guide aims to increase public awareness of bird conservation in Indianapolis. Additionally, the guide shares the recommendations for future initiatives proposed within this research paper. Recommendations, designed to be low-cost but high impact, can be implemented by stakeholders, including city officials and non-profit organizations. With hope this creative project will bring about change and better enable birds and humans to co-exist in Indiana's capital city.

2. Literature Review

In *Planning Theory for Practitioners*, Michael P. Brooks explains that a key rationale for urban planning is to help “promote the common or collective interests of the community” (Brooks, 2002, p. 51). The ‘common or collective interest’ is more popularly known as the public interest. Planners promote the public interest by making decisions with the common good in mind, aiming to maximize benefits to all individuals. While the public interest covers everything from housing to transportation, a key focus for many planners is on the natural environment.

Traditionally, the field of environmental planning promotes the public interest in matters of the natural environment. Consequently, the public interest is manifested in goals of “minimizing the damage that human activity does to the natural environment” and “preserving resources for future use” (Levy, 2017, p. 317). Environmental planners achieve these goals by reviewing development proposals and enforcing regulations. However, current trends explore systematically integrating the environment and nature into general planning practice, rather than relegating these foci to a specific field or niche.

Biophilic urbanism is perhaps the best-known example of this modern approach to urban planning and the natural environment. Biophilic urbanism is based on the concept of *biophilia*, made popular by biologist E. O. Wilson. Wilson defined biophilia as “the innately emotional affiliation of human beings to other living organisms” (Beatley & Newman, 2013). To bring humans closer to nature in an increasingly urbanized world, biophilic urbanism seeks to seamlessly integrate nature into all dimensions of urban life, from the built environment to residents’ lifestyles (Beatley & Newman, 2013). Consequently, a biophilic city is one which “acknowledges the importance of daily contact with nature” and

accepts the “ethical responsibility that cities have to conserve global nature as shared habitat” for human and non-human life (Biophilic Cities). Biophilic cities acknowledge that the natural environment provides countless benefits to humans, even urban areas. Bird-friendly cities are an extension of biophilic urbanism. The one key difference between biophilic and bird-friendly cities is that the latter specifically acknowledges the pivotal role that birds play in natural and built environments. From reducing stress to providing sanitation services, birds offer a range of environmental, economic, and health benefits to communities around the world (Beatley, 2020).

Bird-friendly cities thus represent an emerging, modern approach to urban planning in which the public interest is promoted by maximizing the benefits that birds provide to humans and mitigating anthropogenic threats to wildlife. Although academics and practitioners, such as Timothy Beatley, have written about bird-friendly initiatives in cities around the world (e.g., *The Bird-Friendly City*), few have written about bird-friendly cities in the midwestern United States. Articles have discussed bird-friendly design ordinances in Chicago and a website exists to promote bird-friendly initiatives in the Windy City, but a study has yet to comprehensively analyze the extent to which any city in the Midwest is truly ‘bird-friendly.’ My creative project seeks to fill this gap. This manuscript is the first detailed investigation of Indianapolis, Indiana, as a bird-friendly city.

In this literature review, I’ll provide a background on the benefits of birds and threats to birds in an urbanized world. This background helps contextualize the need for bird-friendly cities and the importance of urban bird conservation. From there, I’ll dive deeper into the concepts of biophilic and bird-friendly cities, leading to a brief discussion on gaps

in the existing literature. I'll conclude this chapter by identifying regionally appropriate models for analyzing Indianapolis, Indiana as a bird-friendly city.

2.1 Benefits of Birds

Past research has explored the benefits that birds provide humans (e.g. Daniel T. C. Cox, Çağan H. Şekerciöğlü, Christopher J. Whelan, and Richard D. Gregory). At the University of Exeter, Daniel T. C. Cox and colleagues conducted a study on the mental health benefits of birds (Cox et al., 2017). They found that afternoon bird abundance lowered feelings of depression, anxiety, and stress for urban residents. Other researchers, authors, and creatives (e.g., Rachel L. Carson, Kyo Maclear, Katie Fallon, and Joe Harkness) have described the soothing effects of seeing or hearing birds, including University of Virginia professor, Timothy Beatley. In *The Bird-Friendly City* (2020), Beatley remarks that “birdsong has delivered doses of hope and optimism and pleasure” throughout his life (p. 4). Birds charm us and help us feel connected to nature, even in bustling urban areas.

Birds also provide economic benefits. For instance, vultures aid in waste management and sanitation, insectivorous birds keep mosquito populations in check, and hummingbirds help pollinate community gardens and urban agricultural operations (Beatley, 2020). Ecotourism and birdwatching can also be economic drivers. According to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, there are 45.1 million bird watchers in the United States. 36% (16.3 million) of these individuals travel away from home to observe wild birds (U.S. Fish and Wildlife Service, 2016). According to BirdLife International, birders spend an estimated \$39 billion each year on bird-related trips and equipment in the United States (Haskell, 2022). There are opportunities for cities to capitalize on native birds, whether migratory or year-round residents, as local assets.

Finally, birds provide crucial environmental benefits. According to Dr. Christopher J. Whelan of the University of Illinois at Chicago, birds play an important role in ecosystems around the world, serving as “predators, pollinators, scavengers, seed dispersers, seed predators, and ecosystem engineers” (Whelan et al., 2008). Even in death, the bodies of birds contribute to nutrient cycles such as the carbon cycle, keeping nature in balance. Additionally, birds thrive in a variety of habitats but tend to do well in areas with extensive tree canopies, native prairies, and preserved wetlands. In these habitats, birds serve as indicators of environmental health, particularly biodiversity (Gregory & Strien, 2010). When we protect birds, we protect these important habitats. Each of these habitats supports a diverse range of flora and fauna, while also providing unique benefits to humans, from reducing urban heat island effects to flood prevention (Bowler et al., 2010; EPA, 2006). As climate change puts increasing pressure on communities around the world, the benefits of birds and their native habitats cannot be understated.

2.2 Threats to Birds

Despite the benefits that birds provide, their situation is rather precarious. Since 1970, bird populations in North America have declined by 29%, a net loss of approximately 3 billion birds (Rosenberg et al., 2019). According to BirdLife International’s *State of the World’s Birds 2022* report, “one in eight bird species [around the world] is threatened with extinction” (Haskell, 2022, p. 3).

Many of the threats facing birds are anthropogenic in origin. In the United States, predation by free-ranging domestic cats is responsible for an alarming 1.3 - 4 billion bird fatalities annually (Loss et al., 2013). Dr. Scott Loss, a professor of Natural Resource Ecology and Management at Oklahoma State University (OSU) with prior experience at the

Smithsonian Conservation Biology Institute, is particularly concerned about this predation. If left unchecked, Dr. Loss and his colleagues predict that domestic cats will contribute to the decline of native bird populations, disrupting North American ecosystems.

The built environment itself presents another significant threat to birds. An estimated 365 to 988 million birds die annually from building collisions in the United States (Loss et al., 2014). Because of its reflective nature, mirroring trees, vegetation, and the open sky, birds don't perceive glass as a barrier. This means that windows and other glass surfaces can be deadly hazards for birds. Birds are also negatively impacted by light pollution, chemical pollution, noise pollution, vehicle collisions, and habitat loss associated with urbanized environments (Seress & Liker, 2015).

On a global scale, birds experience instability due to the far-reaching effects of climate change. Rising temperatures can disrupt a bird's "maintenance (the energy needed by organisms to maintain their basal levels of activity and condition), reproduction, [the] timing of breeding and migration," ultimately reducing their survival rates (King & Finch, 2013). All things considered, the outlook for birds might seem bleak, if not for an emerging interest in making cities safer, more accommodating places for our feathered friends.

2.3 Bird-Friendly Cities

In recent years, researchers have sought solutions to mitigate the threats facing birds. Dr. Christine Sheppard and Glenn Phillips of the American Bird Conservancy developed the *Bird-Friendly Building Design* guide for architects, landscape architects, planners, and developers to reduce bird-building collisions (2015). Their guide explains the science behind bird-building collisions in layman's terms, while offering practical solutions to the threats of glass and light pollution. Other researchers have explored Trap,

Neuter, Release (TNR) programs to reduce predation by domestic cats, artificial nesting structures to address habitat loss, and green building designs to provide food and nesting sites for wildlife in urbanized environments (Beatley, 2020). Each of these solutions can help support bird populations; that said, the individual effect of any one approach is minimal compared to the combined effect of a multifaceted approach. Solving one threat facing birds isn't enough. Instead, researchers are calling for a comprehensive approach, one which employs multiple strategies in one geographic area.

This multifaceted conservation effort begins in cities. As Glenn Phillips, executive director of the Golden Gate Audubon Society remarks, "cities are critical to the future [of] birds" (Gledge et al., 2015). Researchers have found that even small greenspaces in cities can support avian biodiversity (Carbo-Ramirez & Zuria, 2011). In a world facing habitat loss and global climate change, cities can provide critical food, water, and nesting sites for migratory birds and year-round residents. Cities are also ideal places to engage multiple stakeholders, allowing planners, landscape architects, developers, and residents alike to collaborate on local initiatives. When asked to envision a "bird-friendly city," John Marzluff, professor at the University of Washington, commented that "all cities are bird-friendly, to a degree" (Gledge et al., 2015). By their very nature, cities can be important places for birds and nexuses for bird conservation. Emerging conversation on "bird-friendly cities" acknowledges this truth and considers how cities can do more to support native avian populations.

The term "bird-friendly city" is relatively new, but the concept isn't revolutionary. According to Beatley (2020), a bird-friendly city is one which minimizes physical risks to birds and encourages the public to engage with and appreciate birds in daily life. Bird-

friendly cities have much in common with biophilic cities (i.e., biophilic urbanism). Biophilic cities are those that “provide close and daily contact with nature, nearby nature, but also seek to foster an awareness of and caring for this nature” (Beatley & Newman, 2013). Both biophilic cities and bird-friendly cities are rooted in E. O. Wilson’s concept of *biophilia*, the “innately emotional affiliation of human beings to other living organisms” (Beatley & Newman, 2013). In simpler terms, humans are drawn to nature. We’re fascinated by the world we live in and the creatures we share it with. Following this logic, planners should seek to systematically integrate nature into cities to maximize the well-being of residents. Biophilic cities and bird-friendly cities offer slightly different approaches to this urban-nature integration.

The concept of biophilic cities focuses broadly on the intersection of nature and humanity within the urban environment, incorporating elements such as green building design and green space access. Conversely, the concept of bird-friendly cities refines this idea by focusing specifically on birds and the vital role they play in natural and built environments. The idea of bird-friendly cities represents a collective interest in bird conservation, but the concept itself benefits from having a symbol (or a mascot) for sustainable initiatives – sometimes quite literally. For instance, in the Vancouver Bird Strategy, a guide to local bird-friendly initiatives, the municipality designates Anna’s Hummingbird as their official ‘City Bird’ (Vancouver Bird Advisory Committee, 2020). Because of its tangibility, the concept of bird-friendly cities may be more approachable to the average citizen. People may resonate more with a program or piece of legislation designed to help a particular living creature (like a hummingbird). Even without an official

city bird, the goal of making a community welcoming to native wildlife may be generally appealing.

As an extension of biophilic urbanism, bird-friendly cities are expected to provide similar benefits to humans that biophilic cities are theorized to. In “Biophilic Cities are Sustainable, Resilient Cities” (2013), Beatley and Newman describe how biophilic cities strengthen the adaptive capacity of urban residents, leading to resilient outcomes. The theory posits that green, nature-filled cities encourage citizens to increase their adaptive capacity. Essentially, with access to nature, residents adopt healthier behaviors (walking, hiking, biking), help each other more, create friendships, and develop strong commitments to the places they call home. As this adaptive capacity builds, residents experience resilient outcomes, including reduced loss of life, reduced economic disruption, reduced ecological damage, and improved health. In essence, residents live happier and more meaningful lives. Bird-friendly cities can provide these benefits, and the unique benefits attributed to birds. As such, I argue that it’s important for cities around the world to make efforts to become more bird-friendly for the benefit of humans and birds alike.

2.4 Adding to the Conversation

In *The Bird-Friendly City*, Beatley describes Vancouver, Canada as a model bird-friendly city. To the best of my knowledge, Vancouver is the only city in North America, if not the world, with its own stand-alone bird strategy. The *Vancouver Bird Strategy* aims to “create conditions for native birds to thrive in the City of Vancouver and across the region” (Vancouver Bird Advisory Committee, 2020, p. 2). Other cities, including New York City (NY), San Francisco (CA), Phoenix (AZ), Portland (OR), Perth (Australia), Wellington (New Zealand), Toronto (Canada), and Singapore, are pursuing bird-friendly initiatives, but

without a comprehensive strategy (Beatley, 2020). Some of these cities have adopted bird-friendly building design guides and ordinances. Others are pursuing bird-friendly projects through public programs (e.g., educational events), private development (e.g., constructing wildlife-friendly subdivisions and high-rises), nonprofit work (e.g., backyard wildlife habitat certification), and grassroots efforts (e.g., monitoring bird-building strikes).

Out of all these endeavors, little has been written about bird-friendly pursuits in the Midwest, let alone in Indiana. My creative project focuses on addressing this gap in the existing literature. I'm interested in exploring the extent to which Indianapolis, the capital of Indiana and a growing community with over 880,000 residents, is a bird-friendly city. As such, this creative project will contribute to the academic conversation on bird-friendly cities, while also serving as a valuable tool for stakeholders, charting a path towards a more sustainable Indianapolis.

2.5 Measuring 'Bird-Friendliness'

Several models have been created to define bird-friendly cities (e.g., John Marzluff's model in *Welcome to Subirdia*, Nature Canada's Bird Friendly City Certification Program, Bird City Texas, and Bird City Wisconsin). Of these models, two stand out as particularly relevant when measuring 'bird-friendliness' in Indianapolis. One model was created by Timothy Beatley (2020), and the other is a product of the Indiana Audubon Society.

Beatley's model, as described in *The Bird-Friendly City*, is intentionally broad and could be applied to cities across North America, if not around the world (see Table 1).

Table 1. *Timothy Beatley's Criteria for Bird-Friendly Cities (2020, p. 180)*

A bird-friendly city is a city with the following...
<ul style="list-style-type: none"> • A city bird strategy • Mandatory bird-safe building standards • A comprehensive or general plan that includes birds • Designation of one or more official city birds • A standing bird advisory committee • One or more bird and wildlife rehabilitation centers • Parks, trees, and green spaces planted with bird-friendly plants • Many places to watch birds and many urban bird hot spots • Many bird walks and venues for bird watching (e.g. trails, tree-lined streets) • Many opportunities to connect with birds in real-time (including bird cams)
Where...
<ul style="list-style-type: none"> • Citizens can identify and recognize many local species of birds • Many residents are engaged in watching and caring about birds • Many organized bird walks are available, as well as other events that make enjoyment of birds easy • There are diverse ways to engage with and enjoy birds (from Falcon cams to bird walks) • A large number of homeowners seek bird-friendly certified gardens • There are abundant citizen science opportunities

Beatley's model emphasizes the importance of government (i.e., planning) action, a hospitable physical environment (for both people and birds), and an engaged public. Beatley's criteria are ambitious, holding cities to a high standard and pushing them to do more to protect and preserve urban avian populations. Few, if any, cities meet all these

criteria. Therefore, the model doesn't necessarily seek to identify existing bird-friendly cities, but instead conceptualizes an ideal city for others to aspire towards.

Another model for bird-friendly cities comes from the Indiana Audubon Society. Established in 2013, the Bird Town Indiana certification program was developed by the Indiana Audubon Society to recognize local communities committed to preserving avian populations. To be certified, all potential Bird Towns must meet 7 of 21 criteria. Two criteria must come from Category 1 and at least one criterion must come from each of the remaining categories. The categories include (1) Creation and Protection of Natural Communities, (2) Participation in Programs Promoting Effective Community Natural Resource Management, (3) Limiting or Removing Hazards to Birds, and (4) Public Education. Table 2 includes the full set of criteria for the Indiana Bird Town program.

Table 2. *Certification Requirements for Bird Town Indiana (Indiana Audubon Society)*

<i>All potential Indiana Bird Towns need to meet 7 of 21 criteria. 2 must come from Category 1, and 1 must come from each other category. These criteria being:</i>
Category 1: Creation and Protection of Natural Communities
<p>A. Attach a summary of bird monitoring results and/or other data obtained from researchers or local volunteers in the local park system.</p> <p>B. Attach ordinance or other evidence that existing bird habitat has legal protection.</p> <p>C. Document that current community planning seeks to provide additional bird habitat.</p> <p>D. Attach a copy of local ordinance to demonstrate that the community does not restrict "wild" or natural lawns and landscaping.</p> <p>E. Show how the community offers the public information on control and removal of invasive species.</p> <p>F. Attach a state publication showing that the community contains a segment or parcel that is designated an Important Bird Area.</p> <p>G. Demonstrate through public documents or publicity that the local Chamber of Commerce (or a similar group) takes an active role in the planning process for protecting and enlarging favorable bird habitat.</p>

H. OTHER: Demonstrate in an attached narrative.

Category 2: Participation in Programs Promoting Effective Community Natural Resource Management

A. Enclose a copy of the “Tree City, USA” award if your community participates in this program.

B. Enclose a copy of various grants awarded that help promote natural resource management.

C. OTHER: Demonstrate in an attached narrative.

Category 3: Limiting or Removing Hazards to Birds

A. Attach evidence or provide community web link if your community has an educational program to control free-roaming cats and/or actively publicizes the “Cats Indoors!” program.

B. Demonstrate that your community provides property owners with information on how to protect birds from window-strikes.

C. OTHER: Demonstrate in an attached narrative.

Category 4: Public Education

A. Demonstrate that schools or educators in your community participate in Flying WILD, helping ensure that the nation’s students are knowledgeable about the conservation needs of migratory and other birds.

B. Attach newsletter or web links to show how your community provides information to property owners on methods to create and enhance backyard habitat for birds.

C. Provide web links your community offers to other organizations with information on backyard habitat programs.

D. Demonstrate that your community is represented in at least one bird monitoring program such as the Christmas Bird Count, Great Backyard Bird Count, Indiana Audubon Society Big May Day Count, or Swift Night Out.

E. Demonstrate that your community sponsors an annual bird festival.

F. Illustrate how your community has a program that involves schools, garden clubs, Audubon chapter, or other organizations in bird conservation activities.

G. Attach a copy of both your community’s official resolution recognizing IMBD and either a copy of a program or plans for your local IMBD celebration.

H. OTHER: Demonstrate in an attached narrative.

Beatley's model is a descriptive outline of an ideal city, whereas the Indiana Audubon Society's model is a checklist within an application. The Indiana Audubon Society's model outlines specific, approachable criteria for which documentation can be provided. Programs like Bird Town Indiana are often criticized for being unambitious and allowing communities to 'check off boxes' without putting forth any real effort. Once a city proves that they meet the required criteria, they may not do more to support native birds. While I recognize this criticism, I still believe the Indiana Audubon Society's model is valuable. Programs like Bird Town Indiana provide a set of relevant, achievable tasks for communities to complete. It can be argued that it's better for a community to do something to protect birds than to take no action at all.

In the Methodology chapter, I combine elements of Beatley's model and the Indiana Audubon Society's model to generate my own unique scale for measuring 'bird-friendliness' in Indianapolis. My scale incorporates both a numerical rating (i.e., 1-5) and a descriptive rating (i.e., Poor to Outstanding). I'll also use the next chapter to introduce my research worldview and approach, as well as the research instruments employed in this creative project.

3. Methodology

This research was shaped by a pragmatic worldview and conducted using a convergent parallel mixed methods approach. The pragmatic worldview, defined by John W. Creswell (2014), is a research philosophy primarily concerned with finding solutions to problems. Pragmatists are not committed to any one method of deriving knowledge and instead embrace multiple perspectives and types of evidence. This creative project was motivated by my concern that Indianapolis was failing to (1) maximize the benefits of birds and (2) mitigate the threats facing native birds. In other words, this creative project was dedicated to solving the ‘problem’ of creating a more bird-friendly, sustainable Indy. Endeavoring to solve this problem involved assessing current conditions in Indianapolis (i.e., looking at programs, policies, and characteristics of the physical environment designed to support native birds and engage residents) and identifying practical recommendations for change.

The pragmatic worldview pairs well with the convergent parallel mixed methods approach. According to Creswell, this approach “merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem (2014, p. 44). Since the concept of bird-friendly cities is multidisciplinary, involving knowledge from fields as diverse as architecture, biology, and the social sciences, it felt appropriate to integrate both quantitative and qualitative data in my analysis. This approach allowed me to assess existing conditions in Indianapolis through multiple lenses and perspectives, incorporating a variety of research instruments.

This creative project employed the use of three main research instruments – mapping and analysis with ArcGIS Pro, interviews with stakeholders, and descriptive inventories of parks/nature preserves, bird-related organizations, and bird-focused programs and legislation in Indianapolis. These research instruments were selected for their usefulness in assessing different criteria from my unique bird-friendliness scale. Each instrument helped to illuminate a different part of the scale. Collectively, the research instruments produced a comprehensive analysis of Indianapolis as a bird-friendly city.

3.1 Introducing a Unique Scale for Assessing ‘Bird-Friendliness’

My unique bird-friendliness scale was created by combining elements of Timothy Beatley’s model and the Indiana Audubon Society’s model for a bird-friendly city (see the “Measuring ‘Bird-Friendliness’” section in the Literature Review). The goal was to develop an ambitious scale that was still cognizant of social, political, and environmental contexts. This scale can be applied to other cities in Indiana, as well as in the Midwest. My scale features four distinct categories, each with its own set of criteria. The four categories are *Planning for Bird Conservation*, *Protecting and Promoting Nature in the City*, *Reducing Hazards to Birds*, and *Education and Engagement*. Communities are rated from Poor to Outstanding (i.e., 1 to 5) based on the proportion of criteria met and how well-distributed criteria (i.e., its associated programs, amenities, and initiatives) are geographically. Table 3 below outlines the categories and criteria for a model bird-friendly city. Table 4 describes the ratings on the scale (i.e., the extent to which a city can be considered ‘bird-friendly’).

Table 3. Categories and Criteria for a Bird-Friendly City

<i>A model 'bird-friendly' city meets all (or most) of the following criteria...</i>
Category 1: Planning for Bird Conservation
<ul style="list-style-type: none"> A. The city has an official bird strategy. B. The city's comprehensive plan mentions birds or the intent to protect and expand bird habitat. C. The city's zoning ordinances feature a conservation or protection district that safeguards wildlife habitat from intrusive development. D. The city designates one or more official city birds. E. The city has a standing bird advisory committee.
Category 2: Protecting and Promoting Nature in the City
<ul style="list-style-type: none"> A. The city has many public parks and other places to watch birds. B. The city has tree-lined, pedestrian-friendly sidewalks and trail networks. C. Parks, nature preserves, and green spaces are planted with bird-friendly plants. D. Water bodies and wetlands are preserved and feature native plants and natural shorelines. E. Local ordinances encourage new development to limit impervious surfaces, instead maximizing green space and utilizing permeable pavement alternatives. F. Local ordinances do not restrict "wild" or natural lawns and landscaping. G. The city offers public information on the control and removal of invasive species. H. The city participates in "Tree City, USA" or an equivalent program focused on urban forestry and/or natural resource management.
Category 3: Reducing Hazards to Birds
<ul style="list-style-type: none"> A. The city has mandatory bird-safe building standards for new development. B. The city provides property owners with information on how to protect birds from window strikes. C. The city has adopted an official lights out program for migratory seasons that involves mandatory participation from municipal-owned properties (backed by law) and voluntary participation from privately-owned properties. D. The city controls free-roaming cats with an educational program, Trap-Neuter-Release (TNR) program, or other related programs. E. The city features one or more wildlife rehabilitation centers.
Category 4: Education and Engagement
<ul style="list-style-type: none"> A. City residents can join active, bird-related social groups and organizations. B. Many organized bird walks are available, as well as other events that make the enjoyment of birds easy.

<p>C. The city is represented in at least one bird monitoring program such as the Christmas Bird Count, Great Backyard Bird Count, Indiana Audubon Society Big May Day Count, or Swift Night Out.</p> <p>D. The city officially recognizes and celebrates World Migratory Bird Day.</p> <p>E. The city provides information to property owners on methods to create and enhance backyard habitats for birds.</p> <p>F. Local parks host abundant citizen science opportunities to engage the public and promote awareness of native birds.</p> <p>G. Schools or educators incorporate birds in their curriculum through field trips, programs like Flying WILD, or through other means.</p>

Table 4. Ratings for Bird-Friendly Cities

<p><i>This scale assigns 'bird-friendly' ratings from Poor (1) to Outstanding (5). The rating is based on how well a city meets the criteria described in Table 1 AND how well-distributed those criteria (and their benefits) are throughout the city. A model city strives to meet all the criteria in each of the categories while also ensuring that criteria are equitably designed and thoughtfully implemented. Bird-friendly cities should benefit all residents.</i></p>
<p>Outstanding (5)</p>
<p>Meets all or nearly all of the criteria in each category. The criteria (parks, programs, etc.) are also well-distributed throughout the city to maximize the benefits to both birds and humans in an equitable manner.</p>
<p>Very Satisfactory (4)</p>
<p>Meets more than half of the criteria for each category. The criteria (parks, programs, etc.) are mostly well-distributed, but there may be limited neighborhoods where bird-related initiatives and investments are lacking.</p>
<p>Satisfactory (3)</p>
<p>Meets approximately half of the criteria in each category. The criteria may be somewhat unequally distributed. For example, some parts of the city may have more parks, programs, and local organizations than other areas. City officials must stay alert to potential issues of social and environmental equity.</p>
<p>Unsatisfactory (2)</p>
<p>Meets less than half of the criteria for each category. The criteria are unequally distributed with parks, programs, and organizations concentrated in a few parts of the city. City officials should investigate issues of social and environmental equity.</p>
<p>Poor (1)</p>

FAILS TO MEET ALL OR MOST OF THE CRITERIA FOR ONE OR MORE CATEGORIES. THE CRITERIA (PARKS, PROGRAMS, ETC.) ARE CONCENTRATED IN MORE AFFLUENT PARTS OF THE CITY, BENEFITING PREDOMINANTLY WHITE RESIDENTS. THIS PATTERN FAILS TO EFFECTIVELY SUPPORT URBAN AVIAN POPULATIONS AND CALLS INTO QUESTION ISSUES OF SOCIAL AND ENVIRONMENTAL EQUITY.

3.2 Research Instruments

As mentioned at the beginning of this chapter, in order to comprehensively analyze Indianapolis as a bird-friendly city in accordance with my unique scale, I utilized several research instruments. Chosen instruments included mapping and analysis with ArcGIS Pro, interviews with stakeholders, and descriptive inventories. The following sections introduce each instrument in brief.

3.3 Mapping and Analysis

To better understand how the physical environment in Indianapolis supports birds, I mapped parks, tree canopy, land cover, impervious surfaces, water bodies, and wetlands using ArcGIS Pro. Each element was selected based on supporting criteria from my bird-friendly scale. To produce the maps for this section, I used a combination of raster and vector data sourced from public data portals, including the OpenIndy Data Portal and the Multi-Resolution Land Characteristics (MRLC) Consortium. For tree canopy, land cover, and impervious surfaces, I generated simple summary statistics. For example, I found that approximately 25.8% of Indy's total area is covered in trees. Then, for every element mapped, I looked at location and distribution, describing each qualitatively. Finally, I conducted additional research to supplement my findings, referencing previous studies on the importance of each element for avian populations. When appropriate, I also explained the benefits to humans. For example, I discussed wetlands as a vital bird habitat, but also described their flood protection and erosion control properties.

3.4 Interviews with Stakeholders

The next phase of my research involved interviewing stakeholders on the topic of a bird-friendly Indianapolis. Over the course of three weeks, ten participants agreed to sit down for interviews in the format that worked best for them. Most interviews were conducted via video call (on Zoom or Microsoft Teams), but I also accommodated requests for in-person interviews and phone interviews. The participants selected, from planners to interpretive naturalists, represented a range of relevant organizations and specialties. Participants included representatives of the Indiana Audubon Society, Amos Butler Audubon Society, City of Indianapolis (Visit Indy, Office of Sustainability, and the Department of Metropolitan Development), Eagle Creek Park, Fort Harrison State Park, and Central Indiana Land Trust. I also spoke with a developer from Keller Development, Inc., with prior experience in the affordable housing industry in Indianapolis.

I prepared a set of questions for each participant which sparked engaging conversations on existing conditions and future avenues for success. Each participant offered a unique perspective on protecting native birds and engaging urban residents in Indianapolis. The Interview chapter details the results of these conversations, grouping findings by themes (i.e. the categories of my bird-friendly scale). Transcripts from these interviews are included in the Appendix.

3.5 Descriptive Inventories

The final phase of my research involved inventorying organizations, programs, and policies relevant to the discussion of Indianapolis as a bird-friendly city. I started by listing organizations and initiatives I'd encountered through my research, including those recommended by the experts I interviewed. For each organization or initiative identified, I wrote a brief description and gathered pertinent information, including the best-fitting category on the bird-friendly scale, project status, and related organizations. I summarized the results in tables to create a comprehensive understanding of existing efforts to make Indianapolis more bird-friendly.

Part of my research also involved visiting local parks and nature preserves. In the section on parks, I include short descriptions of the six local parks and preserves I visited. These descriptions capture important information on visitor amenities, accessibility, native plants, and natural shorelines that couldn't be ascertained through mapping, online research, or interviews.

4. Mapping and Analysis

To enhance my understanding of existing conditions in Indianapolis, I mapped and analyzed different characteristics of the urban environment. The goal was to determine how well the physical environment in Indianapolis supports native birds and provides opportunities for humans to engage with birds. The characteristics chosen included parks, tree canopy, land cover, impervious surfaces, and hydrology (including water bodies and wetlands). Each characteristic was selected because of its connection to one or more criteria from my unique scale for bird-friendly cities.

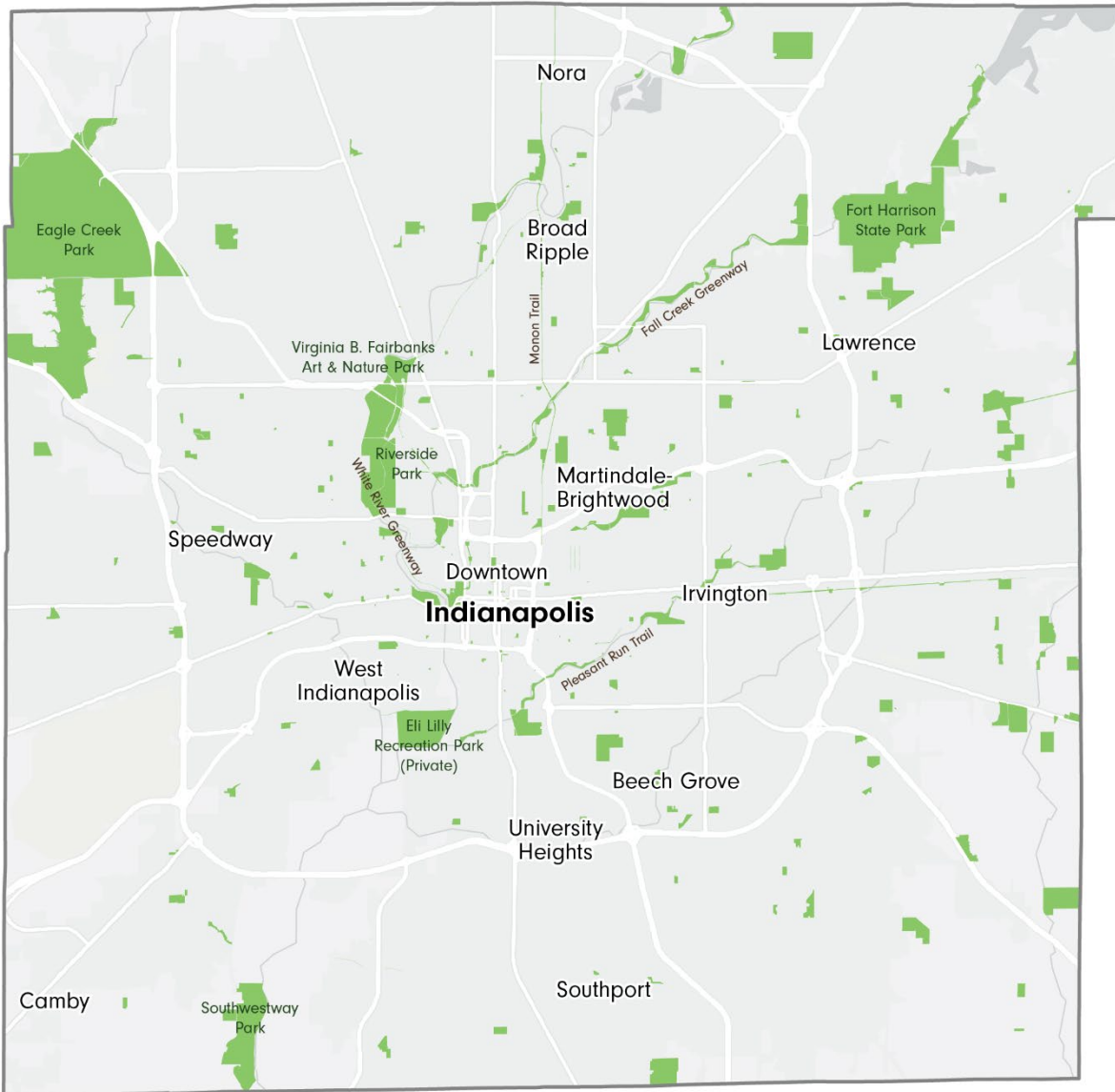
4.1 Parks

Parks are the premier form of urban greenspace in Indianapolis. Ideal habitats for local avian life, Indy parks often contain native trees and vegetation for birds to feed on and nest in, as well as important water features. Although still visited by human residents, anthropogenic hazards (traffic, windows, etc.) are minimized in parks, as compared to residential neighborhoods and commercial/industrial centers. That said, some parks are more suitable for bird habitats than others. Research has revealed that several factors influence the number of individual birds and species living in a given greenspace. The size of the greenspace is argued to be one of the most important of these factors (Harpster, 2018). By providing more access to resources, larger greenspaces support a greater biodiversity of birds. Connectivity of greenspaces also plays a role (Harpster, 2018). The more connected greenspaces are (i.e., the shorter the distances between them), the easier it is for birds to travel between them for food and water, and to search for a mate.

Although there are public parks and greenspaces throughout Indianapolis, the largest of these are in the northern half of the city (see Figure 1). This includes the 1,700-acre Fort Harrison State Park and the 5,300-acre Eagle Creek Park, which features over 1,400 acres of water and 3,900 acres of forest (Indiana Department of Natural Resources, n.d.) (Indy Parks and Recreation, n.d.). There is also a large conglomerate of public parks/greenspaces north of Glendale, along the White River. This consists of the Virginia B. Fairbanks Art & Nature Park, Riverside Park, and several golf courses. The largest public greenspace in the southern half of Indianapolis is the 587-acre Southwestway Park (IUPUI Center for the Earth and Environmental Science, n.d.). The Eli Lilly Recreation Park is also located in the southern half of the city. Although this park provides great natural amenities for native birds (including river access, ponds, and wooded areas), it is a private park and therefore only accessible to Eli Lilly employees and their families.

Unfortunately, most parks and greenspaces are not well connected. Here, connectivity is used qualitatively to describe the relative distance between parks and greenspaces. Well-connected park systems are those in which pedestrians can walk (and birds can fly) from one park to the next with ease. In park systems that are not well-connected, parks are separated from one another, often by miles of residential and commercial development. Most parks and greenspaces in Indianapolis seem to dot the urban landscape and are isolated within residential neighborhoods. Parks rarely connect directly to other parks. This is especially true on the southside of Indianapolis where parks and greenspaces are very spread out.

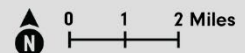
Greenways, essentially linear parks, are the notable exception to this pattern. Greenways throughout the city connect residents to parks by providing safe, pedestrian-friendly pathways, often along rivers and decommissioned railways. Greenways also serve as important wildlife corridors, linking habitats and enabling species to move from isolated areas into new sites. By increasing connectivity, greenways help reduce the habitat fragmentation caused by urbanization (Doncaster Biodiversity Action Partnership, 2007). A 2006 study in North Carolina discovered that greenways, when appropriately designed, can provide important habitat for development-sensitive bird species, including neotropical migrants, insectivores, and forest-interior specialists, such as woodpeckers and wood thrush (Mason et al., 2007). Greenways in Indianapolis include the 22.6-mile Fall Creek Greenway, the 17.8-mile White River Greenway, the 10.3-mile Monon Trail, and the 6.9-mile Pleasant Run Trail (Greenways Foundation of Indiana). There are also other shorter greenways, many of which are still in development.



Parks (including Greenways)

Marion County, Indiana
Genevieve Zircher

Sources: 2022 City of Indianapolis and Marion County - IndyGIS,
FlatIcon (North Arrow by Freepik)



Legend

 Parks and Greenways

Figure 1. Parks (including Greenways) in the Consolidated City of Indianapolis and Marion County

Based on my mapping and analysis, Indianapolis' public parks have the potential to support native birds. Even though there is room for improvement, the city's large parks, interspersed with small parks and greenways, provide habitat and some level of connectivity for bird populations. Not only does the park system support native birds fairly well, but the number and distribution of parks ensures that most residents have access to outdoor spaces to enjoy birds. Indy Parks and Recreation, which does not include state-owned properties like Fort Harrison State Park, offers 214 parks or 11,608 acres of greenspace (Indy Parks and Recreation, n.d.). As a "community [with] many public parks and other places to watch birds," Indianapolis meets the first criterion in *Category 2: Protecting and Promoting Nature in the City* of the bird-friendly scale.

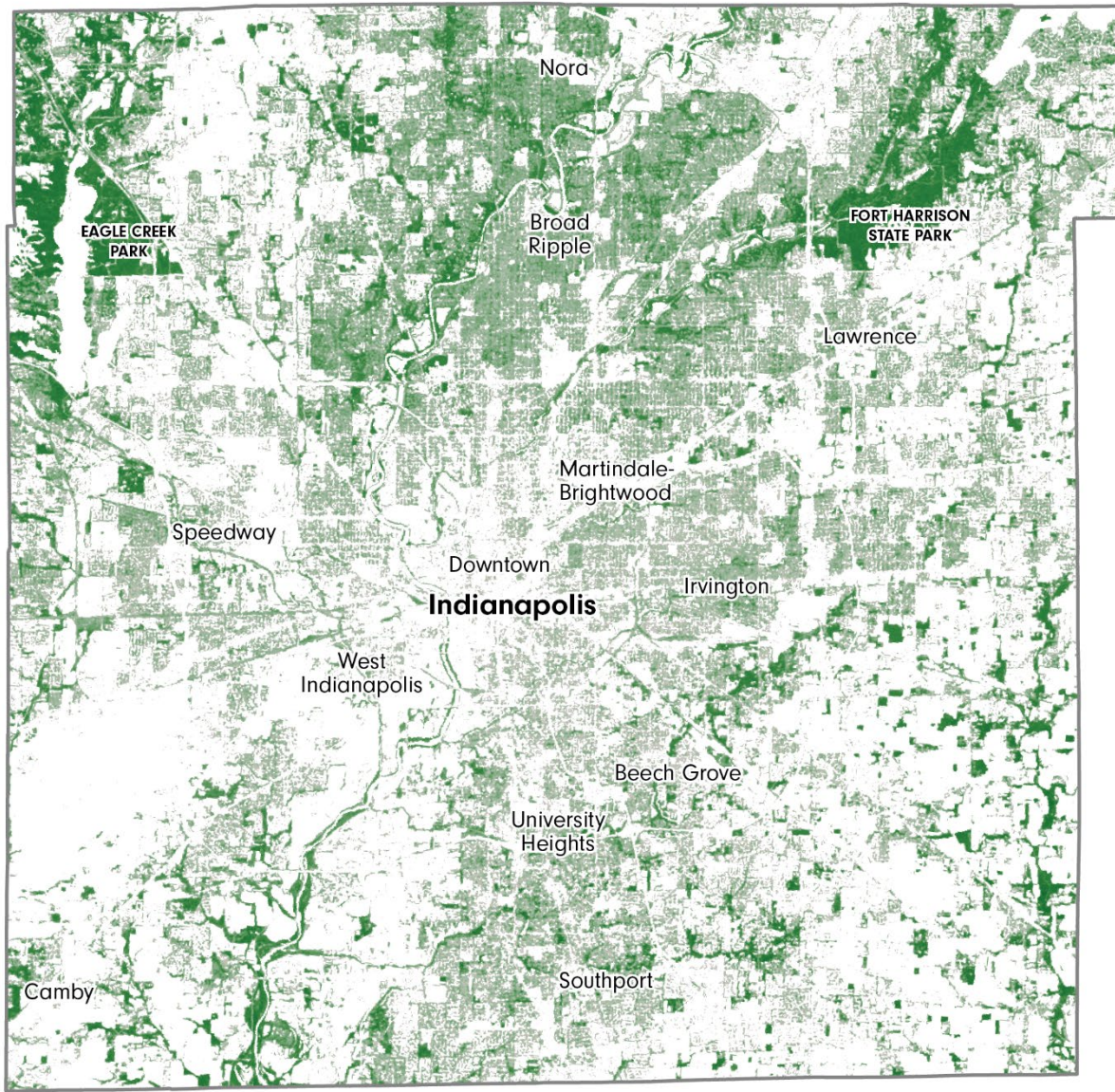
4.2 Tree Canopy

On my bird-friendly scale, *Category 2: Protecting and Promoting Nature in the City* features two criteria that suggest the importance of trees in the urban environment. The first criterion stipulates that communities should have "tree-lined, pedestrian-friendly sidewalk and trail networks." The second criterion asks the community to participate "in 'Tree City USA' or an equivalent program focused on urban forestry and/or natural resource management." Pedestrian facilities and Tree City USA will be discussed later in this section, but first, I analyzed Indianapolis' tree canopy to understand the extent to which it supports avian (and human) residents.

Using raster data from the United States Forest Service, I mapped the 2016 tree canopy for Indianapolis. The tree canopy is noticeably denser in the northern half of the city, especially around large parks like Eagle Creek and Fort Harrison (see Figure 2).

Overall, I found that trees cover approximately 25.83% of the city's total area. American Forests used to recommend a tree canopy goal of 40% for all cities east of the Mississippi; however, they now recommend a more nuanced approach. American Forests suggests that cities should develop their own unique targets taking into consideration constraints to creating a tree canopy, including development densities, land use patterns, ordinances, and climate. I was unable to find a tree canopy goal for Indianapolis, but analysis from the U.S. Forest Service still suggests that a "40-60 percent urban tree canopy is attainable under ideal conditions in forested states," indicating that Indianapolis should focus on developing a healthier, denser urban forest (American Forests, 2017).

It goes without saying that trees are a vital resource for birds. The foliage, branches, and cavities of trees provide shelter year-round, as well as places for birds to nest and raise their young seasonally. Home to seeds, berries, and insects, trees are also crucial to a bird's diet. Aside from providing great benefits to birds, trees also offer advantages to human communities and their residents. Trees can reduce noise pollution by absorbing the sound of traffic in urban areas, keep neighborhoods cool, reduce energy costs by shading buildings and protecting them from winter winds, increase property values, and improve mental and physical health (Tree City USA, n.d.). Increasing tree cover, even if it takes time, is a worthwhile effort.



Tree Canopy

Marion County, Indiana
Genevieve Zircher

Sources: 2016 U.S. Forest Service Tree Canopy Cover, Flatiron (North Arrow by Freepik)

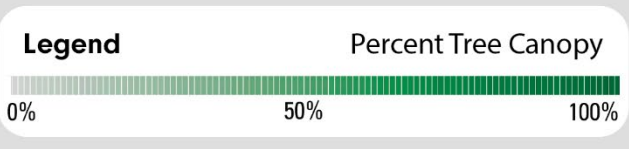
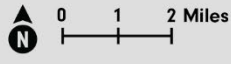


Figure 2. Tree Canopy in the Consolidated City of Indianapolis and Marion County

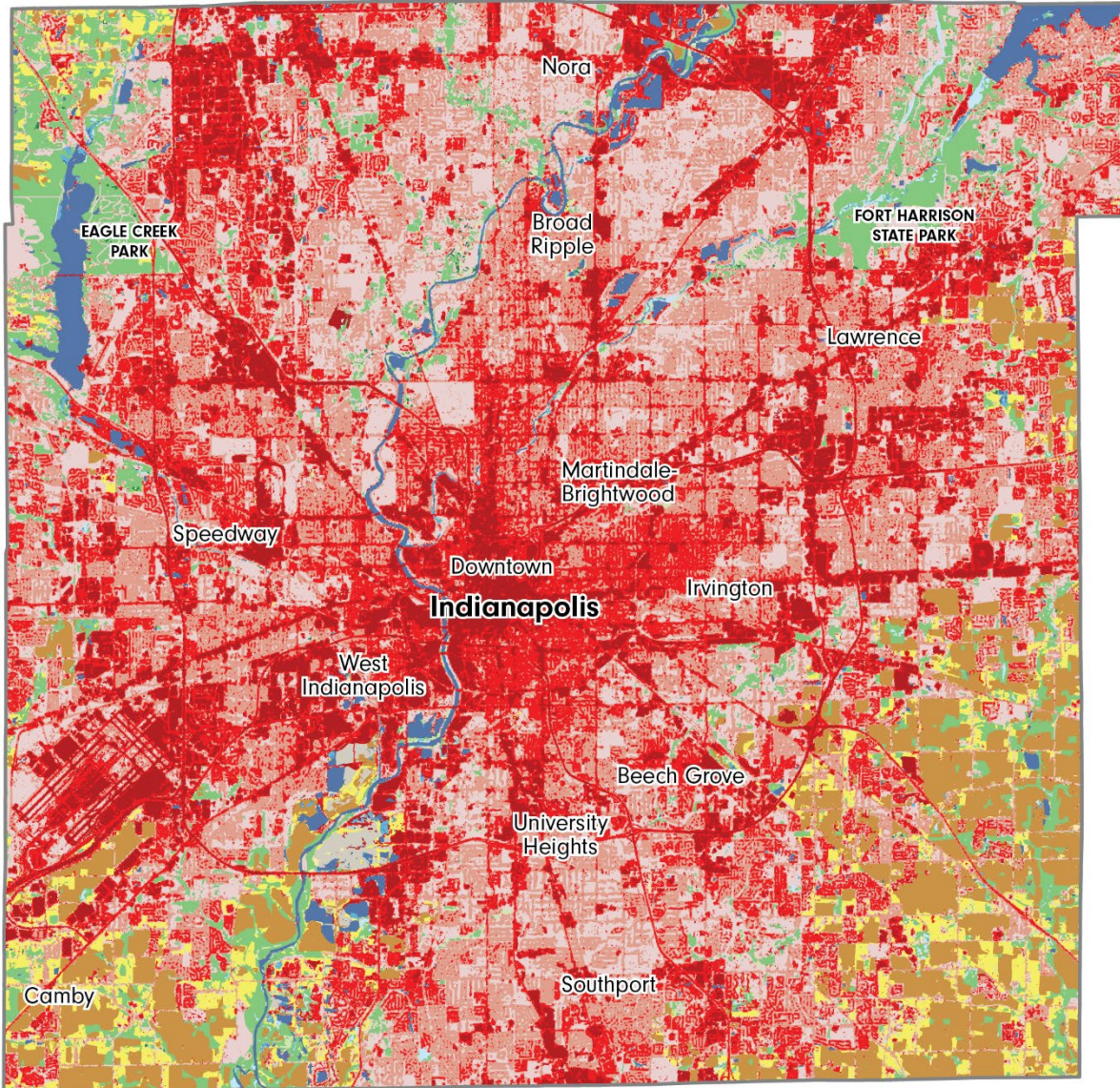
Circling back to the criteria mentioned at the beginning of this section, I hesitate to say that Indianapolis has “tree-lined pedestrian-friendly sidewalk and trails networks,” at least not consistently throughout the city. In the Indianapolis MPO’s *Regional Pedestrian Plan*, which includes Marion County, planners note that many communities in the region “lack sidewalks on one or both sides of the street,” forcing pedestrians to engage in unsafe behaviors to reach their destinations (Indianapolis MPO, 2020, p. 22). The *Indianapolis/Marion County Pedestrian Plan* similarly identified a “lack of sidewalk coverage and connectivity” as a barrier to walking in many Indianapolis neighborhoods (Nelson/Nygaard, 2016, p. 5). The pedestrian network is well-developed in dense, highly urbanized parts of Indianapolis (i.e. near the core), but full of gaps in less dense areas, including residential neighborhoods (Indianapolis MPO, 2020, p. 25). Fortunately, both the *Regional Pedestrian Plan* and the *Indianapolis/Marion County Pedestrian Plan* outline goals to improve pedestrian infrastructure, focusing on both sidewalks and trails.

Regarding the second criteria, Indianapolis has been a certified Tree City USA since 1988. As a Tree City, Indy is dedicated to the health of its urban forests. To be recognized, a city must (1) maintain a tree board or department, (2) have a community tree ordinance, (3) spend at least \$2 per capita on urban forestry, and (4) celebrate Arbor Day (Tree City USA, n.d.). This dedication to trees suggests a bright future for Indianapolis’ tree canopy. Although there are areas to improve, tree cover seems to be an issue that Indianapolis takes seriously.

4.3 Land Cover

Although not tied to specific criteria on the bird-friendly scale, I chose to analyze land cover as an indicator of environmental suitability for native avian populations. Birds live in a variety of environments, but most thrive in areas with significant vegetation, whether in the form of woodlands, wetlands, or grasslands. From my analysis, I found that approximately 35.8% of Indianapolis' total area is covered by vegetative land cover types, from developed open space to wetlands. Conversely, 61.7% of the city is covered by developed land (low- to high-intensity) and barren land.

When mapped, it becomes clear that undeveloped, vegetative land is relatively rare in Indianapolis (see Figure 3). Most undeveloped land is constrained to the outskirts of the city. Only 6.54% of Indianapolis is covered in forests capable of supporting woodland-dwelling birds such as the Northern Flicker and Pileated Woodpecker. Wetlands cover approximately 0.54% of Indianapolis, leaving limited habitat for birds like the Osprey and Great Blue Heron, which rely on wetlands and other water bodies for their fish-centric diets. Grasslands and shrublands cover only 0.16% of the city, making it a challenge to support native species like the Northern Bobwhite and Loggerhead Shrike in urbanized areas since these species thrive in open spaces with short vegetation. Going forward, it's important to protect these natural areas, as well as agricultural land, to ensure city residents continue to benefit from and engage with birds. Some may argue that agriculture has no place in the city but preserving farmland on the edges of urbanized areas can limit sprawl, provide a transition from urban to rural, and support native species like the Eastern Bluebird and Barn Owl.



Land Cover
Marion County, Indiana
Genevieve Zircher

Sources: 2019 USGS National Land Cover Database, Flatiron (North Arrow by Freepik)

Legend

- Open Water
- Developed
- Barren Land
- Forest
- Shrubland
- Herbaceous
- Planted/Cultivated
- Wetlands

0 1 2 Miles

*More detailed descriptions available on MRLC.gov

Figure 3. Land Cover in the Consolidated City of Indianapolis and Marion County

Table 5. Land Cover in Indianapolis by Type

Land Cover Type	Acreage	Percentage of Total Area
Open Water	6,279 acres	2.43%
Developed, Open Space	46,739 acres	18.12%
Developed, Low Intensity	74,580 acres	28.92%
Developed, Medium Intensity	57,199 acres	22.18%
Developed, High Intensity	26,506 acres	10.28%
Barren Land (Rock/Sand/Clay)	923 acres	0.36%
Deciduous Forest	15,654 acres	6.07%
Evergreen Forest	173 acres	0.07%
Mixed Forest	1,027 acres	0.40%
Shrub/Shrub (i.e. Shrubland)	68 acres	0.03%
Grassland/Herbaceous	347 acres	0.13%
Pasture/Hay	8,177 acres	3.17%
Cultivated Crops	18,932 acres	7.34%
Woody Wetlands	621 acres	0.24%
Emergent Herbaceous Wetlands	691 acres	0.27%
Total	257,918 acres	100%

4.4 Impervious Surfaces

Impervious surfaces, such as asphalt and concrete, are an essential part of the urban form, comprising sidewalks, roads, and buildings. In excess, however, impervious surfaces can be problematic for both humans and birds. For example, impervious surfaces “absorb and re-emit the sun’s heat more than natural landscapes such as forests and water bodies” (EPA, 2023). Consequently, urban areas become ‘heat islands’ with daytime temperatures

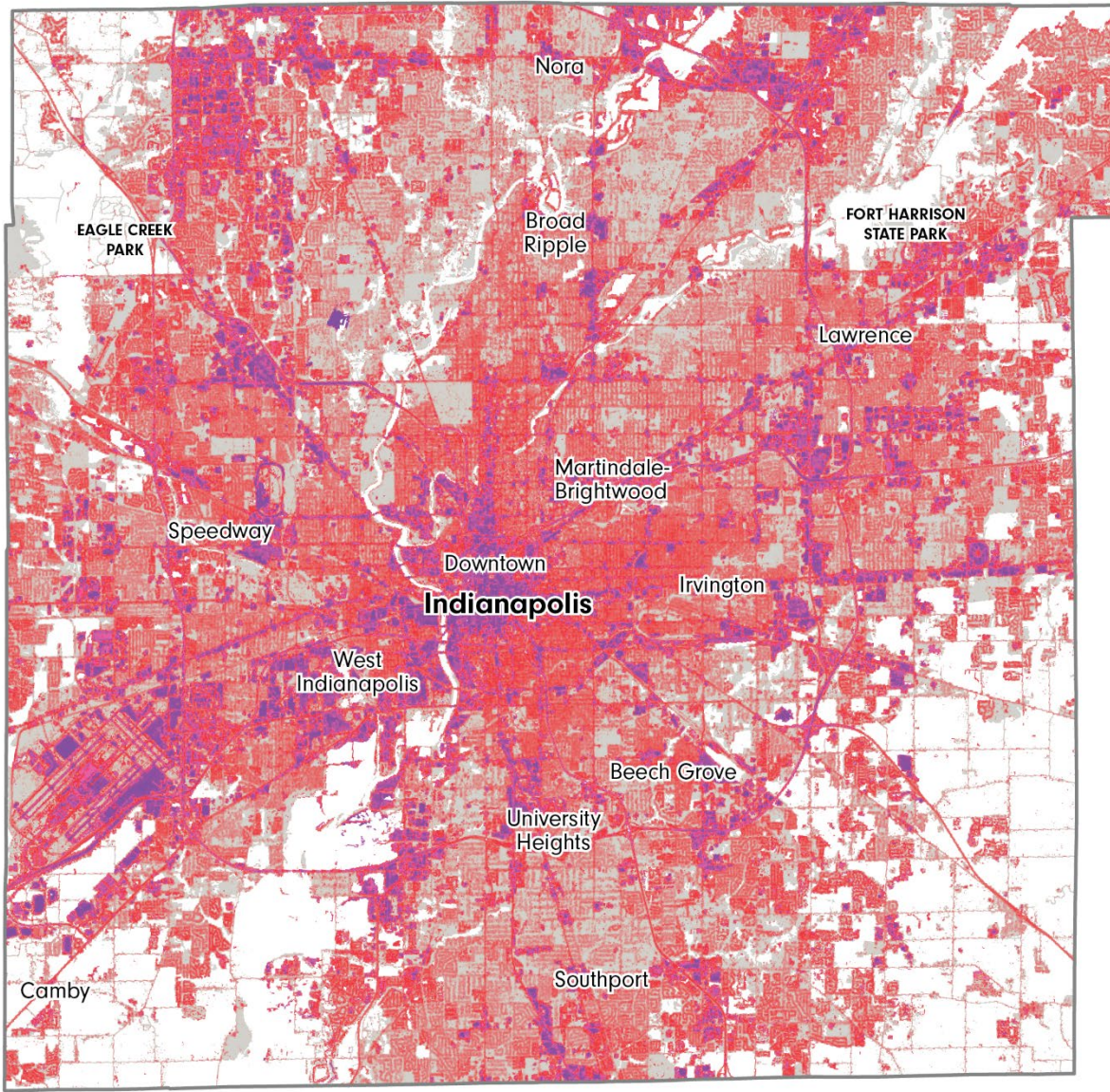
1-7°F higher than outlying rural areas and nighttime temperatures 2-5°F higher (EPA, 2023). The urban heat island effect is especially dangerous during heat waves, posing serious health risks to vulnerable populations such as children, the elderly, and those without air-conditioned homes (EPA, 2023). Heat stress and dehydration can also prove fatal to young, nesting birds. Even adult birds can be weakened by heat wave events. Birds pant, rather than sweat, to keep their bodies cool. This active process requires significant muscle movement, depleting vital energy stores (Thompson, 2021). Areas with more impervious surfaces also lack vegetation, which can provide shelter and food for wildlife throughout the year during both hot and cold weather events.

Impervious surfaces have also been linked to flooding and poor water quality. During storms, rainwater can't be absorbed back into the earth in areas with extensive impervious surfaces. Instead, water rushes across the landscape, flooding streets and water bodies. As this happens, pollutants of all kinds are carried into streams, rivers, ponds, and lakes, reducing water quality to the detriment of people and animals (Polycarpou, 2010).

Cities must be proactive about this issue. In Category 2 of my bird-friendly scale, there's a criterion that looks at whether local ordinances encourage new development to "limit impervious surfaces, instead maximizing green space and utilizing permeable pavement alternatives." The *City of Indianapolis Consolidated Zoning/Subdivision Ordinance* does just that. General subdivision provisions require that all development "balances the judicious use of impervious surfaces with the utilization of Low-Impact Development techniques to manage run-off and reduce urban heat island effects" (2022, p. 133). For some zoning districts, development standards outline allowed percentages of impervious

surface cover. Ordinances like this help to preserve natural, permeable surfaces and limit imperviousness in the built environment. That said, my analysis of Indianapolis' imperviousness revealed that additional steps could be taken regarding this issue, particularly to address existing impervious surfaces throughout the city.

After analyzing impervious surfaces in Indianapolis, I found that approximately 44.3% of the city is covered by these surfaces. Imperviousness is highest in the urban core and decreases towards the outskirts of the city (see Figure 4). Imperviousness is also highest along major commercial corridors, in industrial areas, and in poor residential areas. Except for a few higher-income neighborhoods in downtown Indianapolis, imperviousness is generally elevated in less affluent neighborhoods like Englewood, Arlington Woods, Mount Jackson, and Riverside. Imperviousness decreases in northern Indianapolis, home to wealthier neighborhoods such as Traders Point, Meridian Hills, Williams Creek, and Devonshire. These neighborhoods tend to have landscaping along road corridors and within medians, less commercial and industrial uses, homes with larger yards, and access to more parkland. These characteristics reduce impervious surface cover.



Impervious Surfaces

Marion County, Indiana
Genevieve Zircher

Sources: 2019 USGS National Land Cover Database, Flaticon (North Arrow by Freepik)

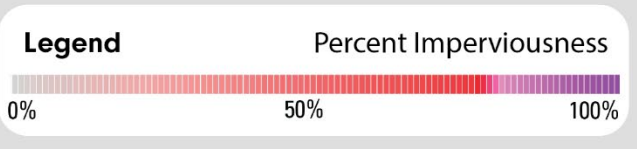
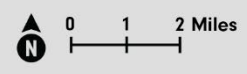


Figure 4. Impervious Surfaces in the Consolidated City of Indianapolis and Marion County

Although Indianapolis has taken a commendable first step in addressing urban imperviousness in its zoning ordinances, more could be done to reduce imperviousness in the existing urban fabric. The issue of urban imperviousness can be tackled by ‘depaving’ urban areas (i.e., increasing natural surfaces and spaces), switching to permeable paving, planting rain gardens, installing green roofs, and improving urban design (i.e. promoting compact land use, improving access to public transit, and devoting less space to parking) (Polycarpou, 2010). Some of these projects would involve infrastructure improvements by the city itself while others would likely result from public education and incentives to motivate homeowners and neighborhood groups.

4.5 Hydrology

The supporting criterion for analyzing local hydrology comes from *Category 2: Protecting and Promoting Nature in the City* on my unique bird-friendly scale. This criterion ensures that “water bodies and wetlands [in bird-friendly cities] are preserved and feature native plants and natural shorelines.” Water bodies and wetlands, grouped together as ‘hydrology,’ are present throughout Indiana’s capital city. In my analysis, I considered the location and distribution of water bodies and wetlands, pressing on their importance to humans and birds. In the descriptive inventories section, I explored qualitative characteristics of local hydrology, including the presence of native plants and natural shorelines around prominent water bodies.

From my analysis, I discovered that there’s a well-connected network of hydrological features, both man-made and natural, in Indianapolis (see Figure 5). The city is home to two large reservoirs, the 1,300-acre Eagle Creek Reservoir and the 1,900-acre

Geist Reservoir (half of which is in Hamilton County). These reservoirs are connected to the 362-mile White River by Eagle Creek and Fall Creek, respectively. Starting at Keystone at the Crossing in northern Indianapolis, the White River bisects the city as it travels towards Southwestway Park and into Johnson County. There are several small waterways in Indianapolis, including Little Eagle Creek, Pleasant Run, and Williams Creek, among others. Indianapolis' hydrology also includes several small lakes and ponds. These are mostly found in lower-density residential areas outside of the urban core. Clusters of lakes and ponds can be found along the White River, many of which appear to be retention ponds or retired quarries.

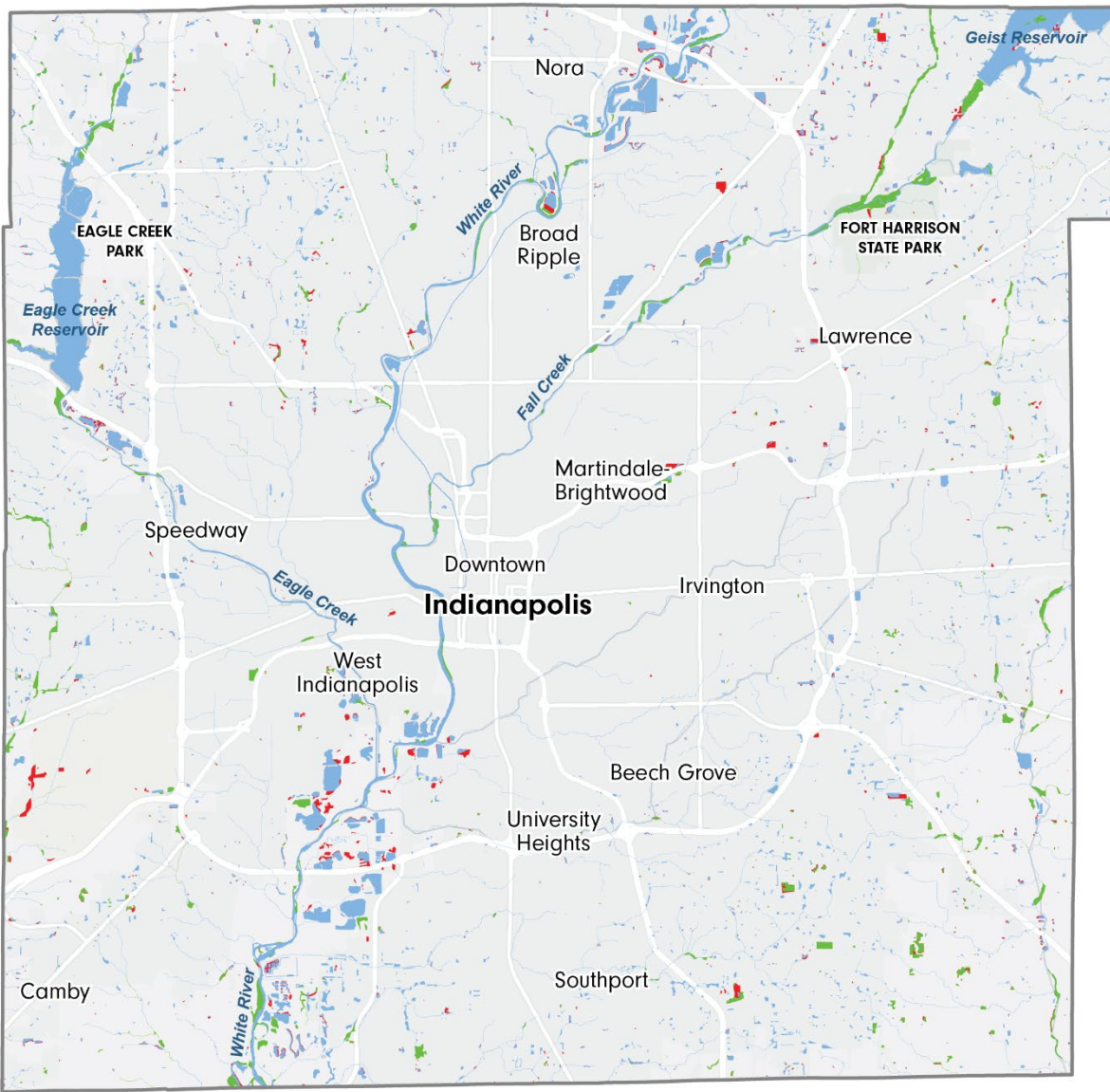
Indianapolis' reservoirs provide recreational opportunities for visitors, while also serving as important wildlife habitat. Visitors to Eagle Creek Reservoir can hike, fish, paddleboard, canoe, and birdwatch throughout the year. At the same time, the reservoir supports a variety of waterbirds, from year-round residents like the Wood Duck to migratory species like the Double-crested Cormorant. Even urban reservoirs like Eagle Creek and Geist are vital to long-term species success. Bald Eagles have been spotted at both reservoirs and sightings continue to increase as the species rebounds. In 2020, Bald Eagles were removed from Indiana's list of species of special concern due to continued success and population growth (Indiana Department of Natural Resources, n.d.).

The riparian corridors along the White River, Eagle Creek, and Fall Creek also play important ecological roles. Riparian corridors are the narrow, transitional areas along "perennial and intermittent streams with defined recognizable channels," including any "adjacent terrestrial areas needed to protect or restore riparian function" (Forest Service,

n.d.). Periodic flooding in these areas supports the accumulation of organic debris and nutrient-rich soils. Consequently, riparian corridors support a high degree of plant and animal biodiversity. At the same time, riparian corridors act as wildlife highways, connecting habitat areas while minimizing hazards such as vehicular traffic. Migratory songbirds often rely on riparian corridors as rest stops for their long journeys. At the same time, the woodland and shrubland habitats of riparian corridors provide nesting, breeding, and feeding opportunities for other avian species, including the Osprey and Belted Kingfisher (Indiana Division of Fish & Wildlife, 2004). Fortunately, Indianapolis is dedicated to protecting and restoring local riparian corridors. As mentioned in the Zoning section of this chapter, Indianapolis protects the area along streams (i.e., Stream Protection Corridors). The regional *White River Vision Plan* also sets actionable goals for restoring the health of the White River and adjacent habitat, ensuring that the waterway remains an asset for current and future generations.

I paired my analysis of water bodies with an analysis of Indianapolis' wetlands. Existing wetlands are mapped in green (see Figure 5). Most existing wetlands are found along the city's rivers and creeks. There are clusters of wetlands along Fall Creek, Buck Creek, and East Fork Lick Creek. There are also wetlands adjacent to Eagle Creek Reservoir and Geist Reservoir. Wetlands are incredibly important to native birds. Approximately one in three North American bird species relies on wetlands for food, shelter, and/or breeding (Stewart, 1996). Wetlands also benefit people through "natural water quality improvement, flood protection, shoreline erosion control, [and] opportunities for recreation and aesthetic appreciation" (EPA, 2022).

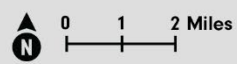
Unfortunately, Indianapolis has lost many of its wetlands over time. Historic wetlands are mapped in red (see Figure 5). The loss of Indy's wetlands reflects a larger trend in wetland draining and alteration. Since Western colonization, the State of Indiana has lost about 85% of its original wetlands (Saenz, 2022). While the extent of some of these wetlands may have changed naturally, most of historic wetlands in Indiana, including those in Indianapolis, were deliberately removed to accommodate agricultural land and urban development. Going forward, Indianapolis should preserve the wetlands that remain and make efforts to restore historic wetlands, whenever possible.



Water Bodies and Wetlands

Marion County, Indiana
Genevieve Zircher

Sources: 2023 U.S. Fish & Wildlife Service National Wetlands Inventory,
2023 U.S. Geological Survey National Hydrography Dataset,
Flaticon (North Arrow by Freepik)



Legend

- Water Bodies
- Existing Wetlands
- Historic Wetlands

Figure 5. Water Bodies and Wetlands in the Consolidated City of Indianapolis and Marion County

5. Interviews with Stakeholders

Another phase of my research involved conducting interviews with stakeholders on the topic of a bird-friendly Indianapolis. The ten participants selected, from planners to interpretive naturalists, represented a range of relevant organizations and specialties. Participants included representatives of the Indiana Audubon Society, Amos Butler Audubon Society, City of Indianapolis (Visit Indy, Office of Sustainability, and the Department of Metropolitan Development), Eagle Creek Park, Fort Harrison State Park, and Central Indiana Land Trust. I also spoke with a developer from Keller Development, Inc., with prior professional experience in Indianapolis. Each participant offered a unique perspective on protecting native birds and engaging urban residents. Through the exploration of common themes (i.e., the categories of my bird-friendly scale), this chapter summarizes the findings of these interviews.

5.1 Planning for Bird Conservation

How do long-range plans in Indianapolis incorporate birds and other native wildlife?

The *Comprehensive Plan for the City-County* serves as a long-range vision guiding growth and development in Indianapolis and Marion County. The plan itself is not one document, but rather consists of dozens of related plans, including a land use pattern book, parks master plan, and more. According to Carmen Lethig, Administrator of Long-Range Planning in the Department of Metropolitan Development, the *Land Use Pattern Book* designates “swaths of the county...focused on the environment,” including parks and agricultural areas, but does not specifically mention birds or other native wildlife. The same can be said for the city’s zoning code. These documents “do not call out specific types

of wildlife, [such as] birds.” The only document within the comprehensive planning framework that does mention birds is the *Indy Parks Comprehensive Master Plan 2016 – 2021*. This plan references birds approximately 25 times, discussing the importance of parks as both bird habitat and recreational sites for birdwatching.

Even though most of the city’s long-range plans do not specifically mention birds, there is an overarching effort to sustainably manage and protect greenspace with the “co-benefit of helping native species thrive,” says Lindsay Trameri, Community Engagement Manager in the Office of Sustainability. For example, *Thrive Indianapolis*, the city’s plan for community resilience and sustainability, includes goals of promoting native plantings, expanding the tree canopy, removing invasive species, and reducing impervious surfaces. These goals are designed to benefit residents, but also make it easier for native birds, whether year-round residents or migratory species, to feed, nest, and breed.

Similarly, Carmen Lethig explained that the *Land Use Pattern Book* designates an Environmentally Sensitive Areas Overlay intended to protect “high-quality woodlands, wetlands, and other natural resources,” largely with the intention of preserving habitat for birds and other animals. The *White River Vision Plan*, a long-range plan for the White River as a recreational amenity and natural resource, also neglects to mention birds, but incorporates many bird-friendly initiatives aimed at protecting riparian corridors and improving water quality in the city.

What is the Bird Town Indiana program and why should Indianapolis participate?

Established in 2013, the Bird Town Indiana program encourages communities to make an “active and ongoing commitment to the protection and conservation of bird populations

and their habitats” (Indiana Audubon Society). Cookie Ferguson, Bird Town Coordinator and Interpretive Naturalist for Indiana Dunes National Park, explains that the program was established so that, as towns were developing, they would be encouraged to “make areas for birds and think about urban development and native development.” She says that the program pushes native plants, parks, green areas, the removal of invasives, and the establishment of marshes in communities across Indiana.

According to Ferguson, cities like Indianapolis could benefit economically by participating in the program. She explains, “If you have an area that’s attractive to birds, you’re going to attract birders. And birders need to eat, birders need to stay overnight, [and] birders need to buy gas.” Aside from supporting the local economy, communities should consider getting involved because of the contribution they could make to the survival of avian species by preserving local habitat and native vegetation. Ferguson stresses that protecting native vegetation is vital. Without it, birds have difficulty finding food, such as insects, making it challenging to support themselves and their young. If these benefits aren’t enough, Ferguson comments that bird-friendly communities offer quality-of-life benefits to residents. She explains, “It’s just a matter of having a spot for [residents] to get out. [T]here’s nothing as good for the inside of a person as the outside of nature.” Other benefits listed on the Indiana Audubon Society’s website include instilling community pride and boosting grant eligibility.

Ferguson was also excited to share that a national network of bird-friendly communities will launch in early 2023. The Bird City network, a collaboration between the American Bird Conservancy (ABC) and Environment for the Americas (EFTA), will connect

bird-friendly towns and cities across the country. Communities will be able to share resources and support one another like never before.

5.2 Protecting and Promoting Nature in the City

How does the physical environment in Indianapolis support native birds?

Local parks and nature preserves throughout Indianapolis provide crucial habitat for native birds. For example, Aidan Rominger, a Naturalist at Eagle Creek Park, reports that the park has “a lot of different environments, a lot of different habitats,” including “wetland habitats, open water habitats, shorelines, grasslands, deciduous forests, and wet prairies.” Rominger asserts that many of these habitat types are “integral to eastern North American migratory birds and resident populations of birds.”

At Fort Harrison State Park, Interpretive Naturalist Emilie Sweet highlights the importance of the park’s wooded areas and open areas. She explains that wooded habitats, particularly those featuring dead trees, are important for cavity nesters, like woodpeckers. Fort Harrison is also home to 627 acres of nature preserves, including Warbler Woods, the Bluffs of Fall Creek, Lawrence Creek, and the Chinquapin Ridge Nature Preserve. Some of these preserves are closed to the public to protect the species dwelling there. For example, the Chinquapin Ridge Nature Preserve is off-limits to the public because it serves as a Blue Heron Rookery, a protected nesting site for Blue Herons.

In addition to greenspaces managed by Indy Parks and Recreation and the Indiana Department of Natural Resources, the Central Indiana Land Trust (CILT), a local nonprofit, owns and manages three preserves in the city. These preserves include Oliver’s Woods Nature Preserve, White Owl Conservation Area, and the White River Bluffs. Phillip Weldy, a

Stewardship Specialist for CILT, explains that the preserves in Indianapolis are all located along the White River, helping protect riparian habitat.

Weldy believes it is important to preserve natural areas in cities “for nature’s sake,” as well as to provide recreational opportunities for residents. He elaborates saying, “The leading cause of biodiversity loss is habitat loss. These places are important... especially in a city where there are not a lot of places for wildlife to go.” Oliver’s Woods, in particular, is a “hotspot for migrating birds.” Protected, ecologically managed preserves allow birds to rest and refuel along their migration path, increasing the likelihood of a successful journey. Through clean-up days, invasive plant pulls, and native plantings, Stewardship Specialists and volunteers maintain these natural spaces, helping ensure that preserves remain healthy and, thus, support native wildlife to the utmost degree.

How do policies and programs in Indianapolis support urban habitat?

Official policy documents, including *Thrive Indianapolis* and the *White River Vision Plan*, contain goals dedicated to supporting urban habitat. For example, in 2018, *Thrive Indianapolis* set an ambitious goal to adopt a policy requiring the exclusive use of native plants and the removal of invasive plants in parks and greenways by 2022. According to Lindsay Trameri, Community Engagement Manager for the Office of Sustainability, this policy has yet to be implemented. That said, progress has been made regarding other goals within the plan. In the 2021 *Thrive Indianapolis Annual Report*, the Office of Sustainability noted that per capita spending on parks and recreation drastically increased from \$26 per capita in 2016 to \$43.72 per capita in 2021. Increased funding ensures that existing parks are well-maintained and staffed while also paving the way for the creation of new parks.

Finally, Trameri shared that the City of Indianapolis achieved a goal of planting 30,000 native trees in 2022, helping expand the urban tree canopy.

According to Brad Beaubien, Director of Destination Development for Visit Indy, the city's tourism agency, the "grand idea" behind the *White River Vision Plan* is to invest in the White River in Marion County and Hamilton County as a "national-park-like amenity." The plan combines goals of enhancing river access for residents and visitors with environmentally focused goals of improving local water quality, ecological resilience, and ecological health. For example, a standout goal from the *White River Vision Plan* is to "[manage] urban and natural ecosystems in a coordinated way." So far, this has manifested in restoration projects along the river made possible through collaboration between the City of Indianapolis and partner organizations, including the Central Indiana Land Trust, Newfields, and Conner Prairie.

Outside of policy documents, urban habitat is also supported through a variety of programs, including programs from Reconnecting to Our Waterways (ROW) and Keep Indianapolis Beautiful (KIB). Reconnecting to Our Waterways is a grassroots initiative from Indianapolis neighborhoods and residents, private and public organizations, and civic leaders. ROW hosts an Ecology Element Committee dedicated to addressing environmental issues pertaining to Indianapolis' rivers and streams. One of their most important initiatives is their Residential Invasive Species Removal Guide. This online guide is an important resource enabling Indy residents to take action against invasives and safeguard environmental quality in their own backyards. This is especially important since residential neighborhoods cover large swaths of Indianapolis. If invasive species are allowed to thrive

on private land, these plants will inevitably spread to parks and preserves, outcompeting the native plants that birds and other wildlife rely upon.

Keep Indianapolis Beautiful, an environmental and community nonprofit, also offers several programs aimed at supporting urban habitat. In their habitat restoration program, KIB staff partner with corporate and community volunteers to remove invasives and replace them with native plants. Neighborhoods can also apply for native trees to plant in their communities through KIB's community forestry program. Finally, their AES Project Greenspace program functions as a public grant resulting in the collaborative creation of a new community park or greenspace. Volunteers, contractors, and KIB staff work together to plan for, design, and develop these greenspaces, which are intended to "reduce pollution, host critical habitat for pollinator species, and foster accessibility to nature within Indianapolis" (Keep Indianapolis Beautiful). Ashlee Mras, former Project Manager for the Office of Sustainability, identified both ROW and KIB as important local partners in implementing bird-friendly initiatives.

What are some of the barriers to environmentally focused initiatives in Indianapolis?

According to Carmen Lethig, Administrator for Long-Range Planning in the Department of Metropolitan Development, the most significant barriers are "always funding and time." The public and nonprofit sectors have limited resources. Lethig explains that "local government is just trying to do so much with so little." Ashlee Mras, former project manager for the Office of Sustainability, agrees. During our interview, she remarked that, "funding is huge" and that little could be done without adequate funding.

It can also be difficult to garner support from residents. If residents don't interact with nature on a regular basis, they may not have an emotional or personal connection to environmental issues. Brad Beaubien, Director of Destination Development for Visit Indy, explains, "To care about something, you have to experience it. If you don't experience the White River, you don't experience birds... you're not going to understand them and you're not going to understand the issues." Beaubien believes that it's vital for Indianapolis to continue developing opportunities for residents to get in touch with nature, including native birds. He adds, "We probably don't have enough opportunities for people to experience [native birds] and therefore care, and therefore advocate for and understand." Enthusiastic citizens, whether as volunteers or policy advocates, are key to overcoming the hurdles associated with environmental initiatives.

Finally, multiple interview participants mentioned the need to develop partnerships to push policies and programs forward. Whether it's developing legislation, leading an educational program, or maintaining urban habitat, public, private, and nonprofit partners all play an important role. Phillip Weldy, Stewardship Specialist for the Central Indiana Land Trust, describes it best, saying, "It's all connected, and we all play our own little part."

5.3 Reducing Hazards to Birds

What is Lights Out Indy? How does this program support native birds?

According to the project website, Lights Out Indy is an initiative of the Amos Butler Audubon Society focused on "preventing bird deaths and saving energy by promoting bird-safe buildings and reducing nighttime lighting" (Amos Butler Audubon Society). Outside of his work as an Environmental Specialist for the Lochmueller Group, Austin Broadwater

serves as Director of the Lights Out Indy program. Over the years, the program has gained the support of several local organizations. Partners, including the Indianapolis Zoo, Indianapolis Public Library, City-County Building, and Newfields, have agreed to turn off lights from midnight until 6:00am during spring and fall migration events to prevent bird deaths. Despite these successes, Broadwater hopes to do more.

During our interview, he explained, “We’re trying to push more for window treatments, because that’s ultimately what kills the birds. The lights cause birds to come more into the city, but windows are what they actually hit.” Consequently, Lights Out Indy would like to propose an ordinance that requires or incentivizes the construction of bird-safe buildings in Indianapolis. While the project team seeks legal expertise to draft an ordinance, possibly from a passionate volunteer, Broadwater and his team of volunteers monitor bird strikes, develop partnerships with building owners and managers, and educate the public on the threats facing birds. An important part of Broadwater’s work also includes providing resources to homeowners. Broadwater elaborates, “I think high-rises are the most visible, but I think homeowners can help as well. We want to try and push that.” The Lights Out Indy webpage provides tips for homeowners to make their homes and yards more bird-friendly, as well as links to helpful, online resources from the National Audubon Society, American Bird Conservatory, and Wild Birds Unlimited.

What other programs exist that reduce hazards to birds?

Other programs that reduce hazards to birds in Indianapolis include Operation Night Light and the Indy Neighborhood Cats Trap-Neuter-Return program. Lindsay

Trameri, Community Engagement Manager for the Office of Sustainability, mentioned these programs as important for protecting birds against light pollution and free-roaming cats.

Operation Night Light was a collaboration between the City of Indianapolis and AES Indiana in 2016. The project lifted a 35-year streetlight moratorium, in which Indianapolis refused to install new streetlights to “save money on the city’s \$2.9 million annual electric bill” (Tuohy and Cook, 2016). From 2016 to 2021, “26,434 fixtures [were] retrofitted with high-efficiency LED lights in neighborhoods across Marion County” (Office of Sustainability, 2022). The newly installed streetlights require less energy, improve safety, and decrease light pollution at night. By reducing light pollution, birds are less likely to fly into the city during migration season, avoiding fatal collisions with buildings, windows, and cars.

The Trap-Neuter-Return program is a collaboration between Indy Neighborhood Cats and the Indy Humane Society. Indy Neighborhood Cats, a local animal nonprofit, traps free-roaming cats and neuters them, preventing them from reproducing. The Indy Humane Society assists by providing medical care, foster care, and adoption services as needed. Neutered cats are then re-released into the community. The goal of the program is to slowly reduce the number of free-roaming cats, considered invasive predators, allowing native bird populations to rebound.

What hazards remain that are insufficiently addressed by current policies and programs?

Without an ordinance requiring or incentivizing bird-safe building standards in new construction, window strikes remain a significant hazard to native birds in Indianapolis. Amos Butler Audubon Society would be a willing advocate for such a policy, but they lack the legal know-how to develop a policy proposal. As part of their Bird-Safe Building Design

guide, the American Bird Conservatory offers model legislation for bird-friendly building standards; however, this legislation may not fit within the political and cultural context of Indianapolis or meet the needs of developers. That said, there is still hope that an ordinance like this could be successful in Indianapolis, especially if such a policy remains flexible and incorporates resources for developers.

Some developers are already integrating wildlife-friendly features in building designs and landscaping. Greg Majewski, a Business Development Specialist for Keller Development, Inc., has experience with projects throughout Central Indiana. In his current work developing affordable housing, Majewski has integrated chimney swift towers and barn owl nest boxes in multi-family projects. He believes that these innovative design elements help his projects stand out in competitive proposals for federal and state funds. By incorporating elements like these, or other bird-safe features, including fritted glass, opaque glass, netting, and window decals, companies can make a difference while also presenting as environmentally conscientious to customers and investors. That said, most developers are not adding wildlife-friendly features to their designs.

To encourage developers to incorporate wildlife-friendly design elements, flexibility and resources are vital. Majewski argues that bird-friendly design regulations must be understanding of supply chain shortages and budget limitations. He remarks, "As a developer, especially a developer over the last couple of years and a developer in affordable housing... if materials are costly, the regulations have to allow alternatives to be used." The margins for projects are thin and additional costs and delays can spell disaster for project budgets and deadlines. According to Majewski, however, "understanding" how

to incorporate wildlife-friendly design elements is an even “bigger hurdle than the cost component.” Often, architects, construction managers, and developers are unaware of how they can “facilitate wildlife or lessen the impact [on] wildlife” through their projects. Alongside ordinances, it's important that local governments provide resources to help companies comply with regulations and implement change.

Majewski suggests modeling ordinances after the National Green Building Standard or the U.S. Green Building Council's LEED rating system. These systems both require buildings to accumulate points to achieve certification. Indianapolis could choose a system (or allow the developer to choose), then require a certain number of points or a certain level of certification. This would provide developers with flexibility in determining how to make their project more sustainable and wildlife friendly. The municipality could also require certain credits to be obtained. For example, the LEED rating system has a Bird Collision Deterrence credit, which focuses on reducing the threat of bird-building strikes.

5.4 Education and Engagement

How do local parks and nature preserves encourage engagement with birds, as well as educate residents about the threats facing birds?

Talented staff at local parks and nature preserves host programs and events throughout the year to encourage residents of all ages to engage with birds, as well as learn more about the threats facing birds. For example, Eagle Creek Park and Fort Harrison State Park offer field trips for K-12 classes from both public and private schools. According to Emilie Sweet, Interpretive Naturalist at Fort Harrison State Park, field trips are most often arranged for elementary-aged kids; however, programs for middle schoolers and high

schoolers are available. Field trips play an important role in fostering a life-long love of nature, especially for children who may not otherwise have an opportunity to explore nature in the city. Field trips at each park differ, but typically involve small lessons on migration, animal behaviors, and identification. Both parks also have animal ambassadors (hawks, turtles, snakes, etc.) that students can observe and sometimes touch. At Fort Harrison State Park, it's also typical for the group to go on a hike through the park.

Parks and nature preserves throughout Indianapolis also offer weekly and monthly programs for different target audiences, from families with young kids to adults. The programs, typically hosted on weekends, vary from park to park, but may include naturalist-led hikes, beginning birder workshops, bird counts, and educational programs centered around specific species (including owls, herons, woodpeckers, and hawks). Eagle Creek Park also hosts annual festivals to get residents excited about birds, including the Eagle Creek Bird Fest in May and the Owl Fest in October.

Several Indianapolis parks also have their own nature centers, including Eagle Creek Park, Fort Harrison State Park, and Holliday Park. Eagle Creek Park is unique because it has two nature centers, the Ornithology Center, which focuses on birds, and the Earth Discovery Center, dedicated to educating visitors about Indiana animals and plants. Aidan Rominger, Naturalist at Eagle Creek Park, explains that the Ornithology Center has a variety of features that help facilitate learning, including a taxidermy exhibit hall, bird feeder room, observation room, library, migration-themed play area, animal ambassadors, and handouts advertising upcoming events. Knowledgeable staff are also present to answer any questions visitors may have.

In addition to nature centers, parks and preserves offer a range of amenities, each of which facilitates engaging recreational opportunities. Eagle Creek Park has a high-ropes course, zipline, and marina. Fort Harrison State Park has a stable for horseback riding, mountain biking trails, and ponds for fishing. Oliver's Woods has a canoe takeout point, hiking trails, and mountain biking trails. By encouraging residents to get outside, parks facilitate interactions with and appreciation of native wildlife in Indianapolis.

How does the Amos Butler Audubon Society serve as an education and engagement resource?

The Amos Butler Audubon Society (ABAS), a chapter of the National Audubon Society, covers Indianapolis (Marion County), as well as the surrounding counties of Central Indiana, including Boone, Hendricks, Hamilton, Hancock, Johnson, Shelby and northern Morgan County. According to Austin Broadwater, member of the Amos Butler Audubon Society Board of Directors, the chapter provides ample opportunities for members to engage with and learn about birds. He explains, "We usually have monthly programs where [a] speaker will come and talk either about their visits to different countries for birding or, if they have a recent study, about some new bird behavior." ABAS also hosts bird hikes at parks throughout the Indy area, open to both members and non-members alike. Several hikes take place each week.

The Amos Butler Audubon Society also provides valuable information through their website. The ABAS website includes a list of Indiana wildlife rehabilitators, information on joining the Indiana Young Birders Network, and links to national programs, such as Cornell University's Citizen Science Program and the American Bird Conservancy's Cats Indoors

program. The Amos Butler Audubon Society was also a partner in the BirdIndy initiative, described in the following section.

What was the BirdIndy initiative? How did it make bird-watching accessible for residents?

In 2011, Indianapolis signed the Urban Conservation Treaty for Migratory Birds; consequently, the city was awarded a U.S. Fish & Wildlife Service grant to “promote city-wide initiatives to improve bird habitat, increase community awareness, and encourage the active stewardship of migratory birds by residents” (Indy Birding Trail Guide). The BirdIndy initiative was borne out of this commitment to support migratory birds and encourage residents to engage with birds.

BirdIndy was a partnership between public, private, and nonprofit organizations in Indianapolis, including Indy Parks and Recreation, the Office of Sustainability, the Amos Butler Audubon Society, the Butler University Center for Urban Ecology, the Central Indiana Land Trust, Keep Indianapolis Beautiful, and Wild Birds Unlimited. During her time working for the City of Indianapolis, Ashlee Mras, former Project Manager for the Office of Sustainability, was highly involved in the BirdIndy program. When it was first developed, Mras explains that the program featured four major components, each of which was intended to make the enjoyment of birds more accessible for urban residents. These components included the *Indy Birding Trail Guide*, the Indy Birding Trail app, signs in local parks, and birding kits at local libraries.

The *Indy Birding Trail Guide*, available online and as a pocket-sized handbook at local parks, divided Indianapolis, and its neighborhoods, into five sections – Northeast, Northwest, Southeast, Southwest, and Central. Within each of these sections, the guide

identified ideal birding sites and provided key information about each site. Information included the site's name, address, contact information, hours of operation, and amenities (i.e., parking, trails, shelters, restrooms). There was also a brief description of each site and notes on common birds to watch out for. This guide enabled residents to explore birding spots nearest to them, often within walking distance. This is especially important given the accessibility limitations of many major parks. For example, neither Eagle Creek Park nor Fort Harrison State Park is directly served by public transportation, making it difficult for residents without a vehicle to enjoy these natural spaces.

Another component of BirdIndy was the Indy Birding Trail app. This app, essentially an online, interactive map, allowed residents to view birding sites nearest to them and access the same information found in the guide. Signs in local parks linked visitors to the app, meaning they didn't need a copy of the handbook to learn more about birds in their area.

In 2015, through a partnership between the Office of Sustainability and the Indianapolis Public Library, birding kits were made available to teachers, youth leaders, and birdwatching enthusiasts. Each kit included a set of binoculars, field guides, activity books, and bird calls. The goal behind the kits was to help engage kids with birds by providing educators with necessary resources. Without these resources, facilitating a lesson or hike would likely be cost-prohibitive. The kits were free to check out from the Central Library, Eagle Creek Ornithology Center, Glendale Branch, Irvington Branch, Garfield Park Branch, and Spades Park Branch.

Unfortunately, since Mras left the Office of Sustainability, many of the components of BirdIndy have been discontinued. The *Indy Birding Trail Guide* is still accessible through the

Amos Butler Audubon Society's website but is no longer hosted on the city's website. Physical copies are available for in-library use only at the Central Library, but Mras is unsure whether copies can be found in local parks. The Indy Birding Trail app is now defunct and remaining signs in local parks direct visitors to a broken link. Finally, Mras is unsure whether the birding kits are still available to rent at library branches. Despite the decommissioning of the program, Mras still believes that BirdIndy has value and wishes the initiative would be revitalized.

6. Descriptive Inventories

This chapter inventories organizations, programs, and policies that are relevant to the discussion of Indianapolis as a bird-friendly city. These initiatives were selected for their role in protecting native birds and/or engaging residents with birds. Each section contains a table with pertinent information on the inventoried organizations, programs, and policies. Part of my research also involved visiting local parks and nature preserves. In the section on parks, I include short descriptions of the local parks and preserves I visited. These descriptions capture important information on visitor amenities, accessibility, native plants, and natural shorelines that couldn't be ascertained through mapping, online research, or interviews.

6.1 Organizations

The following table inventories organizations working either directly or indirectly to make Indianapolis a more bird-friendly city. For each organization, I've included a brief description, as well as the categories that the organization falls under on my bird-friendly scale.

Table 6. *Bird-Friendly Organizations in Indianapolis*

Name	Description	Category
Amos Butler Audubon Society (ABAS)	A chapter of the National Audubon Society serving Indianapolis (Marion County) and the surrounding counties of Boone, Hendricks, Hamilton, Hancock, Johnson, Shelby and northern Morgan. ABAS regularly partners with the Central Indiana Land Trust to preserve quality bird habitat in Central Indiana. The chapter also offers bird hikes, lectures,	Education and Engagement, Reducing Hazards to Birds, Protecting and Promoting Nature in the City

	and workshops to members. They also facilitate the Lights Out Indy program.	
Indiana Young Birders Network (IYBN)	A community-based network of passionate young birders interested in kickstarting or furthering their interest in birds and birding. The IYBN offers birding hikes, presentations, hands-on workshops, and socials. There is no cost to become part of the network.	Education and Engagement
Indiana Audubon Society (IAS)	Founded in 1898, the IAS is an independent, statewide organization that predates the National Audubon Society. The mission of the IAS is to “engage communities in the enjoyment of birds in their habitat, through conservation, education and research.” The IAS hosts events to engage the public with birds, advocates for the protection of bird habitat, maintains a bird sanctuary in Connersville, Indiana, and more.	Education and Engagement, Reducing Hazards to Birds, Protecting and Promoting Nature in the City
Providence Wildlife Rehabilitation, Inc.	A 501(c)3 nonprofit dedicated to rescuing and rehabilitating injured wildlife in Marion County.	Reducing Hazards to Birds
Indiana Wildlife Federation (IWF)	The IWF is a nonprofit, grassroots affiliate of the National Wildlife Federation. Their mission is to “promote the conservation, sound management, and sustainable use of Indiana's wildlife and wildlife habitat through education, advocacy and action.” The IWF protects wildlife habitat through environmental advocacy, the Certified Wildlife Habitat program, the Landscaping the Sustainable Campus program, and educational workshops.	Protecting and Promoting Nature in the City, Education and Engagement
Indy Neighborhood Cats	A 501(c)3 nonprofit dedicated to improving the quality of life of stray cats and the Indianapolis communities they live in by reducing overpopulation through a Trap-Neuter-Return (TNR) program.	Reducing Hazards to Birds

Central Indiana Land Trust (CILT)	A 501(c)3 nonprofit dedicated to preserving natural areas in Central Indiana. CILT owns and manages nature preserves, holds conservation easements, and forms management agreements with landowners. CILT also provides opportunities to engage with nature through volunteer work days and special events. CILT regularly partners with the Indiana Department of Natural Resources, the Nature Conservancy, and other land trusts to protect habitat.	Protecting and Promoting Nature in the City, Education and Engagement
Nature Conservancy (TNC)	A global environmental nonprofit whose mission is to “conserve the land and waters on which all life depends.” The Nature Conservancy protects, restores, and manages more than 100,000 acres of nature preserves in Indiana.	Protecting and Promoting Nature in the City
Indiana Native Plant Society (INPS) – Central Chapter	The Central Chapter of the Indiana Native Plant Society serves Marion County, as well as several other counties in Central Indiana. The INPS is dedicated to championing biodiversity by appreciating, studying, and utilizing native plants.	Protecting and Promoting Nature in the City
Marion County Soil & Water Conservation District (MCSWCD)	The Marion County SWCD, a local unit of state government, assists Indianapolis property owners “conserving soil, water and related natural resources by providing technical, financial and educational services.” The MCSWCD is dedicated to protecting natural resources for future generations to use and enjoy.	Protecting and Promoting Nature in the City
City of Indianapolis	The City of Indianapolis and its various departments, including Visit Indy, Indy Humane, Indy Parks and Recreation, the Office of Sustainability, and the Department of Metropolitan Development, protect the natural environment and promote appreciation of wildlife. This is accomplished through	Planning for Bird Conservation, Protecting and Promoting Nature in the City, Education and Engagement

	long-range plans, city ordinances, and local programming.	
Keep Indianapolis Beautiful (KIB)	An environmental and community nonprofit with a mission to “create vibrant public places, helping people and nature thrive.” KIB is an affiliate of the national Keep America Beautiful, Inc. KIB has programs focused on urban forestry, public greenspaces, and habitat restoration.	Protecting and Promoting Nature in the City, Education and Engagement
Reconnecting to Our Waterways (ROW)	Established in 2012, ROW is a collective impact initiative focused on improving quality of life and ecology along Indianapolis waterways and surrounding neighborhoods. ROW engages residents and protects waterways by maintaining a strategic plan, organizing community events, creating innovative programs, providing technical assistance, and implementing physical improvements.	Protecting and Promoting Nature in the City, Education and Engagement
Indiana Department of Natural Resources (IDNR)	The DNR’s mission is to “protect, enhance, preserve, and wisely use natural, cultural, and recreational resources for the benefit of Indiana's citizens through professional leadership, management, and education.” The DNR has both a Regulatory Management Team and a Land Management Team to fulfill its broad and diverse responsibilities. In Indianapolis, the DNR notably protects and preserves habitat at Fort Harrison State Park. Staff at the park’s nature center also facilitate educational programming for visitors.	Protecting and Promoting Nature in the City, Education and Engagement
Indiana University – Purdue University Indianapolis (IUPUI)	IUPUI is a public research university located in the heart of Indianapolis. At the Center for Earth and Environmental Science, students and faculty study and engage residents with the urban environment through research, science education programs, and environmental service-learning projects. For example, a	Education and Engagement, Reducing Hazards to Birds, Protecting and Promoting Nature in the City

	recent study from Dr. Victoria Schmalhofer looked at bird window strikes in Indianapolis to understand the threats that the built environment imposes on birds.	
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6.2 Programs

The following table inventories programs, both active and inactive, helping make Indianapolis a more bird-friendly city. For each program, I've included a brief description, identified the categories that the program falls under on my bird-friendly scale, listed associated organizations, and provided the program's status.

Table 7. *Bird-Friendly Programs in Indianapolis*

Name	Description	Category	Organizations	Status
BirdIndy	BirdIndy, a collaborative effort between the City of Indianapolis and community partners, was established in response to the enactment of the Urban Conservation Treaty for Migratory Birds in 2011. Notable achievements included developing a trail guide, placing signage at parks, creating an interactive app, and making free birding kits available at local libraries.	Education and Engagement	Office of Sustainability, Indy Parks, Amos Butler Audubon Society	Inactive
Green Building Incentive Program	Launched in 2010, this program incentivized property owners and developers to incorporate green building criteria when	Reducing Hazards to Birds	Department of Business and Neighborhood Services,	Inactive

	<p>constructing new buildings or completing major renovations. Participating projects were eligible for up to a 50% rebate on permit fees. The program ended in 2011.</p>		Office of Sustainability	
Lights Out Indy	<p>An initiative focused on preventing bird deaths and saving energy by promoting bird-safe buildings and reducing light pollution. Successes have included getting building owners and managers to voluntarily turn off lights during migration season, conducting bird-building strike surveys, and preventing the release of balloons at Indy 500. Lights Out Indy also maintains a website with helpful resources on preventing bird-building strikes.</p>	Reducing Hazards to Birds	Amos Butler Audubon Society	Active
Bird Window Strike Survey	<p>A project from Dr. Victoria Schmalhofer at IUPUI's Center for Earth and Environmental Science. Student volunteers will walk the campus, count window strikes, and record information about the birds found. The study should provide insight into the threats facing birds on the university campus.</p>	Reducing Hazards to Birds	IUPUI	Active

Trap-Neuter-Return (TNR)	In this program, a non-lethal three-step method is used to reduce overpopulation of community cats in Indianapolis. Volunteers trap cats, neuter them (while also providing necessary medical care), and release them back into the neighborhoods where they originated. Over time, this process is intended to limit the number of free-roaming cats in the city, helping support native bird populations.	Reducing Hazards to Birds	Indy Neighborhood Cats	Active
Eagle Creek Bird Fest	This festival, held annually at Eagle Creek Park, celebrates birding opportunities during the height of migration season. Residents are encouraged to come out for free guided hikes, workshops, activities, and adaptive/inclusive outings. No birding experience is necessary.	Education and Engagement	Indy Parks and Recreation, Amos Butler Audubon Society	Active
Visitor Programming at Parks and Preserves	Interpretive staff at parks and nature preserves throughout Indianapolis offer a variety of programs each month to educate and engage visitors with Indiana wildlife. Example programs include Sunday Morning Bird Walks at Fort Harrison State Park, Meet a Raptor events at	Education and Engagement	Indy Parks and Recreation, Indiana Department of Natural Resources, Central Indiana Land Trust	Active

	Eagle Creek Park, and Intro to Nature Observation workshops at Holliday Park.			
Field Trips at Parks and Preserves	Interpretive staff at Indianapolis parks, including Eagle Creek Park, Fort Harrison State Park, Holliday Park, Garfield Park, and Southeastway Park facilitate educational programming for visiting school groups. During field trips, students engage with the natural environment through hands-on learning experiences.	Education and Engagement	Indy Parks and Recreation, Indiana Department of Natural Resources	Active
Christmas Bird Count	Established in 1900 by ornithologist Frank M. Chapman, the Christmas Bird Count is an annual citizen science opportunity from the National Audubon Society. Participants go out and count birds in a 'bird census,' then share their data with the Audubon Society. At Fort Harrison State Park, naturalists lead participants in groups around the park to conduct their surveys.	Education and Engagement	Fort Harrison State Park	Active
Certified Wildlife Habitat	Through this program, participants can transform yards, neighborhoods, schoolyards, work landscapes, places of worship, and roadside	Protecting and Promoting Nature in the City, Education and Engagement	Indiana Wildlife Federation, Wild Birds Unlimited	Active

	<p>green spaces into vital habitat for native Indiana wildlife. Certified habitats feature food, water, cover, and places to raise young, while also incorporating sustainable practices. The Indiana Wildlife Federation provides resources and support to participants.</p>			
<p>Landscaping the Sustainable Campus</p>	<p>Through this program, Indiana colleges and universities are encouraged to adopt sustainable and ecologically-friendly land management practices. To be certified as a sustainable campus, participating schools must implement at least one new project that demonstrates conservation practices. Examples include native plant selection, invasive species removal, sustainable lawn maintenance and landscaping, pesticide/herbicide use reduction, and water conservation. IUPUI is a participating campus.</p>	<p>Protecting and Promoting Nature in the City</p>	<p>Indiana Wildlife Federation, IUPUI</p>	<p>Active</p>
<p>Residential Invasive Species Removal Guide</p>	<p>This guide from Reconnecting to Our Waterways helps Indianapolis residents identify common invasive species, remove invasives in</p>	<p>Protecting and Promoting Nature in the City, Education and Engagement</p>	<p>Reconnecting to Our Waterways, Indiana Native Plant Society</p>	<p>Active</p>

	<p>their own backyards, and restore healthy habitats with native plants. The Indiana Native Plant Society has similar resources available on their website.</p>			
AES Indiana Project GreenSpace	<p>A publicly awarded grant program in which recipients receive help from KIB staff, landscape architects, and volunteers to design and implement beautiful, vibrant greenspaces in Indianapolis neighborhoods. Greenspaces receive support and maintenance through KIB's GreenSpace Sustainability Program.</p>	Protecting and Promoting Nature in the City	Keep Indianapolis Beautiful	Active
Habitat Restoration	<p>Through this program, KIB staff (including their Urban Naturalist team) works alongside corporate and community volunteers to restore habitat along Indiana's major waterways. Teams remove invasive plant species and install native plants along riverbanks to promote biodiversity. The Central Indiana Land Trust has a similar program in which Stewardship Specialists and volunteers work together to restore</p>	Protecting and Promoting Nature in the City	Keep Indianapolis Beautiful, Central Indiana Land Trust	Active

	habitats in nature preserves along the White River.			
Community Forestry	Through this program, Indianapolis neighborhoods can apply for community tree planting. KIB supplies 20+ trees and staff arborists train and lead volunteers in proper tree planting. KIB then waters, mulches, and prunes trees for three years after installation.	Protecting and Promoting Nature in the City	Keep Indianapolis Beautiful	Active
Youth Tree Team	Keep Indianapolis Beautiful recruits high schoolers to care for trees (watering, staking, and mulching) over the summer. Along with daily work, teens participate in weekly enrichment activities, including hiking, tree ID, learning financial management skills, and learning from community partners around Indy. Teens are paid for their hard work and receive free lunch.	Protecting and Promoting Nature in the City, Education and Engagement	Keep Indianapolis Beautiful	Active
Tree City USA	The Tree City USA program provides participating cities with a four-step framework to maintain and grow their urban tree canopy. The framework involves (1) maintaining a tree board or department, (2) adopting a	Protecting and Promoting Nature in the City	Arbor Day Foundation, Department of Public Works – Urban Forestry Division	Active

	community tree ordinance, (3) spending at least \$2 per capita on urban forestry, and (4) celebrating Arbor Day. Participating communities can also use the program to demonstrate their commitment to the natural environment.			
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6.3 Policies

The following table inventories policies with environmental and sustainability components that help make Indianapolis a more bird-friendly city. Policies include long-range plans, components of plans, ordinances, and adopted treaties. For each policy, I've included a brief description, identified the category that the policy falls under on my bird-friendly scale, and listed relevant organizations.

Table 8. *Bird-Friendly Policies in Indianapolis*

Name	Description	Category	Organizations
Thrive Indianapolis	Part of the Comprehensive Plan, <i>Thrive Indianapolis</i> is Indy's plan for community resilience and sustainability. <i>Thrive Indianapolis</i> incorporates eight plan elements, including the built environment, economy, energy, food and urban agriculture, natural resources, public health and safety, transportation and land use, and waste and recycling. The natural resources section incorporates goals pertaining	Protecting and Promoting Nature in the City	City of Indianapolis Office of Sustainability

	to native plants, green spaces, per capita spending on parks and recreation, and the urban tree canopy.		
White River Vision Plan	The <i>White River Vision Plan</i> is a community-driven plan for Marion County and Hamilton County that explores the enormous potential of the White River to enhance regional vibrancy, ecological integrity, livability, and economic vitality. The plan includes goals of promoting ecological resilience and improving the health of the riparian corridor, while also engaging residents with the river and native wildlife.	Protecting and Promoting Nature in the City, Education and Engagement	Visit Indy
Consolidated Zoning/Subdivision Ordinance	The <i>Consolidated Zoning/Subdivision Ordinance</i> regulates land use and development in Indianapolis by establishing zoning districts and outlining rules dictating intensity of uses, building densities, parking, and more. Indianapolis' ordinance establishes two park districts, creates stream protection corridors, and imposes limits on impervious surfaces.	Planning for Bird Conservation, Protecting and Promoting Nature in the City	City of Indianapolis Department of Metropolitan Development
Indy Parks Comprehensive Master Plan	Developed through community feedback, the <i>Parks Master Plan</i> outlines a vision and goals for the city's park system. According to the plan, along with providing recreational opportunities to residents, community parks should	Planning for Bird Conservation, Protecting and Promoting Nature in the City	Indy Parks and Recreation

	<p>foster a love of nature in visitors and help maintain environmental health within Marion County. Birds are mentioned several times in the plan in reference to promoting bird watching, planting native plants to attract pollinators (like hummingbirds), and restoring habitat to support native wildlife, including birds.</p>		
<p>Land Use Plan Pattern Book</p>	<p>The <i>Land Use Pattern Book</i> outlines the classification system and conditions for each land use in Indianapolis. Compatible land uses are grouped together in descriptive typologies. Typologies are indicated geographically on a Land Use Map. This approach is intended to be more flexible and adaptable, allowing communities to grow and change over time. The pattern book also establishes overlays that can add uses, remove uses, or modify the conditions for uses. Notably, the pattern book outlines an Environmentally Sensitive Areas Overlay for areas “containing high quality woodlands, wetlands, or other natural resources that should be protected” (i.e., prime bird habitat).</p>	<p>Planning for Bird Conservation, Protecting and Promoting Nature in the City</p>	<p>City of Indianapolis Department of Metropolitan Development</p>
<p>Indianapolis/Marion County Pedestrian Plan</p>	<p>The city’s first pedestrian plan establishes a long-range vision for a healthier, more walkable Indianapolis. The plan sets priority projects,</p>	<p>Protecting and Promoting Nature in the City</p>	<p>City of Indianapolis Department of Metropolitan Development,</p>

	offers recommendations, and outlines strategies for measuring success. This plan plays a key role in ensuring that residents can walk outside to enjoy nature (including native birds) in their own neighborhoods.		City of Indianapolis Department of Public Works, Marion County Public Health
Indy Greenways Full Circle Master Plan	The <i>Full Circle Master Plan</i> acts as a blueprint for the long-range development of Indianapolis' greenway and trails system. Greenways are important transportation and recreation amenities for residents. At the same time, these linear parks act as wildlife corridors, connecting birds and other animals to habitat across the city.	Protecting and Promoting Nature in the City	Indy Parks and Recreation, City of Indianapolis Department of Public Works
Urban Conservation Treaty for Migratory Birds	The Urban Conservation Treaty for Migratory Birds (i.e., Urban Bird Treaty) is a program from the U.S. Fish and Wildlife Service that fosters public-private partnerships to conserve migratory birds through education, hazard reductions, community science, conservation actions, and conservation and habitat improvement strategies in urban and suburban areas. Indianapolis signed the Urban Bird Treaty in 2011. In recognition of the city's commitment to migratory birds, Indianapolis was awarded the \$70,000 Challenge Grant from the USFW. The grant was used to fund the BirdIndy initiative.	Planning for Bird Conservation	U.S. Fish and Wildlife Service

6.4 Parks

Not including sports complexes, pools, aquatics centers, and pocket parks, Indy Parks and Recreation manages over a hundred public parks across the city. Indianapolis is also home to two state parks and eleven nature preserves. (A list of parks and preserves is available in the Appendix.) For this study, I visited six parks (1 state park, 4 city parks, and 1 nature preserve). Each park was carefully selected to capture a diverse mix of park types, ecological conditions, and available amenities. Brief descriptions of the parks are provided to enhance the reader's understanding of existing conditions in Indianapolis regarding habitat for birds and engagement opportunities for residents.

Southeastway Park

Southeastway Park is in the southeast corner of Marion County along Country Road 900 W. The park consists of gently sloping, grassy lawns dotted with shelters and picnic tables. These open areas, planted with mature native trees, are bordered by denser woodlands. On a Saturday, the park was full of guests gathering with family and friends for picnics and cookouts. Trash cans and grills are available throughout the park for guests to use. There are also permanent restrooms (open seasonally) and port-a-potties (open during the colder months). To cater to families with young kids, the park features two playgrounds. In terms of accessibility, this park stands out for its paved parking lots (with marked accessible parking spaces) and for the paved asphalt trail that loops around the property.

The Southeastway Park Office and Activity Center, open seven days a week, offers summer camps, educational programs for school, scout, and public groups, and an annual Bug Fest. Just outside of the Activity Center is a bird viewing area with feeders and a small pond. While visiting, I spotted several native birds, including an American Goldfinch, a Downy Woodpecker, a White-Breasted Nuthatch, a Mourning Dove, a Tufted Titmouse, and a Carolina Chickadee. The woods surrounding the park were full of spring wildflowers, including May Apple, Prairie Trillium, Yellow Trout Lily, and Spring Beauty. Natural surface trails trace their way through the thriving woodland habitat along Buck Creek, offering a relaxing hiking experience for visitors. The park is generally well-maintained with great amenities; however, it could be improved with additional benches and educational signage.

University Park

University Park is in downtown Indianapolis south of the Indiana War Memorial. The pathways in the park somewhat resemble the Indianapolis flag with each path radiating from the fountain in the center of the park. The park is entirely accessible via these paved pathways, apart from the fountain, which can only be accessed via stone steps. There are picnic tables, benches, and trash cans throughout the park for guests to use, but no public restrooms. The park is decorated with bronze statues, including a large statue at the center of the fountain, which is undergoing refurbishment.

The park's landscaping is very ornamental. There are plenty of mature trees, bushes, and flowers, both native and non-native. Non-native species found in the park, likely planted for aesthetic purposes, include Gingko trees, Daffodils, and Periwinkles. Despite its ornamental nature and location in the heart of the city, the park is full of life. The song of

birds can be heard throughout the park and visitors can spot House Sparrows, Tufted Titmice, Northern Cardinals, and Chickadees flying in and out of the bushes and trees. There are also plenty of squirrels roaming the grounds. This park could be improved by planting more native species and pursuing an ecological approach to landscape management.

Oliver's Woods Nature Preserve

Oliver's Woods is a nature preserve in northeast Indianapolis that is owned and operated by the Central Indiana Land Trust. Upon entering the preserve, it's immediately apparent that this is a hidden gem. There are no signs marking the entrance along River Road, meaning passersby may not know the preserve is there. While this helps with crowd-control and limits ecological disturbance, it also means that Indy residents may miss out on the opportunity to explore this thriving natural area. Accessibility for elderly and disabled individuals is also limited. The parking lot and trails are all gravel or natural surface. Additionally, there are no restrooms and very few places to sit down. The preserve does, however, offer ample engagement opportunities. There are educational signs with QR codes along the trails to teach visitors about urban ecology, the floodplain forest, and more. Visitors can stop at the Chronolog station along Carmel Creek to participate in a citizen science project, helping capture a timelapse of the waterway. The preserve also features mountain biking trails, a canoe launch, and volunteer docents on site twice a month.

Most notable, however, is the preserve's well-protected natural beauty and thriving ecosystem. Oliver's Woods protects 16 acres of woodland, 37 acres of restored prairie-savanna, and a mile of White River frontage. During the spring, the woods are full of native

wildflowers, although invasive Siberian squill is also widespread. The song of birds abounds throughout the woods. When I visited, I spotted a Belted Kingfisher, two Great-Horned Owls, a Red-Tailed Hawk, a Turkey Vulture, a Tree Swallow, and more. There's also a large Bald Eagle's nest along the White River. It's clear that this preserve goes above and beyond in terms of protecting habitat and wildlife; however, it could be improved by offering more amenities to visitors, such as signage along River Road and on-site restrooms.

Washington Park

Washington Park is a 128-acre community park on the east side of Indianapolis near the intersection of Keystone Avenue and 30th Street. The park has a long history, dating back to its acquisition by the City of Indianapolis in 1923. From 1964 until 1987, the site was home to the Washington Park Children's Zoo and featured an array of exotic animals. Today, the park is dedicated to recreation and fitness. Visitors can enjoy the Family Center (a recreation center with indoor gyms, courts, and fitness rooms), two playgrounds, outdoor basketball courts, a disc golf course, and a mountain biking trail. Most facilities appear to be in good condition, especially the newly renovated basketball courts and mountain biking trails. There are picnic tables and benches throughout the park. For elderly and disabled guests, the park is somewhat accessible. Parking lots and trails are paved; however, pavement condition ranges from new to almost completely disintegrated. In parts of the park, pathway connections are missing. The park could benefit from improvements to the bicycle and pedestrian infrastructure.

In addition to providing recreation and fitness amenities, Washington Park features several natural areas. The park is home to a six-acre prairie with native grasses, a three-acre woodland, a wetland habitat, and a small pond with natural shorelines and reedy vegetation. Native trees and flowers, including Eastern Redbuds, Red Columbines, and Virginia Bluebells, dot the landscape. The parks' natural areas attract wildlife, including birds. In fact, the Indy Birding Trail Guide identifies Washington Park as an important local site for birdwatching (BirdIndy). When I visited, I heard lots of birds, even in the developed areas around the Family Center and playground. I spotted Cardinals, Robins, Red-Winged Blackbirds, and Mourning Doves. Although the park doesn't feature a nature center or interpretive staff, there are still opportunities to see and enjoy birds. In the future, engagement with birds could be improved by adding more educational signage, or possibly creating an interpretive trail.

Eagle Creek Park

Eagle Creek Park is a 5,300-acre public park in northwest Indianapolis. To support park maintenance, programming, and staff, Eagle Creek charges an entrance fee of \$5 for Marion County residents and \$6 for non-residents. The fee is assessed per vehicle. Around noon on a Saturday, the park was busy with 8 – 10 cars lined up at just one of the park's two entrances. Inside, parking lots were overflowing with cars. Visitors throughout the park were gathering with friends and family, picnicking, fishing, boating, hiking, birdwatching, and exploring the nature centers. The park has two nature centers: the Ornithology Center and the Earth Discovery Center. The Ornithology Center educates and engages visitors with birds. The Center features a Raptor Campus with live ambassador

animals, a taxidermy hall, two indoor viewing areas, an observation deck, educational displays, staff naturalists, and more. The Earth Discovery Center is an additional resource providing programming and exhibits on Indiana wildlife and habitats. The nature centers are ADA accessible with paved parking lots, accessible parking spots, paved pathways, and ramps. In addition to the nature centers, the park offers a wide array of amenities to attract visitors, including hiking trails, fishing ponds, a marina, a high-ropes course, a fitness trail with outdoor exercise equipment, playgrounds, picnic tables, and grills.

Eagle Creek Park is home to thriving woodland, prairie, wetland, and freshwater habitats. The park features over 3,900 acres of forest filled with native songbirds, woodpeckers, eagles, and hawks, as well as 1,400 acres of water in its reservoir and ponds. Part of the Eagle Creek Reservoir separated by Coffey Dam is designated as a protected bird sanctuary. This sanctuary is regularly visited by a menagerie of water birds, including herons, ducks, geese, cormorants, and egrets. Boating and swimming are prohibited in this area to minimize disturbances to wildlife. The waterbodies in the park, including the Reservoir and Lilly Lake have natural shorelines with native vegetation. The woodlands, although plagued by invasive honeysuckle, are full of mature trees and native wildflowers. The prairies are similarly full of native grasses. Overall, this is one of the best parks in the city for both recreation and preservation. Further improvements, such as introducing a paved interpretive trail, expanding multilingual signage, and adding a bus route to service the park on weekends, would only help the park shine brighter and make it more accessible to visitors.

Fort Harrison State Park

Fort Harrison State Park, located in northeast Indianapolis, is one of two state parks in the city. Originally a military base, Fort Harrison reopened to the public as a state park in 1996. In addition to ample recreational amenities, including a nature center, stable, playground, fishing ponds, mountain biking trails, and paved walking and jogging trails, the park offers unique attractions that showcase its history. For example, Camp Glenn preserves the former Citizen's Military Training Camp within the park. Guests can also visit the park's Museum of 20th Century Warfare. After visiting these special attractions, guests can stop at the nature center to learn more about the native flora and fauna. The nature center, staffed with interpretive naturalists, shares a building with the park office and features public programming, a wildlife viewing area, and an exhibit space. The park, including the nature center, is very accessible with paved parking lots, a robust paved trail network, and plenty of restrooms. The park also features other helpful amenities for guests, including maps, noticeboards, directional signage, picnic tables, shelters, and grills. Although the park is the most expensive to visit in Indy with an entrance fee of \$7 for Indiana residents, it's well worth it thanks to its ample amenities and stunning natural areas.

The park features approximately 1,000 acres of woodland with mature trees and native wildflowers. These woodlands attract songbirds, woodpeckers, and birds of prey, including Bald Eagles. There are also several waterbodies within the park, including Fall Creek, Lawrence Creek, Delaware Lake, and the Duck Pond, each with natural shorelines and native vegetation. The public park is bordered by four nature preserves: Chinquapin,

Warbler Woods, Lawrence Creek, and the Bluffs of Fall Creek. The 115-acre Chinquapin Preserve, closed to the public, is a protected Great Blue Heron Rookery. Along with Eagle Creek Park, Fort Harrison is one of the best parks in Indianapolis. That said, the park could do more to market its assets, especially when it comes to the nature center. The nature center is tucked away in the back of the park where most visitors don't see it. Installing attractive, inviting signage that directs guests to the nature center may promote engagement and encourage interactions with wildlife. The DNR's website could also be updated to provide more information about the nature center, including a written description and photos.

7. Conclusion

This creative project arose from an interest in bird-friendly cities, an extension of the concept of biophilic urbanism, as well as a concern that Indianapolis is not maximizing the benefits that birds provide to urban residents. Using three primary research instruments, including mapping, interviews, and descriptive inventories, I've assessed the extent to which Indiana's capital city protects native birds and engages residents with birds. I've discovered areas in which Indianapolis excels and areas in which the city could improve. In this chapter, I present my findings by rating Indianapolis as a bird-friendly city (using the scale outlined in the Methodology chapter) and making recommendations for future initiatives.

7.1 Planning for Bird Conservation

The bird-friendly scale consists of four distinct categories. A model city meets all (or most) of the criteria within each of these categories. Category 1, Planning for Bird Conservation, centers on the efforts of local government to protect birds and bird habitat through traditional municipal tools, including policy documents, zoning ordinances, and advisory committees. Table 9 outlines the criteria within Category 1. A checkmark has been placed next to any criteria that Indianapolis successfully meets. For criteria that have yet to be fulfilled, there is an unchecked box.

Table 9. Bird-Friendly Scale: Criteria Met within Category One

Category 1: Planning for Bird Conservation
<ul style="list-style-type: none"> <input type="checkbox"/> The city has an official bird strategy. ✓ The city's comprehensive plan mentions birds or the intent to protect and expand bird habitat. ✓ The city's zoning ordinances feature a conservation or protection district that safeguards wildlife habitat from intrusive development. <input type="checkbox"/> The city designates one or more official city birds. <input type="checkbox"/> The city has a standing bird advisory committee.

Research indicates that Indianapolis meets two of the five criteria within Category 1. First, the Indy Parks Comprehensive Master Plan 2016 – 2021, part of the city's comprehensive planning framework, mentions birds over twenty times and regards them as an important asset. The Master Plan stresses the need to preserve parkland as both habitat for birds (and other wildlife) and recreational space for residents. Second, although the city's zoning ordinances do not establish a conservation district, the Land Use Pattern Book outlines an Environmentally Sensitive Areas Overlay with the same purpose, to safeguard wildlife habitat from intrusive development (see the Planning for Bird Conservation section in the Interview chapter for more information). These two criteria are distributed equitably since they can be applied anywhere within the city's jurisdiction.

7.2 Protecting and Promoting Nature in the City

Category 2, Protecting and Promoting Nature in the City, focuses on the preservation, character, and quality of natural spaces, such as parks, within the urban context. This category also addresses efforts to incorporate nature in developed areas by reintroducing native plants, restoring natural shorelines, transitioning to native lawns, and removing invasive species. By protecting and promoting nature in the city, both within

designated parks/preserves, as well as outside of these public spaces, Indianapolis supports the environmental health of Marion County and Central Indiana.

A city that supports a thriving ecosystem also supports a thriving population. Many of the criteria within Category 2 have far-reaching benefits in terms of resident health and well-being. Criteria within this category directly and indirectly improve air and water quality, increase opportunities for physical fitness, and boost mental health by expanding opportunities to connect with nature and develop a positive sense of place. Table 10 outlines the criteria within Category 2.

Table 10. *Bird-Friendly Scale: Criteria Met within Category Two*

Category 2: Protecting and Promoting Nature in the City
<ul style="list-style-type: none"> ✓ The city has tree-lined, pedestrian-friendly sidewalks and trail networks. ✓ Parks, nature preserves, and green spaces are planted with bird-friendly plants. ✓ Water bodies and wetlands are preserved and feature native plants and natural shorelines. ✓ Local ordinances encourage new development to limit impervious surfaces, instead maximizing green space and utilizing permeable pavement alternatives. ✓ Local ordinances do not restrict “wild” or natural lawns and landscaping. <input type="checkbox"/> The city offers public information on the control and removal of invasive species. ✓ The city participates in “Tree City, USA” or an equivalent program focused on urban forestry and/or natural resource management.

Indianapolis excels in Category 2 and meets six of the seven criteria. The one criterion not met is the dissemination of information on the control and removal of invasive species. Although city parks, like Eagle Creek, may share information about invasive species through interpretive programming and displays at nature centers, information on invasives should be more widely available on the city’s website. Carmel, Indiana, a suburb just north of Indianapolis, does this well. The city has a website for its

parks and recreation department and uses this site to educate the public about invasives. The site features a FAQ section and links to external resources, including state and local non-profits, dedicated to tackling the issue of invasives.

For criteria that have been met, it's important to note that not all criteria are well-distributed in terms of their impact. Some criteria, like zoning ordinances that limit imperviousness, are well-distributed because the ordinance itself applies across the city's jurisdictional area. Parks, nature preserves, and green spaces featuring bird-friendly plants are also well-distributed (see Parks section of Mapping and Analysis, as well as Descriptive Inventories). However, other criteria, like the presence of tree-lined, pedestrian-friendly sidewalks and trails, tend to be unevenly distributed. Although the city has tree-lined sidewalks and trails, these amenities are concentrated in more affluent neighborhoods. For example, tree-lined sidewalks are most abundant in the city's predominantly white historic districts (like Lockerbie Square and Chatham Arch), as well as in wealthier neighborhoods on the northside of the city.

Finally, other criteria, like the preservation of water bodies and wetlands with native plants and natural shorelines, can be highly variable. Many of Indianapolis' most significant water bodies, including the White River, Eagle Creek Reservoir, and Geist Reservoir, feature these characteristics. That said, there are many small lakes and ponds in residential subdivisions and business parks with unnatural shorelines and a lack of vegetation. Additionally, the city has failed to preserve many of its wetlands, and several have been drained or altered (see Hydrology section of Mapping and Analysis).

7.3 Reducing Hazards to Birds

Birds are experiencing threats to their survival, many of which are anthropogenic in nature. Since 1970, bird populations in North America have declined by 29%, a net loss of approximately 3 billion birds (Rosenberg et al., 2019). Birds offer environmental, economic, and intrinsic value to communities across the United States. Consequently, to protect birds as the unique asset that they are, it's important to reduce bird fatalities. Category 3, Reducing Hazards to Birds, focuses on minimizing the threats facing birds in an urban environment, from window strikes to light pollution to cat predation. The criteria in Table 11 includes a range of approaches to reducing these urban hazards.

Table 11. *Bird-Friendly Scale: Criteria Met within Category Three*

Category 3: Reducing Hazards to Birds
<ul style="list-style-type: none"> <input type="checkbox"/> The city has mandatory bird-safe building standards for new development. <input type="checkbox"/> The city provides property owners with information on how to protect birds from window strikes. <input type="checkbox"/> The city has adopted an official lights out program for migratory seasons that involves mandatory participation from municipal-owned properties (backed by law) and voluntary participation from privately-owned properties. ✓ The city controls free-roaming cats with an educational program, Trap-Neuter-Release (TNR) program, or other related programs. ✓ The city features one or more wildlife rehabilitation centers.

Indianapolis only meets two of the five criteria in Category 3. First, free-roaming cats are controlled through a Trap-Neuter-Release (TNR) program facilitated by Indy Neighborhood Cats and IndyHumane. Second, Providence Wildlife Rehabilitation, Inc. is a 501(c)3 nonprofit dedicated to rescuing and rehabilitating injured wildlife in Marion County. Both criteria are well-distributed since all three organizations involved service the entire city.

As the criteria above indicate, the City of Indianapolis does not do enough to protect birds from light pollution and window strikes. Indianapolis has a light out program, Lights Out Indy, facilitated by the Amos Butler Audubon Society (ABAS), a nonprofit dedicated to avian wildlife conservation in Central Indiana, but the city is just a partner on this project. The city participates and its largest municipal building, the City-County Building, turns its lights off during migratory season; however, participation can be withdrawn at any time and is not backed by law. Additionally, it is the responsibility of the ABAS to promote the program and recruit more participants. Ultimately, the success of the program is contingent on the Amos Butler Audubon Society and its volunteers.

Unlike cities across North America, including New York, San Francisco, and Vancouver, Indianapolis has yet to adopt bird-safe building standards for new development. If adopted, these standards could be tailored to the needs of the City of Indianapolis and local developers, while still protecting native wildlife (see the conversation with a local developer in the Reducing Hazards to Birds section of the Interview chapter). The city also has an opportunity to protect birds by providing property owners with information on how to reduce window strikes at home, from installing decals to closing blinds/curtains whenever possible. This information could be hosted on the city's website for ease of access.

7.4 Education and Engagement

Category 4, Education and Engagement, focuses on teaching city residents about birds, as well as providing residents with opportunities to see, hear, and enjoy birds in their community. Experiences with birds can spark curiosity, promote relaxation and

mental clarity, and instill a love of nature in city residents. These experiences can be peaceful solo excursions or exciting social occasions shared with family and friends. As people become familiar with and learn to appreciate birds, a component of the natural world, they may become inspired to care for the environment in a broader sense, taking steps to lead more sustainable lifestyles, act as environmental stewards, or advocate for the environmental health of their city. Table 12 outlines the criteria within Category 4.

Table 12. *Bird-Friendly Scale: Criteria Met within Category Four*

Category 4: Education and Engagement
<ul style="list-style-type: none"> ✓ City residents can join active, bird-related social groups and organizations. ✓ Many organized bird walks are available, as well as other events that make the enjoyment of birds easy. ✓ The city is represented in at least one bird monitoring program such as the Christmas Bird Count, Great Backyard Bird Count, Indiana Audubon Society Big May Day Count, or Swift Night Out. <input type="checkbox"/> The city officially recognizes and celebrates World Migratory Bird Day. <input type="checkbox"/> The city provides information to property owners on methods to create and enhance backyard habitats for birds. ✓ Local parks host abundant citizen science opportunities to engage the public and promote awareness of native birds. ✓ Schools or educators incorporate birds in their curriculum through field trips, programs like Flying WILD, or through other means.

Indianapolis meets five out of seven criteria in Category 4, indicating that the city does a stellar job in terms of educating and engaging members of the public. Indy residents can join the Amos Butler Audubon Society (ABAS) to socialize with others that are interested in birds, attend organized bird hikes facilitated by the ABAS and local parks/preserves, take part in the Christmas Bird Count at Fort Harrison State Park, or participate in citizen science opportunities at Eagle Creek Park or Oliver's Wood Nature Preserve. Additionally, birds are incorporated into the school curriculum at both public and

private schools, particularly for elementary-aged children, through field trips to Eagle Creek Park, Fort Harrison State Park, Holliday Park, and more.

Unfortunately, education and engagement opportunities are not particularly well-distributed. Many of the parks in Indianapolis that feature nature centers, interpretive staff, guided hikes, and educational signage are in more affluent, predominantly white neighborhoods. Several of these parks are also inaccessible via public transit. Going forward, Indianapolis should pursue opportunities to bring education and engagement to smaller parks in underserved neighborhoods through infrastructure enhancements, special events, and mobile interpretive staff.

The City of Indianapolis should also do more to celebrate birds. In 2011, Indianapolis signed the Urban Conservation Treaty for Migratory Birds and made a commitment to “conserve migratory birds through education, hazard reductions, community science, conservation actions, and conservation and habitat improvement strategies” (U.S. Fish and Wildlife Service). In May, the city could partner with local nonprofits to host a family-friendly event dedicated to World Migratory Bird Day. At events like these, the city could educate residents, promote current efforts to protect birds, and encourage creativity and play through art and games. Special events, as well as online platforms like the city’s website, are also great places to share information. The city doesn’t currently provide residents with information about creating backyard habitats for birds, but it could do so with help from organizations like the Indiana Wildlife Federation and Keep Indianapolis Beautiful.

7.5 Overall Rating

The bird-friendly scale assigns ratings from Poor (1) to Outstanding (5). The rating is based on how well the given city (1) meets the criteria described in each of the four categories and (2) how well-distributed those criteria (and their benefits) are throughout the city. A model city strives to meet all the criteria in each of the categories while also ensuring that criteria are equitably designed and thoughtfully implemented. Bird-friendly cities should benefit all residents, regardless of race and socio-economic class.

Overall, the City of Indianapolis receives a score of Satisfactory (3) on the bird-friendly scale. The Satisfactory rating indicates that Indianapolis meets approximately half of the criteria in each category, even though the city may be stronger in some categories than others. Indianapolis excels in Category 2: Protecting and Promoting Nature in the City and Category 4: Education and Engagement. The city has room to improve in all categories, but especially in Category 1: Planning for Bird Conservation and Category 3: Reducing Hazards to Birds.

Unfortunately, criteria that have been met are “somewhat unequally distributed.” While policy-based criteria can be applied across the city’s jurisdiction, my research indicates that other criteria (and their benefits) may be concentrated in affluent, white neighborhoods, primarily those on the northside of Indianapolis. For example, the following criteria may not be equitably distributed: tree-lined, pedestrian-friendly sidewalks and trails; parks with nature-based programming, interpretive staff, and citizen science opportunities; natural water bodies and wetlands; and the availability of bird walks and other social events from organizations like the Amos Butler Audubon Society. City

residents residing in majority black and Hispanic neighborhoods on both the eastside and westside may have fewer opportunities to engage with birds due to a lack of preserved habitat (including smaller public parks) and a deficiency of nature-based events and programming. City officials must stay alert to potential issues of social and environmental equity. The city's rating indicates that there are areas for improvement to better serve residents and protect native wildlife.

7.6 Recommendations for Future Initiatives

Through efforts undertaken by the city and local non-profit organizations, Indianapolis has already achieved a degree of bird-friendliness. The city has adopted plans, including *Thrive Indianapolis*, to become more sustainable and integrate the natural environment into the fabric of the city. Dedicated staff work tirelessly to preserve and manage parkland across Marion County. Naturalists provide opportunities for residents to learn about, engage with, and appreciate birds when they visit Indy's nature centers. Organizations like the Amos Butler Audubon Society study the threats facing birds and encourage property owners to intervene to reduce those threats. In all, great contributions are being made to protect birds and enable residents to enjoy birds on a daily basis. Nonetheless, there are opportunities to expand these efforts, many of which may be transformative, particularly for underserved communities.

In Table 13, I recommend future initiatives that the City of Indianapolis may pursue to become a model bird-friendly community in the State of Indiana, as well as the broader Midwest. Each recommendation is accompanied by an estimated cost, responsible parties,

and a suggested timeframe. Short-term projects can be achieved in 1-2 years and long-term projects can be achieved in 3-5 years.

Table 13. Recommendations for Future Initiatives in Indianapolis

<i>The City of Indianapolis should pursue the following strategies to better protect birds and provide residents with opportunities to engage with birds:</i>			
Category 1: Planning for Bird Conservation			
Recommendation	Estimated Cost	Responsible Parties	Timeframe
1.1 Adopt the Bird-Friendly Indianapolis Guide as an official guiding document.	No Cost	City-County Council, Metropolitan Development Commission	Short
1.2 Create a standing bird advisory committee to tackle bird conservation issues and brainstorm cross-sector solutions in Indianapolis. Following the example of the Vancouver Bird Advisory Committee, members should represent diverse interests and institutions.	No Cost	City-County Council, Indy Parks and Recreation, Amos Butler Audubon Society	Short
1.3 Designate an official city bird to enhance public awareness of conservation issues and demonstrate Indianapolis' interest in addressing these issues. In Vancouver and Seattle, residents voted for their official city bird. Voting can be conducted online, or in-person at nature centers, city parks, and school classrooms.	Little to No Cost for Voting Materials	City-County Council, Indy Parks and Recreation, Amos Butler Audubon Society	Short
1.4 Coordinate with the Indiana Audubon Society to become a certified Bird Town.	\$100 application fee	Office of the Mayor, Indy Parks and Recreation, Indiana Audubon Society	Short

1.5 Participate in the national Bird City Network.	No Cost	Office of the Mayor, Indy Parks and Recreation, Bird City Network	Short
Category 2: Protecting and Promoting Nature in the City			
Recommendation	Estimated Cost	Responsible Parties	Timeframe
2.1 Coordinate with Keep Indianapolis Beautiful, Reconnecting to Our Waterways, and the Indiana Native Plant Society to provide information about the control and removal of invasive species on the city's website.	No Cost	Office of Sustainability, Keep Indianapolis Beautiful, Reconnecting to Our Waterways, Indiana Native Plant Society	Short
2.2 Pursue opportunities to incorporate a diverse mix of native plant species in Indy parks, especially in downtown parks and neighborhood parks.	Project-Dependent	Department of Public Works, Indy Parks and Recreation	Ongoing
2.3 Implement recommendations of the Indianapolis/Marion County Pedestrian Plan and Indy Greenways Master Plan to expand pedestrian infrastructure in underserved neighborhoods.	Project-Dependent	Department of Public Works, Greenways Development Committee	Ongoing
2.4 Use the Environmentally Sensitive Areas Overlay to protect remaining wetlands in Indianapolis from disruptive development.	No Cost	Department of Metropolitan Development	Ongoing
Category 3: Reducing Hazards to Birds			
Recommendation	Estimated Cost	Responsible Parties	Timeframe
3.1 Share information from the Cornell Lab of Ornithology, National Audubon Society, and American Bird Conservancy about how property owners can prevent bird window strikes.	No Cost	Office of Sustainability, Cornell Lab of Ornithology, National Audubon	Short

		Society, American Bird Conservancy	
3.2 Adopt an ordinance requiring municipal-owned properties to participate in Lights Out Indy.	No Cost	City-County Council	Short
3.3 Partner with the Amos Butler Audubon Society (ABAS) to expand the Lights Out Indy program through funding or administrative assistance. Consider making the program an official city program, or a joint venture between the City of Indianapolis and ABAS.	Varies Depending on Approach and Resourced Needed	Office of Sustainability, Amos Butler Audubon Society	Long
3.4 Coordinate with the Amos Butler Audubon Society to develop and adopt bird-safe building standards for consideration in the issuance of development permits. The American Bird Conservancy's Model Bird-Friendly Building Guidelines may serve as a starting point for discussion.	No Cost	Department of Metropolitan Development, Amos Butler Audubon Society, Office of Sustainability	Long
Category 4: Education and Engagement			
Recommendation	Estimated Cost	Responsible Parties	Timeframe
4.1 Recognize and celebrate World Migratory Bird Day by hosting special events at Indianapolis parks.	Minimal Cost Depending on Desired Programming	Indy Parks and Recreation	Short
4.2 Encourage homeowners, businesses, schools, and churches to participate in the Indiana Wildlife Federation's Certified Wildlife Habitat program to create thriving greenspaces for Hoosier wildlife. This can be achieved through a webpage or social media post(s).	No Cost	Office of Sustainability, Indiana Wildlife Federation	Short

4.3 Bring back the Bird Indy program to support the enjoyment of birds in parks and greenspaces across Indianapolis. Update and restore the Bird Indy page on the city's website to help residents find birding sites near them.	Little to No Cost for Website Maintenance	Office of Sustainability	Short
4.4 Use a Lighter, Quicker, Cheaper approach to enhance the visitor experience in Indy parks and encourage learning. For example, add signage educating visitors about native wildlife, create more opportunities to sit and watch birds, and/or recruit local artists to paint nature-inspired murals and sidewalk art.	Project-Dependent	Indy Parks and Recreation, Department of Public Works	Short
4.5 Hire a small unit of interpretive naturalists that can travel to different Indy parks, particularly those in underserved communities without access to a nature center or staff naturalists, to facilitate educational events and programs.	Salary + Benefits for Team of Naturalists (1-2 people)	Indy Parks and Recreation	Long

7.7 Bird-Friendly Indianapolis Guide

The results of my research are summarized in the *Bird-Friendly Indianapolis Guide*. This public-facing guide is intended to be an accessible policy document that the city could choose to adopt and follow. The guide can be found in the Appendix. Ultimately, I hope that my research can lead Indianapolis on the path to becoming a truly bird-friendly city. I also hope that my research may serve as a model for future studies of cities in the Midwest or possibly throughout the United States. Future research could be enhanced through more complex spatial analysis and community engagement, including surveys and workshops aimed at soliciting feedback from residents and property owners.

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9. Appendix

9.1 Interview Transcripts

Interview with Greg Majewski

Position & Organization: Business Development Specialist for Keller Development, Inc.

Date: February 16th, 2023

GZ: Hello, Greg! I really appreciate you taking the time to join me today. Just to recap, my name is Genevieve and I'm a graduate student at Ball State working on my Master of Urban and Regional Planning. This interview is part of the research I'm conducting for my creative project (essentially my thesis). This interview, as well as the others I conduct, will help me determine how bird-friendly Indianapolis currently is. A bird-friendly city is best defined as one that seeks to protect native birds and encourages the public to engage with and appreciate birds in daily life. The interview should take no longer than thirty minutes depending on how in depth you decide to answer the questions. There are no wrong answers. Would it be alright if I recorded this interview? My professor would like me to submit a typed transcript. [Affirmative.] Additionally, may I quote you in my final paper? I'd love to share your perspective, but if you aren't comfortable with that, I can keep your responses anonymous. [Affirmative.]

GZ: What organization do you currently work for (i.e. your primary employer)?

GM: I work for a company called Keller Development Incorporated.

GZ: What is your official title in this organization?

GM: My official title is business development specialist. That's like the front-end of real estate development, basically the beginning stages all the way through to when we're ready to break ground.

GZ: Do you serve on a board or volunteer for any other organizations in your free time?

GM: Yeah, I'm a board member with the Stockbridge Audubon Society, which is the official, regional Audubon chapter for northeast Indiana.

GZ: Did you say the name was Stockford?

GM: Stockbridge.

GZ: Stockbridge.

GM: Yeah.

GZ: Is your educational background also in this field? If not, what did you study in school?

GM: I had an undergrad degree in Economics and a Master's in Public Affairs.

GZ: Got it! My undergrad is in Public Affairs, so that's fun.

GM: Okay!

GZ: Yeah, it's a cool degree to get. At least for me, I really enjoyed it. There was a lot of variety in the classes that I took. That was really fun.

GZ: Then, do you currently live in Indianapolis? Roughly how long have you lived here?

GM: I lived in Indianapolis from 2009 to 2013. Since then, I have been in Fort Wayne. So I'm probably not as attuned to what's happening in Indianapolis right now, but I am at least familiar with the city. And I am pretty familiar with the development efforts and development initiatives for the communities in the metro area because we're currently doing work in a lot of the smaller towns surrounding Indy, but not the city itself.

GZ: Got it. [Typing notes.] Okay.

GZ: Can you briefly introduce your organization/department? Can you describe to me a little more what you do on a daily basis for your organization?

GM: Sure! So Keller is a developer, general contractor, and we also provide property management services through an affiliated company for multi-family housing. Most of it is affordable multi-family housing, so our target clients are people with low- to moderate-incomes.

GZ: Got it. So then, when you're developing buildings, you said that's mostly multi-family housing? Do you do any commercial at all or is it mostly residential?

GM: We have done commercial, but only when it's part of a residential project. So we've done a couple of smaller mixed-use type of developments, but we are predominantly residential builders. That takes a variety of forms. We've done single-family homes, we've done duplexes, we've done more traditional apartment-style buildings from one to three stories.

GZ: Got it. Alright! I've heard from Jeff that you're an avid birder.

GM: I am!

GZ: Do you incorporate anything from that hobby into your professional work?

GM: When I can, yes! Because we develop affordable housing, the programs that finance it often have a lot of state and federal regulations tied to them. The program that we use is called the Rental Housing Tax Credit program, which is administered by the state. They have what is called their Qualified Allocation Plan which lays out the criteria by which they rank development proposals. The ones which score the highest get funded. They have one discretionary category where you basically just try to do cool and unique things. We've added a couple of bird-friendly features to try to satisfy that category. We had a project in Plainfield where we built a chimney swift tower and we're getting ready to open one down in Warrick County that has barn owl nest boxes that will be put on site. So, nothing earth-shattering, but I definitely try to think about how we can tie it in.

GZ: That's really fun! I'm excited to hear that you guys are working on stuff like that – that you can integrate it into those proposals.

GZ: Alright, so this is actually very similar to that theme. In 2015, the U.K.'s largest homebuilder designed a new, wildlife-friendly subdivision named Kingsbrook. The subdivision features a range of cost-effective wildlife-friendly features, from swift nest bricks in the walls of houses to native wildflower meadows. The project was very popular in the U.K. and helped boost populations of key bird species. Do you think a project like this, which incorporates wildlife-friendly features, would work in Indianapolis? Why or why not?

GM: Absolutely! I think especially with the features that you listed. They seem very low-cost. It's just a matter of understanding what the development can do to either facilitate wildlife or to lessen the impact on wildlife. I think that understanding is probably a bigger hurdle than the cost component, which frequently gets cited when we're talking about green design and environmentally friendly design. Yeah, I think it's absolutely possible. I think that if people understood how easy it is to implement, they would be more inclined to do it because it sounds great, people love to hear that you're doing it, and it looks nice. I think, yes, we could certainly do a better job of getting more things like that.

GZ: That's really interesting. It's great to hear that. I do think you're right that the knowledge on how to be more wildlife- or bird-friendly is the biggest barrier.

GM: Yeah!

GZ: Often times you do hear a developer saying, "Oh, well, I'm really concerned about the cost." But sometimes it's a small change or a small project that won't send their budget spiraling.

GM: Absolutely.

GZ: It's just that they don't know what those projects are.

GM: Yeah, like the project we did in Plainfield with the chimney swift tower. No body on our design or construction team knew what a chimney swift was, but when I explained that, actually, they do thrive in urban areas and all we need to do is build this little structure. I mean, when you've got a 70,000 square foot building that you're putting up, that little extra bit of material is literally nothing in the budget.

GZ: What, if any, environmental regulations do you have to navigate as a developer?

GM: We always have to worry about stormwater prevention plans. They're a big thing that I don't really have to get involved with, but I do know that cities are very – that's one of their primary concerns when it comes to construction activities. Other regulations, as far as I can think, relate mostly to floodplain and designated wetland areas and how our project impacts those. We have had to do a little bit of mitigation to make sure that we are treating the development respectfully with regard to its position and proximity to those things. It's just smart design. If we have a property with wetland on it, we stay out of the wetland. It's not that we have to figure out how to rebuild it if it's destroyed. That doesn't happen very much.

GZ: As both a birder and a developer, I'd like to get your perspective on bird-building strikes. Before starting this project, I had no idea that the second leading cause of death for

birds is predicted to be collisions with buildings (especially windows). Have you heard about this issue? What are your thoughts?

GM: When I lived in Indy, I actually did counts for Lights Out Indy and looked for bird strikes in the morning. I think anything that can be done is a good thing. At the scale that we build, that's not really an issue for us. We are going three stories maximum and we're doing residential looking structures with a lot of brick and residential-grade windows. We're not building big curtain walls with a lot of glass or anything like that. From what I understand, it can get costly when you're required to change materials for this, but it's not something that we have run into as a problem.

GZ: Cities like San Francisco have adopted bird-safe design standards for new construction and buildings undergoing significant renovation. Often this requires developers to install netting, screens, films, or fritted glass on windows above a certain height. What are your thoughts on bird-safe design standards? What are some of the challenges developers might face when it comes to following these standards?

GM: I think the intent of those regulations is in the right place. But as a developer, especially a developer over the last couple of years and a developer of affordable housing, that by its very nature is constrained in its cost and the revenue that it can generate, if materials are costly, the regulations have to allow alternatives to be used. We budget for a project two years before it breaks ground and if something like COVID were to happen again, it could absolutely blow a project out of the water. For something that is as necessary as affordable housing, you don't want to jeopardize a project with cost increases where they're not absolutely necessary. The availability of materials also plays into that. We're having to make substitutions in some of our projects, not just because of cost, but because things flat out were not available. The lead time of 18 – 20 months is not going to work if you have deadlines that you have to meet per your funding requirements. That's something else that we've run into. It might make it harder for us – I don't know about a more high-rise type of building. Those would be the concerns that come to me immediately.

GZ: I think those are really important concerns to bring up, especially with the way the supply chain has been. I don't know if it's ever going to go back to normal. It does raise a concern if you have regulations that require certain materials, how are they getting those materials. And if you're doing affordable housing, there are funding deadlines and everything else that you have to consider.

GM: Another way to do it might be something like the National Green Building Standard, what they do. Pretty much all of our projects get certified to the National Green Building Standard at various levels and I like the rubric that they have. There's a half of dozen different categories and each category has dozens of things within it. You can pick and choose what you will do to meet a minimum number of points. If it turns out that something you had originally planned for is not possible, you can substitute by doing something else or a couple of others things that are different. And that might be the way to go for any city that's looking to implement bird-friendly regulations. If you can't get the window that you want ordered due to cost or availability, maybe you can do a couple of other things instead and still meet the regulation.

GZ: Yeah, I think that's a really good point. You could incorporate not just, say, window standards. If windows aren't available, you could incorporate lighting solutions or green infrastructure in the development. I like that idea too. It gives more flexibility to the developer while still making a difference.

GZ: Then, this relates to your mention of Fort Wayne. So, the Indiana Audubon Society has a program called Bird Town Indiana that recognizes cities across the state that are dedicated to being more bird-friendly. Fort Wayne is a certified Bird Town, but Indianapolis isn't. Having lived in both cities, do you feel like Fort Wayne does more to protect native birds than Indy? Why or why not?

GM: I think it might be more about the group who is there that wants the designation to be had. I don't see any big differences between what Fort Wayne and Indianapolis due to promote birds or biodiversity or anything like that. I think Indianapolis has some really great environmental assets for it, like Eagle Creek Park and the White River. Fort Wayne has rivers too. But it's probably more of a tourism thing than it is a statement about policies and outcomes.

GZ: Yeah, I definitely think so. I think part of it is potentially that Indy has quite a few fish to fry and I think maybe they haven't gotten to 'we want to be bird-friendly too,' even though they do have great amenities. I've been up to Fort Wayne a couple times but I haven't noticed anything that I thought really stands out as being a bird mecca.

GM: It's interesting because we have some great places for birds, but they're not actually in the city.

GZ: Oh, interesting!

GM: They're right on the outskirts.

GZ: You said you're part of a northeastern Indiana Audubon Society? Does Fort Wayne have bird groups and ways for people to be engaged? Or do you visit parks on your own?

GM: Yeah. The Audubon group up here has events that we do. And the parks department at one point, although I'm not sure if they still do this, had downtown bird hikes along the riverfront. There's this thing called Featherfest at one of the parks that's a family, all-day event that's bird-focused. It's not anything more or less than what other cities of similar size probably have.

GZ: Okay, got it! Maybe the positive way to look at that is that Indy could probably also be a bird-friendly city and should just fill out the application.

GZ: My last question relates to what we were just talking about. Do you feel like there are ample opportunities for Indianapolis residents to learn about birds and the threats facing them? When you lived there, where would you go if you wanted to learn more about native birds?

GM: I got into birding when I lived in Indianapolis. A lot of that occurred because I'd gotten involved with the Amos Butler Audubon Society in Indianapolis. They did a regular, standing bird walk at Eagle Creek where I learned quite a bit. I know since then that they've

diversified their offerings. They do events geared towards women. They do events that also have to do with butterflies and wildflowers. They do more than just birds. I think if there's someone with a passive interest in nature, hooking them on what they're interested in is a great gateway to open up their understanding to everything else that's connected with that. They've done a pretty good job about that from what I've seen.

GZ: That's great, yeah.

GZ: Those are all the questions I had. That was about twenty minutes. Thank you again for taking the time to chat with me today! I really appreciate getting your perspective on this.

GM: You're welcome. I'm really glad to hear about this project. I was excited when this is what you said you wanted to talk about because these are like the two things that I am equally passionate about – planning and development and birds and how we can tie them together.

GZ: Exactly. I think it's something that has been a little bit of an uphill battle trying to do some of this research. I think sometimes people don't realize that birds play a part in our communities. They do enhance our lives, even if we don't notice it everyday. It's also fun to do this research and find people like you that do realize that it probably is something that we should care more about or pay more attention to. I am planning on doing more interviews with Amos Butler Audubon Society, Eagle Creek, the Indy Office of Sustainability, a planner at the Department of Metropolitan Development. I've got a bunch of other people that I'm looping into this to get other perspectives.

GM: Oh, good!

GZ: It should be really fun. But when I'm done with my research, around November, would you like me to send you a copy? Would that be something you'd be interested in?

GM: Yes, please! Definitely.

GZ: Great. There's going to be two components. One is going to be a big research paper, but the other is a guide that I'm working on that will hopefully be shorter and more accessible. It might be something they could have at the Ornithology Center that people could pick up, take a look at, and learn more about my research.

GM: Yeah, and if after today you think of something else that you wish you would've asked, please email me or whatever you'd like to do. I'd love to continue offering any perspective I might give you that could be useful.

GZ: Absolutely! I'll definitely reach out if I've got any questions. Thank you!

GM: Thank you!

GZ: Bye!

GM: Bye!

Interview with Brad Beaubien

Position & Organization: Director of Destination Development for Visit Indy

Date: February 16th, 2023

GZ: Hello, Brad! I really appreciate you taking the time to join me today. Just to recap, my name is Genevieve and I'm a graduate student at Ball State working on my Master of Urban and Regional Planning. This interview is part of the research I'm conducting for my creative project (essentially my thesis). This interview, as well as the others I conduct, will help me determine how bird-friendly Indianapolis currently is. A bird-friendly city is best defined as one that seeks to protect native birds and encourages the public to engage with and appreciate birds in daily life. The interview should take no longer than thirty minutes depending on how in depth you decide to answer the questions. There are no wrong answers. Would it be alright if I recorded this interview? My professor would like me to submit a typed transcript. [Affirmative.] Additionally, may I quote you in my final paper? I'd love to share your perspective, but if you aren't comfortable with that, I can keep your responses anonymous. [Affirmative.]

GZ: What organization do you currently work for (i.e. your primary employer)?

BB: I work for Visit Indy and its non-profit arm, Tourism Tomorrow, Inc.

GZ: What is your official title in this organization?

BB: I'm the director of Director of Destination Development.

GZ: Do you serve on a board or volunteer for any other organizations in your free time?

BB: So, I do. I am on the Board of Directors for GangGang, a cultural development organization. I will be joining the board of the Urban Legacy Lands Initiative, which is a black culture, black history, cultural CDC. I'm on the Ball State Department of Urban Planning Alumni Advisory Board. And I think that's it.

GZ: Alright, lots of boards!

GZ: Is your educational background also in this field? If not, what did you study in school?

BB: So, I have both. I have a bachelor's and master's in urban planning, and also a master's in Natural Resources.

GZ: Do you currently live in Indianapolis? Roughly how long have you lived here?

BB: I do – for 22 years.

GZ: Can you briefly introduce your organization?

BB: Visit Indy is the City's tourism agency. In our nomenclature, it's called a destination marketing organization (a DMO). We serve to sell the convention center space, as well as Lucas Oil Stadium space, and we also do leisure marketing. That's just selling ads and things in other cities to get people to take a trip here.

GZ: Got it, okay. Can you describe to me a little more what you do on a daily basis for your organization?

BB: My role is looking towards the future. I'm sort of product development. So, destination development is this idea that we can be more intentional about making the type of product that people want to consume. I know one of your other questions is about residents, and we can get there, but we try to be at the intersection of what residents want and what visitors want. On a day-to-day basis, I'm working on projects like the White River Vision Plan, which has been my baby since its beginning, working on trails and greenways. We also do research around visitation (why people come here, how much they spend, hotel performance, short-term rental or Airbnb performance). There's a lot of data analysis that goes into what I do. Then I also do city planning stuff. So, I play in GIS, map out where the city is going, where it's growing, the evolution of the MSA. A lot of product development is outside of the city now and what that means for us. I'm also working on a project called the White River Report Card, which is a GIS analysis of the entire White River watershed, which includes Muncie and Anderson.

GZ: That's really cool! It sounds like you get to do a lot of different things.

BB: I do a lot of website stuff too, which is a random side thing that I do here.

GZ: Sounds like the typical planner that's got twenty different hats at once.

BB: Yeah, that's fun.

GZ: How does your background in planning influence your work? Do you think you have a unique perspective compared to someone with a background in, say, hospitality and tourism?

BB: Definitely. So, I'm not in sales, I'm not in tourism, I'm not in sports. I'm long-range. Virtually everyone else in our company is focused on what's happening right now. You know, we book conventions ten or twelve years out, but we're really focused on what's happening in the next couple weeks. Sometimes there will be a big event that has a local host organization. So, when we have the college football playoffs or the NBA All-Star Game, there's a committee of people behind that. Sometimes a committee of hundreds of people and we typically are involved in those things. But I'm the long-term guy. I'm the guy who understands, "Cool, we've got this event, here's how it ties into everything else." I'm a dot connector. More and more we've been focusing on downtown because downtown has been struggling since the pandemic. And that is the thing that we largely sell and that visitors largely experience. I planned downtown for several years when I was at the city/county, so I've got a unique perspective on what it takes to do real estate development, how to pull permits and things, how to research that, how to see where projects are at and their development phases – just random things that I learned about how the city works and how the city gets built. That's a very unique skillset that only I have in the company. I also am the guy that's always asking why. Why are we doing this? It's not just for fun. It's not just for money. There should be a deeper reason for that. That's where the Destination Vision and theme of tourism purpose comes into play.

GZ: Alright, that was a great answer. So, next question, do you think sustainability and environmental issues impact the tourism industry?

BB: There's lots of ways that I can go through this. There's a documentary called the Last Tourist.

GZ: Yeah, I've heard of that.

BB: If you've seen it, that's more about global tourism and about how the locust nature of Instagram. If we want something, we just consume it and it's gone. We destroy it. So, in Venice and Barcelona, national parks now increasingly need reservations, just because of the volume of people wanting to consume these things. Clearly, when it reaches a tipping point and tourism is no longer sustainable – no longer sustainable for us. That's kind of the negative aspect. As far as people demanding increased ESG, sustainability, whatever you want to call it, we see that trend. Some groups that are looking to book Indianapolis for conventions will ask those questions. Typically, when we push and we turn the table, like, "Okay, you want 100% renewable energy. Will you pay for that?" They're like, "Oh no." So, in many cases, people want that but the next step, are you willing to pay for that, it comes at a cost, it's not there. Where it has worked is where companies have figured out how to make green cheaper. So, the best example of that is no longer washing all of your seats and servicing your room every single night when you're in a hotel, like they used to do. That saved the company money and it was also a benefit to the environment. I don't know if I answered the question, but there's a lot of different ways to take that.

GZ: I did look at your LinkedIn. I saw that you did mention the Destination Vision Plan. Can you tell me more about that plan?

BB: That used to be called the Tourism Master Plan, but it is our plan for building a must-see destination. When you look at the pieces in there though, you'll see that there is a heavy resident focus. Every one of the actions that we have in there has a justification as to why it's beneficial to the industry and why it's beneficial to the local resident community. There's a sustainability piece in there that's kind of really vague, but there's things in there like water quality. Why is that important to tourism? And we try to explain each of those and why it has a relevance. It's not just about building towers and Las Vegas' and Disneylands. Las Vegas and Orlando are not the most great places for people to live, even though they are great, fun places to visit. So, we're trying to strike that balance about how we can do things that tourists are demanding, so we can continue to bring the jobs and the revenue and the income that comes in because of tourism, but do it in a way that actually builds up our local neighborhoods and residents. So, that's our long-term plan.

GZ: Perfect! So, that leads into my next question, is destination development focused on making a city attractive to visitors or is it also concerned with quality-of-life amenities for current residents? You're saying it's really a balance of both.

BB: Our goals are both. The company mission statement is to enhance the quality of life by optimizing visitor-related economic impact. Why we do it is to enhance the quality of life of our community. That is why we exist. We're a quality-of-life organization. The way we do that is by bringing visitors into town that bring in money, that support jobs, that support

taxes for our local and state governments, and support cultural and quality-of-life amenities that we otherwise wouldn't be able to support on our own.

GZ: Yeah, definitely. Alright. I've got a couple questions getting into some of the specific goals or categories of the Destination Vision Plan. So, waterways, trails, and greenways, if you want to talk about those. How does the plan address those? And once you're talked about that, what progress has been made, obstacles, barriers, things like that.

BB: The one that is probably the furthest along is probably the hardest, and that's the waterways one. So, when I was at the city, I was lead of long-range city planning from 2013 to 2019. You can look at my LinkedIn. For six or seven years, I was that. During that time, I got to lead the White River Vision Plan, which is a plan for 58 miles of the White River, including all of Marion and Hamilton County. I was the project lead for that. I was the lead planner on that. When I moved to Visit Indy, I brought all of that project with me and it has continued to evolve.

BB: The grand idea behind that is that we can have this national-park-like amenity. It's literally not a national park, but when you tie together all of the parkland and attractions, like Newfields and Conner Prairie, when you package all of that together, it's on the scale of a smaller national park. It's bigger than Indiana Dunes. It's not Yosemite or Yellowstone, but it's like a smaller national park.

BB: So, what can we do to tie together the parks, the amenities, the attractions? How can we piece that together to continue to enhance it so that we still have wild places that are natural restores, community gathering places like White River State Park, and everything in-between. How do we develop that and at the same time improve water quality? There are combined sewer overflow efforts that are going on that are removing that from the water. There's removal of low-head dams to improve water quality that way.

BB: We've been able to pull together the environmental groups, the commercial real estate development groups, the tourism groups, the talent attraction groups. I lament that we don't have major natural amenities outside of us like Denver or Miami. We've been able to pull all those together and come up with a shared region vision. It's shared between the Republicans, the Democrats, the urban, the rural, and the suburban. We pull all that together. So we have a shared vision with different communities. It's meant to be a shared vision, so it's not meant to have a leader. There are different park systems, different mayors, and different organizations that are doing different things to implement it. We try to track that on a website that we've built called DiscoverWhiteRiver.com, which tries to pull together, in a visual way, all the things that you can do, as well as tell the story of its history and its future. There's dozens of things that are going on to implement that right now. I can send you that list if you want.

BB: We're working regionally, with mayors, as well as the state legislature, to come up with a body that can take this over. Tourism will still be in the storytelling space, but we really want someone that can take it over as far as implementing and funding -- all of those things which we don't do. It's not our lane. The report card is a piece of that project. Our environmental partner, the White River Alliance, is leading that. But I've kind of been loaned to them for some of the GIS stuff since that's what I do.

GZ: I'm nerding out because I actually found this plan several months ago while I was doing my research. I was like, "This is so cool! I didn't know we had a White River Vision Plan." I used to work at Conner Prairie too and it's such a missed opportunity too. You have that whole corridor and it's great! There are some many things along it.

BB: Conner Prairie is doing some great things. They own four miles of riverfront. The west bank on Carmel, they've never activated, but they own. So there's going to be a pedestrian bridge that connects both sides of campus. There's a river ecology center that's going to be put in on the Carmel Clay Parks side of things. They're allowing Carmel to build a public greenway through their property.

GZ: Yes, it's fantastic.

BB: That's an example of implementation. Indy Parks, they updated the Broad Ripple Park Master Plan and the Riverside Master Plan. Broad Ripple Park now has a family center with a river overlook that's part of its new building. Riverside Park has an Adventure Park, so they took the golf course offline and converted it into a more naturalized nature park. Pieces of that are starting construction this spring, I believe. There's lots of stuff going on. Our new soccer stadium is going to be on the river on an industrial brownfield. There's so much going on.

GZ: Yeah, that's fantastic.

BB: On the trails and greenways side, we've been less heavily involved. We've been more in the back as champions. This pre-dates my time, but a couple in our company had been involved with our community foundation, including a trip out to Amsterdam to look at how Dutch culture has embraced biking, and trails, and greenways. That has led to some changes here at the city/county government. That has continued to evolve to the point where now, this year, we have \$100 million of greenways that will be constructed over the next 2, 3, or 5 years. That's more that has been built in the system to date. So, that's pretty transformative. There are equity lenses that we're putting into that to determine which pieces are built when.

BB: Like I've said, we've been at the table. There's a quarterly meeting of all the trail-related people. There was one this morning actually and we started talking about communications. How do we tell the story of Central Indiana's greenways? So, it's likely that we will, like we've done with the river, have some role in the storytelling about the trails (where they are, what you can do, how do you use them, what you can do along them, their history, the future plans for all this investment, all of the non-profits that get kids and seniors out on bikes and walks). We're a supporting organization there rather than a lead organization like we have been for the White River. Then, what was the other--?

GZ: The other question was just, what other obstacles or barriers have you faced when trying to implement things having to do with waterways, trails, or parks?

BB: I guess the thing that every planning project or every community project encounters. You've got a lot of different competing interests for what should happen. You've got people that don't want anyone to touch the river because, if you look at our history, every time we've touched the river, we've ruined it. So, you've got those perspectives. You've got

people that see commercial opportunities, so they see a dollar sign on it. Then you see people that see the recreational and wildlife beauty of cleaning it up. You've got all those competing interests, so how do you find a path forward? Typically, I say in planning projects there's 80% of the people in the rational middle. There's 10% that are on your side that you don't need to worry about. There's 10% that will never be that you don't need to worry about. It's that 80% in the middle. That's where you can work and figure out what the community really wants. There's jurisdictional issues between Marion and Hamilton County, there's a disparity of resources, there's legacies of redlining and racial injustice that Indianapolis has to deal with, but that Hamilton County doesn't really have to. There's just different ways that you have to implement and there's hurdles in both counties. They're just different. Figuring out those different hurdles and how we can continue to move forward together is challenging. It's so easy for one of us to jump and run, but we'll be more impactful if we can do it together. So, that's my piece.

GZ: That's fantastic. That's really exciting. I'm still impressed that you've been the lead planner on this White River Vision Plan because it's really great. I'm excited to hear about the things you shared and all the progress that's being made. But it's interesting to see too – you're definitely right about that 80% in the rational middle. I work in long-range planning for HWC Engineering, so a consultant firm, but it's a lot of those obstacles that you see in a lot of planning jobs. But it's interesting to see how it applies specifically to your field too?

GZ: Do you think Indianapolis is currently a destination for birders or other nature lovers? Why or why not?

BB: No. I'm not a birder – full-disclosure. I was attacked by a pigeon in my attic one time and it terrified me. I hate pigeons. I'm also battling little sparrows now in our little nook in my house.

GZ: [Laughs]

BB: But, you know, in tourism we have research about why people come to visit our city. When I say city, it's really the MSA that we do our research for. Every year we do this panel research of about 40,000 people across the U.S. about why they travel, when did they travel, why they came. It's not specific down to birding, but there is the category called 'outdoors.' Of the 30 million people that came to Indianapolis in 2019, which is our pre-pandemic normal. Something like 950,000 of those, their primary trip motivator was outdoors. Most of those were day-trippers. In our world, a tourist is a person that travels 50 miles or more, or they stay overnight in a hotel. Most of the people coming for outdoor reasons are coming for a daytrip and so they travel 50 miles. I would suspect that most of that is to Brown County State Park since that's in our MSA. Our #1 reason people come is for visiting friends or relatives. I don't know if people come to visit friends and they also go to Brown County State Park. That's harder to distinguish. So, that's my research.

BB: But, aside from Eagle Creek where we do have a pretty nice quality habitat, we're just an urbanized area that doesn't have a lot of prime habitat. The habitat that we do have is patches, it's not corridors. It's not connected. We are in the flyway, so we do attract migratory fowl. But I don't perceive that, if you're going after more rare species, that cities are the place where you go to see that. That habitat is not there and if it is there, the quality

is probably significantly degraded. But, again, it's not a question that we ask on the survey. Aside from the outdoor category, we don't have a good handle on that.

BB: There are places, like Ecuador and places in South and Central America, where people do go there to see very rare and beautiful, exotic species. Now, our zoo does have macaws and those are a pretty popular new edition. They fly free around the zoo property. That's a more curated experience I suppose.

GZ: I think it's important to acknowledge that maybe it won't be a birding city, but that some of the things like the White River Vision Plan, improvements to greenways and trails, and all of this, they might facilitate a resident's experience of birds, whether they make a birder come from Maine. That might never happen, you know? If they're going to come to Indiana, they might be going to Indiana Dunes to see birds, rather than Central Indiana. But it's great to talk about that and still acknowledge that, even if some of these steps don't lead to it becoming a birding town, it might still have some benefits as far as bird-friendly cities go.

BB: Yeah, and we've got nesting bald eagles downtown. We don't talk about that for security reasons. But we have nesting bald eagles on the White River downtown.

BB: People have a very negative connotation of the White River for very legitimate and historical reasons, but it is a hell of a lot cleaner than it has ever been in anyone's lifetime that's alive. It's getting cleaner. The sewage is out of it. There are no CSOs in Indianapolis dumping into the White River. They come in from two tributaries, though they'll be done by 2025. There will be no combined sewer flows in Indianapolis. Muncie's are done, Noblesville's are done, Anderson is kind of the remaining problem. It's a hell of a lot cleaner than its ever been before.

BB: I've taken a couple of float trips. There's a non-profit called Friends of White River that tries to get civic leaders, as well as kids, out on the river. It's amazing when you have the urbanized Indianapolis kids out on the river. They're just blown away when they see a Blue Heron. They see this giant bird awkwardly sitting in a tree and making these weird noises. Or when you see these big hawks – I don't think I've ever been on a trip when those eagles went by – but this is in the central part, the most urban part, of Indianapolis. It's pretty cool for them to see. "I didn't know that this nature, this wildlife, was here. I didn't think about it."

GZ: We're at thirty minutes. Is it alright if I ask two more questions?

BB: Yeah, I'm good.

GZ: Do you personally take time to stop and appreciate birds (or other wildlife) around you? (Not the pigeons that are attacking you.) Do you think the average Indy resident does? Why or why not?

BB: I notice large or colorful birds. I'm not a birder like I said. I'm probably the stereotypical person. When you see this very large bird, or this very large hawk, or the eagle. You know, bluebirds, blue jays, cardinals, things like that. I think people notice that stuff. Not on a very intentional basis, but we notice size and we notice color.

GZ: Yeah. Then, my last question is, do you feel like there are ample opportunities for Indianapolis residents to learn about birds and the threats facing them? Where would you go if you wanted to learn more about native birds?

BB: No, there's probably not ample information. I'm sort of a guy that believes that... Our philosophy on the White River Vision Plan is that improving water quality is the end game. The trojan horse into that is 'people love what they care about.' To care about something, you have to experience it. If you don't experience the White River, you don't experience birds, you don't experience people of different cultures than you, you're not going to understand them and you're going to understand the issues. We probably have ample Audubon websites and Indiana Wildlife Federation websites that talk about the value of wildlife and what they are. What we don't have enough of is ample opportunities – this will probably make it into your thesis – but we probably don't have enough opportunities for people to experience and therefore care, and therefore advocate for and understand. You can't understand things you don't experience. We need more of that.

GZ: Yeah, and I mean, maybe the Conner Prairie wildlife center will help with that. I think there are efforts being made to help people be more conscientious about [birds], even in a very urbanized and suburbanized part of our state. I'm excited for the future that we have with how we address nature and the environment, but I agree that maybe the opportunities aren't quite there yet.

BB: We have a side project called Belmont Beach, which was a historically segregated beach when the City's parks and pools were segregated. A black entrepreneur at the time trucked in sand along the river and allowed people to swim there. We have this pop-up park. We're working with the Haughville neighborhood on that. The sand is not on the water because the water is not safe to swim in and we have signs there to explain this. But I want people to get there and be pissed that they can't get in the river. It's a teaching moment. "Brad, why isn't the sandy beach on the river?" Well, here's why. I would love to translate that to your work. I would love to get kids in canoes and kayaks up at Conner Prairie for them to see the eagle fly by, to see the Blue Heron fishing. That's a teaching moment. Well, here's what the species needs to survive and here's why you don't see them everywhere else. Then the kids can be pissed that we don't have Bald Eagles everywhere throughout Indianapolis. That's the goal. When you're pissed off, it changes your behavior. That's why I think our experiences are incredibly important.

GZ: Definitely! Thank you so much for chatting with me. I really appreciate it. I'm glad you were alright with going a little overtime. I did want to ask, when I'm done with my research, would you like me to send you a copy? Would that interest you at all?

BB: Yes, I would love to see that.

GZ: It will be one part really long research paper. But I'm also planning on creating a guide that's very visual. Something that's maybe 20 or 30 pages long that you actually send out to people. I'm hoping that the work that I do is something that people can use, look at, or learn from.

BB: Okay – cool! Good luck on that. I'm working on Ashlee's email address. The one I have for her is dated so I've reached out to her on Facebook Messenger to get her updated email address. I'll send that to you as soon as I can.

GZ: That would be great. I'd love to talk to her!

BB: Yep, have a great evening.

GZ: You too. Bye!

BB: Bye!

Interview with Carmen Lethig and Lindsay Trameri

Position & Organization (Carmen Lethig): Long-Range Planning Administrator for the City of Indianapolis Department of Metropolitan Development

Position & Organization (Lindsay Trameri): Community Engagement Manager for the City of Indianapolis Office of Sustainability

Date: February 21st, 2023

GZ: Hello, Lindsay and Carmen! I really appreciate you taking the time to join me today. Just to recap, my name is Genevieve and I'm a graduate student at Ball State working on my Master of Urban and Regional Planning. This interview is part of the research I'm conducting for my creative project (essentially my thesis). This interview, as well as the others I conduct, will help me determine how bird-friendly Indianapolis currently is. A bird-friendly city is best defined as one that seeks to protect native birds and encourages the public to engage with and appreciate birds in daily life. The interview should take no longer than thirty minutes depending on how in depth you decide to answer the questions. There are no wrong answers. Would it be alright if I recorded this interview? My professor would like me to submit a typed transcript. [Affirmative.] Additionally, may I quote you in my final paper? I'd love to share your perspective, but if you aren't comfortable with that, I can keep your responses anonymous. [Affirmative.] Alright, so I'll go ahead and start then. Unless you guys had any other questions. OK. So what organization do you currently work for or who's your primary employer?

LT: I can go first. My name is Lindsay Trameri. I work for the Office of Sustainability in the City of Indianapolis. We are a small division of the Department of Public Works, so a different department than what Carmen represents, but under the same local government administration umbrella, and I'm the Community Engagement Manager.

CL: I'm Carmen Lethig. So I'm the Administrator for Long-Range Planning in the Department of Metropolitan Development. I'll leave it at that.

GZ: Do you guys serve on any boards or volunteer for any other organizations in your free time?

CL: I currently do not. I have in the past, but right now I don't.

LT: OK. Yeah, I am a volunteer with Keep Indianapolis Beautiful. They're a local nonprofit, a chapter of the National Keep America Beautiful, and they do receive city funding for tree planting and litter abatement efforts, so I've been with them for a few years. I'm on the board for Earth Day Indiana Festival which is an annual arts and music festival with an environmental focus in June.

GZ: That's really cool. What are each of your educational backgrounds? Are they in the field that you're currently in or were they in something else?

CL: Yeah, I have a bachelor's in communications and a master's in urban and regional planning.

LT: I have a bachelor's in business, so I made my way to sustainability via a non-traditional path, but I'm very happy to be here.

GZ: And then do you both currently live in Indianapolis and how long have you lived here?

CL: Yes, I live in Indianapolis. I've been here 19 years but grew up around here and was born in Indianapolis, so almost my whole life.

LT: I was born and raised in Michigan. I moved to Indy in 2014 for school and never left. So almost 10 years.

GZ: All right. I'm hoping to move to Indy later this year, I'm currently still in Muncie but I'm excited. I grew up in Hamilton County, so Carmel and Fishers, and then I went to Bloomington for my undergrad and then up to Ball State for my masters. I've never lived in Indy, I really want to. I work in Indy, I'm making that transition this year, I want to be down there, I go down there every weekend.

LT: Oh, nice. Well, you could work for the city! To work for the city, you do have to live in Marion County.

GZ: Got it. Then we think you guys pretty much talked about your organization, so we'll skip over that one unless you have anything else that you think is relevant to talk on about your organization?

LT: Well, I would just because I think our office can be misinterpreted sometimes just because sustainability really does mean something different to everybody. So the Office of Sustainability for Indianapolis was created in about 2008, under a previous mayoral administration. That was a time when cities all over the country and world were establishing sustainability offices, and that was something that hadn't existed before, which is very different from a lot of the functions local government does. They've been around forever, like they've always collected trash and plowed the streets and planned the cities, but then, as cities were grappling with the task of climate action and realizing how much curbing emissions was going to be on the city level, they started establishing actual offices with budgets and full-time employees. So for a long time, our focus, especially since we were in public works, was on pedestrian-friendly infrastructure, specifically bike lanes and multi-use trails and paths. That was a big focus of the previous administration. Then in 2019, the city adopted Thrive Indianapolis, which is our sustainability and resilience action plan which is like 90 pages, 60, so action items trying to set Indiana on a path to carbon neutrality by 2050 and also incorporating equity into the city's policy and planning. So that plan lives in Carmen's department, the Department of Metropolitan Development. But our team of four, we administer it, so we track the data and the metrics we report on it annually. We take a lot of the meetings that are connected to those individual items. It's eight different elements of sustainability. Sometimes it's transportation, sometimes it's natural resources. Waste and recycling energy. I mean, it's so broad. So sometimes folks can get confused, they think Thrive Indianapolis is its own nonprofit or separate entity. It's not. It's just a very well branded plan that lives in local government. That's kind of our elevator pitch.

CL: Yeah, and I can just expand on that just a tiny bit. The long range planning division oversees and owns, if you will, the comprehensive plan and by state statute, really the only thing that we're required to have for the comprehensive plan is the land use plan and map. We're really only required to have that because that's how we enable the zoning ordinance. So we can't have zoning without the comprehensive plan, but we have a lot of different elements that fall under the comprehensive plan. I can put that link in the chat, that's where you find all the plans if you haven't seen. So I may not be doing a ton of talking during this, because what we tend to do, and I'm not saying this is right or wrong, but we tend to kind of filter out. I'm saying this and it sounds like it's very siloed and it's not as siloed as I'm going to make it sound, but like, if it's an infrastructure type of road thing, that's a DPW thing. If it's sustainability, that's, you know, Office of Sustainability under DPW. With that being said, there's a lot of crossover in the world of urban planning. So we have elements of all of those incorporated in our land use map and incorporated into the zoning code. We do sort of have those focused areas that have their own plans and their own staff that can vary which department it actually lives in, like Lindsay was saying.

GZ: All right. Well, thank you guys for giving me a little bit more background on those, I think that definitely helps. I did want to move into some of the more specific questions. So does Indianapolis currently incorporate birds or other wildlife in its long-range plans, if so, how? And if not, why? And that can be in the comprehensive plan and Thrive Indianapolis. Is there any mention of birds or wildlife?

CL: I mean, I'm going to answer first, just because I think my answer might be quicker. Our land use plan is called the pattern book and that's where we outline all the different typologies of land uses. We don't do single typology of land use, so we don't go from site to site saying oh, that's commercial, that's this, you know. In our comprehensive plan, in the future-oriented map, we have swathes of the county that will be focused on the environment. Like, this is where parks should be, this is an agricultural conservation area, but as far as I've been able to tell, including the zoning code, we do not call out specific types of wildlife, including birds in those plans.

GZ: OK.

LT: Yeah, I don't have much more to add, except that if you look specifically at Thrive, it does not explicitly mention birds either. I think the natural resources element is the most relevant when it comes to birds. Those overarching goals are to sustainably manage our green spaces and trees and how can we come up with more creative funding measures to expand green space and then have our air and water quality be up to snuff. Meet federal standards or exceed them where possible. So those goals obviously, if and when achieved, would also have the co-benefit of helping native species thrive.

CL: So in our in our pattern book, we have environmentally sensitive areas overlay and it encompasses some of the same wording that Lindsey just referenced. It says that the environmentally sensitive area overlay is intended for areas containing high quality woodlands, wetlands and other natural resources that should be protected. It does not call out a specific subset. of those but birds are intended to be included in them.

GZ: Yeah, it's just really interesting because one of the things I'm looking at with some bird friendly cities is that there's essentially this big book on bird-friendly cities written by Timothy Beatley, and in it he's got criteria for how to determine if the city is being friendly. One big part of that is planning specifically for birds, like mentioning them as specifically as a focus. I think part of that is that co-creation of benefits, right? If you plan for birds, you get all these other benefits that help other wildlife, and you're generally going in the same direction. So I think what we're seeing in Indianapolis, what you guys are saying, is we're going in this in the direction towards bird friendliness with a lot of these plans, but maybe they aren't mentioned specifically, so I can kind of see both perspectives on why they would or would not be. Just starting with collecting some data on with where we are, so understanding that they're not necessarily in the plans, but like you guys mentioned, the plans are designed in a way that would still benefit birds.

LT: Right, that's what's so interesting. If the ultimate goal of the plan is to be carbon neutral by 2050. It's Indy playing its part to help make our planet livable for everybody. I'm also interested- so Thrive was developed through about a year-long community engagement effort and those of us in the office now, none of us were around when that was happening in about 2018. We're kind of a new guard. We weren't there to know exactly what all was being discussed and decided upon, what makes it in the plan and what doesn't. So it's interesting to think about. Were there community members putting sticky notes up on a board somewhere with birds explicitly in mind and that just didn't make it to the final version of the plan? I don't know, it's difficult to say, but it's possible.

GZ: All right. I think we'll go into the next question. So other bird friendly cities, like Vancouver, have adopted official bird strategies. They've assembled advisory committees specifically focused on birds to create these strategies oftentimes, and then they've even allowed residents to vote for an official city bird that's kind of a mascot for some of their environmental policies. Do you think it would be possible for Indianapolis to do any of those kind of things? Yes or no? Then, do you envision any barriers to implementation?

CL: I think it's possible to do. I think that there would be a bit of a struggle in the fact that like we're so stretched for resources right now as it is from a city from a staff standpoint and a monetary standpoint that I think it might be a difficult thing for the city to own, but I could see it being a little more successful, like a partner organization being the keeper of that. Then my division, or Lindsay's division, being city partners, move it through the city processes. That's how I would see it being most successful.

LT: Definitely, yeah. Usually when that question comes up in any interview, can you envision any barriers to implementation? The answer is always funding and time. Limited resources. Local government is just trying to do so much with so little. Even though we really care about endeavors such as this, that's usually what it comes down to is just having 60 balls already being juggled at the time, so I think I would be interested to learn more about how Vancouver went about it and what partners they brought in to help get it across the finish line. I know we've had meetings with the Audubon Society before and they're pretty well organized and active in the region, so to have a partner like that do the heavy lifting is always so helpful.

CL: I understand you're just calling out Vancouver as one example, but I wonder if because if they're on the water, if birds are a little bit more visual for everyone. They probably see more birds than we do and a greater variety of species than we do. I just wonder if that's one part of like why it seems the city would be taking more of an initiative.

LT: I bet there's got to be a geographical angle there. Indy can run into that too, when it comes to trying to get folks connected and emotionally connected to water. I grew up on Lake Michigan and I look at some initiatives that Milwaukee does and I think, gosh, can we replicate that here. But there isn't as much of an emotional connection to the White River as folks along Lake Michigan have to Lake Michigan so there are different variables that you always have to keep in mind with the population.

CL: Yeah, Lindsey brings up a great point. I did not mention the White River Vision Plan. I'm not sure if you've come across that, but that was spearheaded through my predecessor here in the long-range planning division. Highly collaborative among several organizations along the White River corridor between here and Hamilton County, and a little South of us as well. I love what you said, he co-created benefits of that plan as well, that overlap with Lindsey's work and the work we do here.

GZ: I think you guys bring up a really good point with the political, and not just in the term of parties, but political in terms of how groups of people work together and how government functions. There are those barriers to consider too and the cultural barriers. I think Vancouver has a history of being very environmentally forward and being more liberal of a city. I think that's the thing to consider too. Does that change their perspective towards the environment? Are citizens already more emotionally attached to some of these environmental features? I think these are really good barriers to consider and it would be great to partner with the Amos Butler Audubon Society to get some of these things done within the limitations that we have. I interviewed Brad last week.

CL: OK, good.

GZ: Yeah, he had a lot to say about that. I wish it could have been more like a steering committee where I had everybody together, but I'm still getting a lot of similar themes from the conversation with you guys and the conversation with him. All right. Have your plans incorporated any goals focused on promoting nature in the city? For example, are there goals focused on native plants, parks, green spaces, or trees?

LT: Oh, yeah, Thrive is very specific on certain goals connected to native plants, parks, green spaces, trees, all of the above. Let's see if I can pull them up. So there is a specific goal to implement a policy for 100% native plant and proactive removal of invasive species in parks and along greenways that has not been achieved yet. This is kind of the caveat that comes along with these plans that get across the finish line and then different things change after the fact, right? New science comes out, new research comes out that might change exactly how we want the goal to be worded. I think this is one of those places where we wouldn't implement a policy with the 100% use of native plants, because sometimes there are non-native plants that aren't necessarily invasive and might actually be really good for the ecosystem as well. That's not my area of expertise. I wish it was, I'm really jealous of the folks in land stewardship who get to have boots on the ground every day, but that is in the

plan. We have increased green spaces to improve stormwater infiltration and that is kind of connected to trying to come up with creative ways to fund our Parks Department to grow our parkland.

That's something that Indy really struggles with and I think a lot of big cities struggle with. Land is really, really expensive and our Parks Department is always going to have a much more difficult time purchasing land when they're being outbid by huge developers or private companies. So right now we are working on a carbon credit pilot program for 100 acres of Eagle Creek Park. I don't know how familiar you are with carbon markets, they're an emerging capitalism of climate change idea whereby corporations that have ESG goals and stakeholders that care about them becoming carbon neutral and offsetting their missions would be able to purchase credits. Thereby creating a revenue stream for our Parks Department where the Parks Department would essentially be paid to keep the old growth, forested land exactly as it is and maintain it, as opposed to selling it to become a golf course or a restaurant or a parking lot or whatever. So it creates an ongoing revenue stream that's sustainable and you know helps both parties. It helps X corporation cancel out some carbon in their equation and the user keeps their park as a park or their woods as a woods. So, we're working on developing that and that'll create some more funding, hopefully for us to get some more parkland in our huge, huge county.

What else is there? Increased per capita spending for Parks and Recreation. Right now, we're at \$26 per capita, and we want to move up to 50, maybe a little higher. I'm reading from the original plan, and we do annual reports each year. That might actually have gone up a little bit. Plant 30,000 additional native trees by 2025 – that is achieved. So from when the plan was adopted to now, KIB and other partners around the city have planted 30,000 native trees since then and that happened in the fall. We haven't publicized it yet because we're planning on doing a big celebratory event this spring, we just didn't have time to do it in the fall. That one is accomplished, which is exciting. I think that makes 9 out of the 59 or 8 out of the 59 that have actually been achieved since 2019. Obviously, the pandemic really messed things up.

Yeah, those are probably the main ones connected to your question. As far as hindrances, again, it would be funding and staff time. Thrive, was never intended to be solely on our one office's back to achieve, that would be impossible for four people to be responsible to get a city to be carbon neutral. Additional partners and nonprofits and public-private partnerships and all that are always more than welcome when it comes to achieving big items like this.

GZ: This goes on to that next question, but you said 8 of the 59 have been achieved. Is that available online, which of those eight that is?

LT: Yeah, I can send you a press release. I think the press release will probably be 7 because we haven't publicized that 30,000 one yet.

GZ: OK. Did you have anything to add to that, Carmen?

CL: No, their plan pretty much takes care of it from the perspective of the overarching goals like that. The only thing I'll add is that we do try to, and I when I say we I mean from the current planning side, which is not you know where I primarily work, but I partner with

our current planning division quite a bit. When we're talking about looking at specific petitions for development, we try to retain native trees or heritage native plantings. We try to like maintain those or do a certain amount of replanting, if possible. I think there is specific code on the amounts, but it's usually a case-by-case basis because each parcel is so different.

GZ: All right, so we have 10 minutes left. I think we've talked about roadblocks. You guys mentioned quite a few of them – staffing, budgetary, and time related. I think we'll go on to the question about some of the threats to birds. So cities can be great places for birds, with different parks and green spaces, but they also can present some unique threats, such as collisions with reflective services, light pollution, and then predation from free roaming cats. Do any of your plans address these threats, or do you know of any programs in the city that do?

CL: I don't know of any of them.

LT: Let me check on light pollution with Thrive. So, the collisions with surfaces – the Audubon Society has spearheaded a Lights Out Indy campaign. I think annually, they encourage buildings to turn off their lights at night. I know that we are supportive of that and compliant with those requests, in no small part thanks to our Head of Building Authority being a big birder himself. He's very passionate. Obviously, we can't mandate buildings shutting off their lights. We do have a Thriving Buildings Program which is encouraging large buildings like 25,000 square feet and bigger to be more energy efficient. Those might be some down winds from a program like that, getting folks, facilities managers to make smarter decisions like turning off the lights at night. For light pollution, the city did have a program called Operation Night Light. There was a moratorium on new streetlights in Indy for a long time that was lifted around 2018-ish, and all of the city's existing streetlights were converted to LED, and all of the new requests that started to come in were outfitted with LED's. I know that there were downwind light pollution impacts from those retrofits because the light was focused downward as opposed to the bulb that reflects all the way around. The cat one is interesting, not our wheelhouse. But the city does have an animal shelter and I know they spay and neuter, trap and release, all that, as part of their policies. That's probably pretty basic – what you'd expect from an animal shelter. Just encouraging spays and neuters, yeah.

GZ: All right. Well, that addresses a lot of those threats that I mentioned. There's always going to be room for improvement, but it seems like there are some efforts that you identified. Maybe we're trying to make things a little better, a little safer for birds. OK, I think we've got 5 minutes. I think I'm going to skip down to some of the more personal ones. Do you personally take time to stop and appreciate birds around you? Do you think the average Indy resident does? Why or why not?

CL: I mean, I do. I'd say in the past few years, I've really started to pay more attention to birds. I don't know if it's because I'm getting older. This kind of answers one of your last questions, I've been getting involved in the programming by the state DNR and just learning about owls or native birds. I bought a bird feeder recently for goldfinch. That's pretty much it for me. I find them really interesting. We have a huge owl in Irvington that

flies around and will just go from neighborhood to neighborhood within Irvington. In fact, I just saw it on Facebook earlier, people will be like, "Owl's out. Go find it." Yeah.

LT: Oh my gosh. That's really neat. Yeah, I am very interested. I had a unique upbringing; I grew up in the middle of the woods in Michigan. I definitely took that for granted growing up and now wish I savored it a bit more. My mom cared a lot about making sure we could identify species and knew bird calls and stuff. As far as the average Indy resident, I don't know. That's so difficult to say, whether they stop and appreciate, but I guess on average, probably not.

CL: Yeah, I probably agree with that. I agree with everything she just said.

GZ: OK, then we'll wrap up the last question. Do you think there are ample opportunities for residents to learn more about birds, or do you think there could be more?

CL: I think there could be more. I don't know what that looks like, but I definitely think there could be more. I think there's hidden gems, probably just like I was talking about with the Irvington owl. There's things people may not know and the DNR has some fantastic programs. Eagle Creek State Park has some great programs about birds too.

LT: Yeah, that's definitely what I'd say. As far as where people where would you go if you wanted to learn more, it'd be Eagle Creek for sure.

GZ: All right! Well, thank you guys so much. I really appreciate you taking the time to do this. I did want to ask, when I'm done with my research, would you guys be interested if I sent it to you to see what it looks like?

LT: Oh, absolutely. I think this is awesome that you're doing this. It seems like a lot of work, good on you. Yeah, you taking care of yourself?

GZ: Yeah, it's a year-and-a-half-long endeavor, but it's been really fun. I'm glad I picked something I love and I care about, so it's been really rewarding. I have to balance this and all of my other classes, but it's been really fun.

CL: Well, good work. Thank you. I would love to see it when you're finished.

LT: Let me send you one more link on the Operation Night Light initiative to retrofit the streetlamps, and then I also know that our city's chief communications officer for the mayor's office is a huge birder. It's almost like a running joke with everyone and him, so he, specifically, would love to see the finished product. Oh yeah, for sure.

GZ: That'd be great! Alright, Thank you for your time and have a good evening!

Interview with Aidan Rominger

Position & Organization: Naturalist at Eagle Creek Park

Date: February 22nd, 2023

GZ: Hello, Aidan! I really appreciate you taking the time to join me today. Just to recap, my name is Genevieve and I'm a graduate student at Ball State working on my Master of Urban and Regional Planning. This interview is part of the research I'm conducting for my creative project (essentially my thesis). This interview, as well as the others I conduct, will help me determine how bird-friendly Indianapolis currently is. A bird-friendly city is best defined as one that seeks to protect native birds and encourages the public to engage with and appreciate birds in daily life. The interview should take no longer than thirty minutes depending on how in depth you decide to answer the questions. There are no wrong answers. Would it be alright if I recorded this interview? My professor would like me to submit a typed transcript. [Affirmative.] Additionally, may I quote you in my final paper? I'd love to share your perspective, but if you aren't comfortable with that, I can keep your responses anonymous. [Affirmative.]

GZ: What organization do you currently work for (i.e. your primary employer)?

AR: I currently work for Eagle Creek Park as a Naturalist.

GZ: Great! Do you serve on a board or volunteer for any other organizations in your free time?

AR: Yes, I am currently contracted by Indiana Audubon as a Youth Coordinator. I doing the Young Birders network, taking over that.

GZ: That's really exciting!

AR: Yes!

GZ: Alright, and then, what is your educational background?

AR: I went to Purdue and I got my bachelor's in Wildlife Biology.

GZ: Alright. That definitely set you up for success in this career then for sure.

AR: Yeah, for sure! It was a great program, and I learned a lot from what they had to offer so that was really awesome.

GZ: Alright then, so some questions about Eagle Creek. When was the park established and when was the Ornithology Center established?

AR: Yeah, so the park was established, I believe, roughly over fifty years ago. I actually have some details. I'm not sure how in-depth you want that to be...

GZ: As much as you want to talk about, honestly.

AR: Okay, cool. So, it looks like it was established in 1935 and Lilly owned the property. The first place that was established was Eagle's Crest Estate, which is on the west side of the park. In 1937, Lilly purchased three farms in the valley, which are Eagle Valley Farms. He

acquired more land in the Eagle Valley area and then, in the 50s, he created the building that I'm currently in for his private library. The park wasn't established until the 70s, I believe 1972 is when it was founded. It was a gravel pit actually, so a lot of the water in the park is really deep. I think in the 70s and 60s it was a gravel pit and then they filled it in and established the park.

GZ: It's always interesting to see where Eli Lilly and his family come in. They're all over Indiana.

AR: I know!

GZ: I've worked at two places that were originally owned by the Lilly family: the Lilly Library in Bloomington and Conner Prairie. It's all over!

AR: Yeah, they own a lot!

GZ: They really do. Wow! What a family. And then, do you know if the Ornithology Center was established around the same time as the park, in 1972?

AR: The Ornithology Center was actually established later in the early 2000s. This building used to be the original nature center for the park. I believe it was the nature center back when the park was established in the 70s.

GZ: So, how does the physical environment in the park support native bird biodiversity?

AR: The park has a lot of different environments, a lot of different habitat types, especially for birds. There's a lot of wetland habitats, open water habitats, shorelines, grasslands, deciduous forests, wet prairies... There's just a lot of different habitat types that are integral to eastern North American migratory birds and resident populations of birds.

GZ: Yeah, very neat! It's definitely unique. Fort Harrison has some open water areas, but to have that much open water and wetlands in Central Indiana is pretty neat. It's neat that we've been able to conserve that. Otherwise, there's not a lot of it. I've been doing spatial analysis to map out different land types and there's not a lot of wetlands in Central Indiana anymore.

AR: No, it's kind of crazy. Little Eagle Creek I believe was there before all of this and it had some wetland habitat. It's really neat because some of that is still there. That's pretty old habitat that has flourished for almost over fifty years. It's neat to see that probably the same birds have returned to that area for hundreds of years.

GZ: Yeah! Alright, then, what are some examples of programs and events that you offer at the Ornithology Center?

AR: We offer a lot of different events. We have raptor programs with our raptor ambassadors. We have a barn owl, a bald eagle, a turkey vulture, a peregrine falcon, and a couple of other raptors that we do programs with. We also offer multiple classroom events and educational events like EBird workshops and beginning birder workshops. We're just trying to get anyone that might be interested in birds or the outdoors or anything like that. We do a lot of school group thing, and I know that was another question.

GZ: Really neat! Do you have any festivals or anything like that throughout the year?

AR: We do! In October, we have a Owl Fest that usually gets a lot of attendance. That typically is not just owl focused, it's kind of all birds. But we also try to focus on owls and educate people on owls – the misconceptions of them and all of that. We have that. In May, we also have Bird Fest, which is a big birding festival in the park.

GZ: That's fun. I need to go to one of these. I've been to some of the different raptor programs and I've gone to see the birds, but I haven't been to any of the festivals. Does the Ornithology Center put on a program to celebrate World Migratory Bird Day?

AR: I don't know if we necessarily have a program, but we do let people know that it's a thing. For Great Backyard Bird Count, we try to encourage people to come in and participate with that, and the same for Migratory Bird Day. We try to get people that come into the park to go birding. We have things that people can submit. We don't have a set-in stone program for that, but we do try to promote it as much as we can.

GZ: And then you mentioned field trips. Do you know if students that attend those field trips are from public schools or private schools?

AR: Typically, it's a mixed bag. We tend to get public schools, but we have had private school tours. We offer it to anyone that's interested. We also offer discounts to schools that receive money from the city that might be lower-income. We try to encourage multiple demographics of people to come into the center and be educated and participate in our programs. We try to offer our programs to as many people as possible.

GZ: Then, do you know what grades or ages those students are in, approximately?

AR: Yeah, so we actually offer programs all the way from kindergarten and junior kindergarten to senior citizens. So, all age groups.

GZ: What do people learn about what they go on these field trips and educational tours?

AR: So, we have raptor ambassadors, like I said, that we bring occasionally. We try to limit that now and just have people come to the center. If a school group comes to the center, we'll show them our turkey vulture and do a flight demonstration with her in her flight enclosure. We try to get the kids excited with live birds. We'll also do small lessons on migration and the pitfalls of migration. We actually have a migration game outside where kids can run an obstacle course and experience what birds might experience on their migratory path. We try to get as many immersive projects as we can with the kids, just to get them inspired.

GZ: So, do you address threats that might be facing birds, is that part of the migration narrative?

AR: We do. We try to be careful depending on the age group not to be too...

GZ: Too scary?

AR: Yeah! You have to gauge the kids. What you can say and how you can say it. We try to be honest about the threats that birds face on their path. The truth is that many of them do not survive, but we try to make it as fun and educational as possible.

GZ: Yeah, maybe start with getting them excited about birds before you tell them that they're facing a lot of potentially fatal threats. Then, do you know if birds are part of students' curriculum in school or do they just learn about them when they visit the park?

AR: Usually, the lower school (K-12), they're mostly learning about it in school. With some of the older kids, they aren't. They're just doing it as a retreat or a side day where they can learn about nature and birds. Definitely for the kindergarten to about fifth grade classes, teachers will typically tell us, "Hey, we're learning about nesting. Can you try and do a program about nests?" It's usually something on the spot like that.

GZ: Outside of programming, how does the Ornithology Center facilitate learning? Maybe you can talk about any exhibits, viewing areas, ambassador animals, themed play areas, or self-guided nature trails?

AR: Yeah, we have an amazing taxidermy exhibit hall in our Ornithology Center that has, I believe, over 120 bird species. That is one number I would not quote because we do get a lot of taxidermy that we occasionally switch in and switch out. But we have a lot of different birds in that room and they're all birds that have been in the park. Some of them are rarer than others. We have some birds like the American White Pelican, a bird called the Northern Goshawk, that is kind of a rare hawk that occurred in the park before. Then we also have all of the common species that people would see. It's a really good opportunity to get up-close to birds that are obviously not moving or flying. You get really good ID features from that. That's one room. We also have a bird feeder room where you can watch the feeders and see birds flying in. We have a lot of species out there. We also have an observation deck and observation room where it looks out on the waterfowl sanctuary. We have lots of different waterfowl species that are there. It's a great immersive experience.

GZ: Yeah! Then, what did you say was the name of the outdoor play area?

AR: Yeah. So, the outdoor play area is probably referring to the Migration Game. That's our obstacle course. Kids can climb over a mountain, that kind of thing.

GZ: Do you have books available for people to look at, brochures, things like that in the Ornithology Center?

AR: We do. At the front desk, we have multiple brochures advertising Young Birder organizations, Eagle Creek organizations, the Earth Discovery Center's programs, our programs, and occasionally other Audubon groups and hikes. We have a library too. People can stop in and look at any of the bird books in there.

GZ: Wow! Very cool. Do you have any self-guided nature trails?

AR: We have a couple interpretive trails just south of the center. There are plaques along the trail that label different tree species and plant species. We have a giant log just south of the center that I think was imported from Oregon. I believe it's a giant redwood cut, but it's

not native. We get lots of snakes in it occasionally during the summer. We label that and explain the history of that.

GZ: You said there were opportunities for all ages to engage at the Ornithology Center, but do you think there are still some ages that are underserved? Or do you genuinely think all ages are covered?

AR: I personally think that college-aged is probably the least common spread of people that we get in the Ornithology Center for pretty obvious reasons. I think that demographic of people is probably less represented. That number is definitely changing. In recent years we're seeing more kids coming in and trying to learn birds cause they're interested. Maybe they took a class in college about ecology or whatever. They're trying to get involved in that. We definitely haven't targeted that audience too much through programming and we could probably do a better job of that.

GZ: I definitely think that's the age group I was expecting to hear about. Usually at nature centers, there's an intention to get younger kids engaged with birds and help them to appreciate birds. Then, older adults have more time on their hands and get more involved in birding. There's really a scarcity of programs that engage people in their twenties to enjoy nature. I think it would definitely be cool to see a program in the future targeted at that age group. There's an interesting program with the Carmel Clay Parks in Hamilton County. They did a bird hike, the targeted demographic was twenties and thirties, and they actually had a brewery sponsor it. So, you could go on a hike and enjoy free beer. That's a way to get people in their twenties interested in birding! Sometimes it requires creativity and partnerships.

AR: Yep.

GZ: As far as other demographics, are there certain races, genders, ethnicities, that are more likely to visit the Ornithology Center? Are there any that are absent?

AR: We actually get a pretty decent diverse crowd in the center. I would say members of the African American community might be a little underrepresented in the center in terms of people coming in. We do see a lot of non-English speaking people. We see a bigger number of Hispanic speaking people, so we try to create signs that are also in Spanish to accommodate them. I definitely think we could do a better job at that, personally. We could have more signage. We do get a lot of questions from people that can't speak English asking us, "Hey, what does this mean?" We could do a better job at that, but we definitely have got that ball rolling.

GZ: That's fantastic! It's great to hear about that. I think that fits in with certain communities being underserved. I think it reflects a history of, say, black people in the outdoors. They may not feel welcome in outdoor spaces. So, it's still good that you're seeing a variety of people. You're making efforts to embrace all community members. It's exciting to see what opportunities may happen in the future to make that better.

AR: One thing to add, the park doesn't have public transportation. That's a big factor that limits our scope in regard to those more urbanized populations. It's something that I wish

we had. It would allow more opportunities for education to people that probably have never seen a park like this before.

GZ: Yeah, definitely. That's an important thing to implement out here. The public transportation in Indianapolis is still pretty limited. It's mostly concentrated in the urban core. It would be cool to have it extend further out. Also, do you also think the nature center would be open to having black birder related events?

AR: Yeah, that would be great. I know that some Audubon Societies have tried to do that by offering, "Let's go to Crown Hill and bird." That's close to the city, easy to access, and has lots of trees and birds. Eagle Creek can do a lot more partnerships with some of those programs and maybe implement a lot more programs in the park.

GZ: Yeah. Then, how can visitors continue learning when they leave the park? Are there other places they can go to learn about birds?

AR: Yes! There are a lot of different resources that we try to suggest to anyone who is interested in birds and birding. Cornell Lab of Ornithology has a fantastic resource on their website called All About Birds. That website is a great resource for anybody who is curious about a certain species of bird and wants to know all of the facts about that bird – where they live and all that. That's a really good, informative resource for people. The next one, for birding focused things, is EBird. That's also funded by Cornell. It's free to sign-up, easy to submit checklists, and it keeps a list for you so it's individualized.

GZ: That's fun. I imagine EBird is like those apps where you can put all of the movies you've seen. It's like that – all of the birds that I've seen.

AR: Exactly! It's like another listing app.

GZ: Where are those other places that people can go to within the city?

AR: Holiday Park has another great nature center that offers the same educational opportunities. It's not as bird focused, but definitely a great resource in terms of engaging an awareness of local Indiana habitats. That's a really great place. Also, Southeastway Park Nature Center is another really great center. They do a great job with interpretive displays and with engaging whoever comes into the center that's curious about nature.

GZ: Those are great recommendations. The third part of my research will be to visit different parks and nature centers in Indianapolis in order to write about that. I didn't know that Southeastway had a nature center, so that's definitely something I'll have to check out.

AR: Definitely.

GZ: Last question. When you aren't at work, do you personally take time to stop and appreciate birds (or other wildlife) around you? Do you think the average Indy resident does? Why or why not?

AR: I definitely do. I've been birding since I was a kid. I find myself doing that quite a bit. It can be an issue because I'll get distracted by the cool birds outside of the center. I would like to say that the average Indy resident does that, but I don't think they do. I think we're

really working towards that. I think it's something that the Ornithology Center really wants to try and increase, just the amount of awareness. You don't have to be obsessive about birds, like I might potentially be, but it's knowing that it's a Cardinal outside and not just a red bird. Just appreciating the native wildlife a little more. I hope more people have that happen, but it's an ongoing process for sure.

GZ: I did want to ask, before we wrap up, you mentioned the Indiana Audubon's Young Birders Association. If I wanted to learn more about that, would that be on the Indiana Audubon's website or a social media account?

AR: Both! I'm currently running both things. You can go on Indiana Audubon's website and look at Indiana Young Birders network. That will be up there with information about our goals, non-discrimination policies, stuff like that. We have multiple hikes every month. We just got done with our second hike. It's a very new thing. We just started this network. There was a club years ago that I was a part of, but it kind of fell apart because we weren't getting any participants. I'm taking it and trying to revive it a little bit. We've had some decent participants already. We had a hike at Holiday Park two days ago and that was really great. Eight people showed up, so that was a really good turnout. We'll have another hike at Southeastway in March too. There's a Facebook page that you can follow that we post regularly too.

GZ: Really cool! That's exciting. I'm glad you're making the effort. It sounds like a really wonderful thing to bring that back.

AR: Yeah.

GZ: Alright, I think that wraps it up. Thank you again for sitting down and chatting. It's been fantastic! I got a lot of great information. I really, really do appreciate that. I did want to ask, when I'm done with my research, would you like a copy of that to take a look at? Would that be interesting to you.

AR: Yeah, absolutely. That would be awesome.

GZ: It probably won't be until November. It's a year and a half long process.

AR: It's really cool! Can I ask you what made you interested in getting started?

GZ: Yeah! I actually, when I did my undergrad, I started as an Environmental Science major. I also really liked engaging with communities, so I actually found urban planning. I work as a planner part-time, but while I'm doing my master's degree, I'm doing a sustainability focus, since that's a passion of mine. I've been birding since middle school. It's something that I do in my free time. I've always really been interested in the environmental perspective for cities. For the last several hundred years, we've separated cities from nature. That isn't healthy. I think there's a lot of people out there that understand that nature and cities can go together. I figured, if I have to write a thesis, essentially, why not choose something that I'm really interested in? So, I took birding, environmental things, and urban planning, and I squashed them all together.

AR: That's so awesome! Well, hats off to you for doing that. That's a great project. There need to be more people doing that kind of stuff.

GZ: Yeah, I think birds are a really interesting focal area too. I love them, but I also think they have a lot of importance. They're one of the species that you can see everyday that's so accessible to the average resident. If you design your goals for you city around ensuring that birds can thrive, you're going to get all of these other benefits, and you can see the process. It's a good strategy, I think.

AR: They're totally keystone and indicator species too to environmental well-being. It's really awesome. It's just so cool.

GZ: Alright! Well, thank you! I'll let you go now. Have a great rest of your day. I'll reach out to you when I'm done.

AR: Awesome! Appreciate it.

GZ: Bye!

Interview with Austin Broadwater

Position & Organization: Environmental Specialist for Lochmueller Group; Director of Lights Out Indy for the Amos Butler Audubon Society

Date: February 23rd, 2023

GZ: Hello, Austin! I really appreciate you taking the time to join me today. Just to recap, my name is Genevieve and I'm a graduate student at Ball State working on my Master of Urban and Regional Planning. This interview is part of the research I'm conducting for my creative project (essentially my thesis). This interview, as well as the others I conduct, will help me determine how bird-friendly Indianapolis currently is. A bird-friendly city is best defined as one that seeks to protect native birds and encourages the public to engage with and appreciate birds in daily life. The interview should take no longer than thirty minutes depending on how in depth you decide to answer the questions. There are no wrong answers. Would it be alright if I recorded this interview? My professor would like me to submit a typed transcript. [Affirmative.] Additionally, may I quote you in my final paper? I'd love to share your perspective, but if you aren't comfortable with that, I can keep your responses anonymous. [Affirmative.] OK, cool. All right. Unless you have any other questions I can get into the ones that I wrote down. So what organization do you currently work for?

AB: So are you talking about just in general?

GZ: Your primary employers, I've got some just rough demographic questions first. [Affirmative]

AB: So I'm with the Lochmueller Group. It's an environmental consulting firm or engineering firm and my office is in Indianapolis. We have an Evansville office, South Bend office, and I think St. Louis, we have about 300 people employed. But I'm an environmental scientist.

GZ: Can you like briefly describe the work? Maybe that Lochmueller does, and then what you do in your position specifically?

AB: Sure. So we do a lot of stuff, but I'll compress it. We do environmental impact statements. So if they had like a road project like I-69, or if there's a bridge, we'll go out and inspect if there's any wetlands or streams that it might impact or if there's endangered species or pipelines, public facilities, all these things that we need to make sure that we're either not impacting, or if we are, then how to mitigate those. That could be buying property and creating a new habitat or just temporarily redirecting a roadway. But I do most of the paperwork, I prepare maps and then I also do wetland determination so that I'll be out in the field testing the soils, plants, and hydrology.

GZ: All right, very cool. OK. Do you serve on any boards besides Amos Butler, or is that your primary?

AB: I'm also with the Indiana Audubon Society, which is somehow not affiliated with National Audubon. I'm the quarterly editor for that. So, I put some articles together and their newsletter.

GZ: And then what is your educational background?

GZ: And then what is your educational background?

AB: I graduated with a bachelors from Wabash College, majored in biology and then minored in math and Spanish in 2013.

GZ: Do you currently live in Indianapolis? And if you do, how long have you lived here?

AB: Yeah, I currently live in Indy. I've been back in Indy since 2013. I've kind of been around the state. I was technically born in Oak Park, IL, but I don't remember any of it. Then I grew up on the north side of Indy until the middle of my 8th grade year, and then we moved up to Valparaiso in Northwest Indiana, the dunes, for my high school years and college. Then we moved back down here. I've always been in Indiana, I guess. I'm pretty familiar with it, yeah.

GZ: Yeah, I was born in Arizona, but I only lived there till I was 5. Then I lived in different parts of Indiana my whole life.

AB: Yeah, both my parents are from Indiana too.

GZ: Ok! Do you incorporate your interest in birds in your career?

AB: I try to! We haven't gotten to do much bird work, but if there's endangered species on site, and just enjoying nature. I mean we're outside! A lot of stuff I do at work, I kind of do recreationally too, like I'll try to identify plants or herping, or identifying birds, but haven't gotten any bird work yet. But maybe.

GZ: Yeah, that would be cool! Then how did you get involved with the Amos Butler Audubon Society?

AB: I was a member probably since 2014, and then the Lights Out original leader kind of let it fall apart, they just like stopped doing it. I've tried to revive it since 2016. I've been into birds since I was 7, but I guess I wasn't officially part of the organization until 2014.

GZ: That's really cool! Do you know when the Lights Out program was originally started?

AB: I believe 2009. So the first generation was like 2009 to 2013 and then leadership just kind of fell apart, nobody was running it. I've tried to run it since 2016.

GZ: That is cool. Then this is a pretty broad question, but how does the Amos Butler Audubon Society protect native birds and encourage residents to engage with birds?

AB: So as far as encouraging residents to engage, we usually have monthly programs where some speaker will come and talk either about their visits to different countries for birding or if they have a recent study about some new bird behavior or something. Every month there will be a presenter and then there's usually, every couple of weeks, some kind of hike. I think we do run a bird festival at Eagle Creek. We also have provided grants for research projects at like IU through Birdathon. There's multiple different studies. We will help by buying properties or supporting properties that are owned by the CILT which is the Central Indiana Land Trust. I think we work with Marion County and all of the bordering counties.

GZ: That's really cool! In the Lights Out program, how do you guys protect birds? Can you describe why was the program created? What does it hope to accomplish?

AB: It was originally created on the same reasoning as Lights Out nationally is: to decrease bird strikes on windows or birds getting into metropolitan areas with all the other dangers like feral cats, pollutants, windows, you know. Lack of good habitats. What we've been able to achieve is the Indianapolis Zoo, the Public Library, the City-County Building, and Newfields have all agreed to turn off their lights from midnight till six during spring and fall migration events. We're trying to push more for window treatments because that's ultimately what kills the birds. The lights cause birds to come more into the city, but windows are what they actually hit. So we're trying to focus more on that this year and we're also trying to promote that its not only the big skyscrapers, it's also the rural areas. Even just a slight bit of light is going to dim the stars that they use for navigation beacons. I think we do mention in Lights Out other general bird safe things, but we generally focus on lights and windows. We're trying to eventually get some sort of ordinance or legal policy. I think the Illinois Audubon Society or Chicago has gotten the bird-safe buildings act. New York has one. So we're trying to get some sort of legislation too, but that's a process.

GZ: It's really exciting that you guys are considering all that. In the research that I've been doing, it is one of those things where reducing light pollution is incredibly valuable. But even if you do reduce light pollution, you're still going to have bird strikes during the daytime if you don't have bird-safe building standards that promote window treatments and it doesn't actually eliminate the actual threat killing the birds. So it's great you guys are trying to address that too, although that is definitely an uphill battle. It's so much harder to, say, treat the glass than it is to, say, turn your lights out.

AB: I guess I should mention, too, we do surveys too for birds that strike. So we have hands on the ground to like pick up birds and donate them, if they're dead, to the Eagle Creek specimen collection. We'll record what building they hit, what direction, what day, the time of day. And if they're injured, we'll transport them to a local wildlife rehabber. We're trying to collect all that data and see which buildings are the biggest perpetrators of bird deaths. Just keep track of the general trends, but we're only getting the tip of the iceberg of how many birds are actually hitting just because of scavengers or cleanup crews and you know, all that.

GZ: I work downtown, so I do see some of the strikes occasionally, and sometimes again it's half-eaten because of the local pair of Falcons. You'll see a wing or a head. OK. And then you kind of mentioned this with the surveys, but how can people get involved in Lights Out Indy?

AB: So right now, I think I have 8 or 10 volunteers signed up. We don't have that many, but it's really only me and like two other people have been able to get out. So we usually get at least a couple days every week for survey times, from April 1st to May 31st in the spring and in the fall we survey from August 15th to November 15th just because it's more drawn out. The birds are taking their time to get back, they're not rushing as they are in the spring to their breeding grounds. But yeah, I think at IUPUI somebody there is trying to start a survey. So we're trying to get that more covered and I'm hoping to actually do training sessions instead of just, hey, if you can do it, we'll like try to figure out a day to meet up. I'm

going to try and see if I can just have a couple every week. Before or even during training sessions so we get more people actually out there surveying. We'd like to get more volunteers and if we can find like some law student or something to write up a proposal, because I still am not very skilled, and figure out how we actually get something to happen.

GZ: Yeah, it's definitely the kind of thing where you kind of need somebody that knows what that legislation should look like.

AB: Yeah, how to write it up. We were able to get the balloon release to not happen at the Indy 500 last year. We were part of the collaboration with the 500.

GZ: That's great, yeah. So this next question really was asking whether Indy has any legislation focused on making buildings more friendly – so, are there any light pollution laws?

AB: There's a voluntary thing called Thriving Buildings that I think buildings can report how much energy usage they have. I think eventually it might be mandatory, but as of right now I don't think so. I mean, there might be a building code just for in general environmental, but nothing specific to bird strikes.

GZ: Yeah, so I talked to another person that's a developer down in Indy. He was saying that maybe another solution, instead of having a specific bird safe building regulation, might be like trying to either do a requirement or incentive-based thing around LEED certification. [Affirmative] I know the LEED program has a bird safe component that you can opt into, I'm just not sure though. I haven't seen anything with Indy currently requiring LEED which is sad because that's even broader. You know it would combat climate change too. But if you're not aware of any, I haven't found any either.

AB: Yeah, just approach buildings like about turning the lights off, you're gonna save a bunch of money. It's unnecessary to have the lights on.

GZ: The big thing I wish we could do more about too is car dealerships. Those are especially bad. I mean like I live up in Muncie and on the drive into Muncie there are car dealerships all down the road. You know they're bringing birds into areas where more windows are present and it's wasting so much energy too. It's just horrible.

AB: When I mention that they usually claim security.

GZ: It's always security. Yeah.

AB: You don't need that much light.

GZ: Yeah, especially since some of these buildings also have security. They have security officers and people on duty. So if you had a system where you have sensors for motion, well, then it comes on when somebody is present, and then you have a security guard there. It makes more sense. OK. Next one is, is it important for homeowners to reduce building collisions or is it mostly an issue with high rise buildings?

AB: I think the high-rises are the most visible, but I think homeowners can help as well. We want to try and push that. I mean, most of the strikes probably do occur in more like rural areas because the, I mean, the big cities are more visible, people are going to actually see

the birds. But as far as bird strikes, they're more spread out. It's not localized like that. I mean, it doesn't help, but yeah. Yeah, I think anything homeowners can do to reduce light will help.

GZ: Yeah, I think that's definitely true. Do you know if the Amos Butler Audubon Society has any resources for homeowners that do want to reduce threats to birds? Where could they find out how to make a difference?

AB: If you just look up Lights Out Indy, it should pop up to our page on the Amos Butler site and I believe we have links. Let me see if I can just send you that link.

GZ: OK, that'd be great. Because I did see a study that was looking at the distribution of strikes and they estimate, I think it was at least 60% of strikes are on residential buildings that are one or two stories. [Affirmative] It's just it's one thing that I've talked to so many people about that are like, yeah, but it's not a problem. It's not really a problem unless it's a skyscraper and you see the skyscraper, but you don't notice. I grew up in a suburb in the woods. Birds hit the windows all the time.

AB: A lot of it's just reflected habitat, if you just have like a small building but you're reflecting the whole woods, you'll get bird strikes. So yeah, there's our website and we have links to research articles and the American Bird Conservancy has a little packet that outlines not just lights but like other bird safe practices.

GZ: Yeah, that's fantastic. I do wish there was also some kind of local funding for it because I know we do funding sometimes for other things. There's occasionally neighborhood grants for maintaining your house and making it look nicer. And yeah, that kind of community-based funding.

AB: If we can get some HOA's involved, they're sticklers about stuff, you know.

GZ: It would be great if there were more funding options for people to even just get those little appliques and things for their windows. OK. And then last two questions. The first one is kind of just about your personal experience. So do you personally take time to stop and appreciate birds? Do you think the average Indy resident does?

AB: I mean, I absolutely do. I mean, that's my main hobby, especially now. I just get antsy for spring. In April, I'm all over the place, not just birding, herping, or foraging. I'm all over the place. I think Indy has a general, I mean, every time I bring up birds like in Indy, somebody's like, asks me questions. I think COVID kind of increased that cause everybody was staying indoors, so all they could do is look at the feeder. You know, birding has become more of a cool thing to do because it used to just be that I was the only kid in my school or only person like under 65 that would show up at these meetings. But no, I think the general Indy resident appreciates nature in some respects.

GZ: And I think that based on some of the conversations I've had with them, I talked to somebody at Visit Indy, the Tourism Department, and the Planning Department, even people that aren't birders are noticing birds a lot more in the last few years. Some of it may be because of the White River clean-ups. [Affirmative] Like there's Bald Eagles back in Indy. One woman was telling me that there's an owl in Irvington that she loves watching and she

has nothing to do with birds, but I think it changes people's perspective when we do make small differences. When we clean things up, we see larger birds coming back. I think sometimes seeing a larger bird is a gateway for people to enjoy smaller birds.

AB: I mean, recent studies said that being out in nature, hearing birdsong, increases your mental health. Morale would be improved.

GZ: All right. And then the last question, do you think there are ample opportunities for residents to learn more about birds and the threats facing them in Indy? Where would you go if you did want to learn more about birds?

AB: I mean, Eagle Creek is always having some sort of either a kids event or some like hiking thing. There's a couple meet up groups that are organized around hiking. And there's probably a couple of counties that don't have a division of National Audubon but I think there's plenty of opportunities. Whether it's just a weekly bird hike or the state museum, there's definitely some green space downtown, even Military Park.

GZ: Definitely. Well, I think those are all the questions that I had. Thank you for answering all those. It was great to learn more about that program and a lot about what you guys are doing. I hope that it goes well. I'm actually moving down to Indy this summer, so I'm probably going to join the Audubon Society. I'd love to go to the events and things I see on social media, so you might see me there. But I did want to ask, this project will wrap up around November, would you be interested in getting a copy of it when it's done?

AB: Yeah, I'd love to hear more about what you do.

GZ: Alright, perfect. Well, unless you have any other questions that wraps it up for us!

AB: All right, sounds good.

GZ: Alright, thank you. Have a great rest. Of your day!

AB: You too, bye!

Interview with Ashlee Mras

Position & Organization: Operations Manager for Heritage Interactive Services; formerly Project Manager for the City of Indianapolis Office of Sustainability

Date: February 28th, 2023

*Interview was conducted over lunch, so a recording was not taken. Notes are available below.

- What organization do you currently work for? What is your position in that organization?
 - Heritage Interactive Services – byproduct management company
 - Help manufacturing companies manage their waste with respect to cost and sustainability (ex. J.M. Smucker)
 - Operations Manager
- What is your educational background (i.e. what did you study in school)?
 - Purdue University – Bachelor’s in Wildlife with a Minor in Biology
 - Green Mountain College – Master of Business Administration with a Sustainability Focus
- You mentioned that you currently live in Carmel, but did you previously live in Indy? Do you visit Indy regularly/are you familiar with it?
 - To work for the City of Indianapolis, you need to live in Indy
 - Ashlee moved to Carmel 2.5 years ago – previously lived in Indianapolis
 - Grew up in Lawrence
- How did you initially become interested in the environment and sustainability?
 - “Animals were my driver. I was always interested in animals as a kid.”
 - Ashlee recalls bringing animals, like mice, into her childhood home and having weird pets (like sugar gliders)
 - Thought she’d be a vet, but didn’t enjoy working in a veterinary office
 - Always around sick and sad animals
 - Decided to go the science route, but didn’t want to work in a lab
 - Wildlife degree matched her interests because it focused on the whole system, rather than studying a small part of it
 - Worked in a human environmental modeling analysis lab at Purdue
- Tell me more about your previous work for the Indianapolis Office of Sustainability.
 - Ashlee was one of three founding members of the Office of Sustainability
 - Friend of a family member worked for the Department of Public Works and recommended that Ashlee take the recycling coordinator job
 - Fresh out of college; needed a job to care for her family
 - Office was formed in 2008
 - Ashlee worked there for seven years
 - As recycling coordinator, she had to understand the City’s recycling program, coordinate with vendors, etc.

- Often tasked with working in public-private partnerships
 - Sought out private partners, identified grants, and started sustainability-focused programs to make a difference
- Can you tell me about BirdIndy? What was the program? Is the program still in place? If not, do you think it should come back?
 - BirdIndy was a public-private partnership made possible through foundation money, collaboration with the Amos Butler Audubon Society, and a federal U.S. Fish & Wildlife Service grant
 - Multiple components to BirdIndy
 - Physical installation of swift towers, etc.
 - Indy Birding Trail Guide (published notebook)
 - Identified sites for birding throughout Marion County with hours, amenities, common birds, and habitat descriptions
 - Signs at each site would identify the location with a unique # ID, also featured a QR code to direct people to a birding trail app
 - Kits in local libraries
 - Box approximately the size of a footlocker
 - Contained drawstring backpacks with BirdIndy logo, binoculars (20-40 per kit), a field guide to birds of Indiana, bird squeakers, and a binder with additional information
 - Intended for teachers or community groups interested in running a birding event for kids
 - Goal of BirdIndy was to encourage people to engage with birds by providing helpful resources
 - App doesn't work anymore, but birding guide is still available on Amos Butler's website
 - Office of Sustainability isn't paying to maintain the app
 - Signs may not be in the parks anymore; QR codes may not work anymore
 - Unsure if parks still have printed copies of the pocket-sized Indy Birding Trail Guide
 - Maybe something I can investigate when I visit them
 - BirdIndy should be brought back
 - Possibly incorporated with the work of VisitIndy because of the tourism benefit of birds
- Why do you think it's important for cities to be bird-friendly?
 - Birds are an indicator species
 - "You may have heard that a quiet forest is not a healthy forest."
 - Having an awareness of birds and the different types of birds is healthy
 - Birds are a gateway species for getting involved in nature
 - People may change their behavior if it's connected to a bird or other animal

- In what ways is Indianapolis currently bird-friendly? How does the city support birds and other wildlife?
 - Ashlee is no longer as involved in how its happening or being promoted
 - Reconnecting to Our Waterways (ROW)
 - Encourages people to interact with their environment (i.e., water)
 - Ashlee helped with its organization several years ago
 - Trying to “cross-pollinate;” get different environmental issues and initiatives connected throughout the city to make a larger impact
 - Lilly used to remove honeysuckle from riparian areas
 - May not be doing so anymore
 - Need to focus on removing invasives if we’re planting native plants
- How can Indy do more to protect birds and encourage residents to engage with and enjoy birds? Any specific recommendations?
 - Having outreach is important
 - Indy must develop public-private partnerships everywhere
 - Encouraging residents to enjoy birds outside of parks (e.g., in their own backyards and streets)
 - Incentivize developers to follow LEED standards
 - Balance public safety with environmental issues, such as light pollution
 - Consult with public safety departments and experts
- What stakeholders would you engage in this conversation? Which responsible parties should be involved in implementing change? Any ideas for strong partnerships?
 - Department of Metropolitan Development and Code Compliance
 - Need to get both long-range and land use planners involved
 - Support incentive programs and expedite approval process for companies interested in installing bird-safe implements
 - Public safety
 - Get recommendations from experts in these areas
 - Parks and nature preserves
 - Public-private partnerships
 - Get people motivated; can get a lot of change done
 - Nature Conservancy
 - Keep Indianapolis Beautiful
 - Most Keep ___ Beautiful organizations aren’t funded by their respective city; KIB is funded by the City of Indianapolis – has a huge operating budget
 - USFW grants
 - Funding is huge; can’t do a lot without funding

Interview with Phillip Weldy

Position & Organization: Stewardship Specialist for the Central Indiana Land Trust

Date: February 28th, 2023

PW: Oh, hey, Genevieve!

GZ: Hi, is this Phillip?

PW: This is.

GZ: Alright, great! Well, it's nice to meet you, even if it's just over the phone.

PW: Ha ha. Likewise! Hopefully it's all coming in clearly and you're not hearing too much background noise.

GZ: Yeah. No, it sounds great.

PW: OK, cool.

GZ: All right. So, again, I really appreciate you taking the time to chat with me today. Just as a recap, I'm a grad student at Ball State and doing this project on whether or not Indianapolis is a bird-friendly city. Essentially, it's like a thesis. It's a creative project, but akin to that. I thought that a really important part of that would be getting some feedback from stakeholders, people, you know, involved in parks, nature preserves, that kind of scene down in Indy. Before we actually start with the questions, is it all right if I do record you and quote you?

PW: Oh yeah.

GZ: OK, perfect.

PW: Yeah.

GZ: I had to set that up. I was like, I've never recorded a phone call before, but I'm sure there's a way.

PW: So, what was the solution?

GZ: Yeah, I've got you on speaker and then I've got, like, a microphone that you can record audio with in front of the phone. So maybe not the most tech savvy solution, but it's working.

PW: There you go. As long as it's working.

GZ: Alright, and then did you have any other questions before I kind of go into the ones I've planned out?

PW: No, let's start with yours and see where it takes us.

GZ: All right. OK. What organization do you currently work for? Or who is your primary employer?

PW: I work for Central Indiana Land Trust. We are a nonprofit land conservancy, and we basically protect high quality natural areas in the central third of Indiana.

GZ: All right.

PW: And we're based out of Indianapolis.

GZ: Got it. And then what is your official title for the Central Indiana Land Trust?

PW: I'm the stewardship specialist. I'm one of our three-member stewardship team. We are the ones that actually restore and protect the reserves that we have.

GZ: Alright. Very neat! So you do a lot of fieldwork then?

PW: Yeah. 80-90% of my job is fieldwork.

GZ: Oh wow, that's really cool. And then do you serve on any boards or volunteer for other organizations in your free time?

PW: None that are environmentally related. I serve with Habitat for Humanity, but I don't know if that's pertaining to Indiana being a bird-friendly city.

GZ: OK, cool. Yeah, I mean, that's neat though.

PW: It's all connected but.

GZ: Yeah, that you kind of are both working with housing issues but then also with environmental issues. It's really cool.

PW: Yeah, that [inaudible]. Yeah.

GZ: OK. And then what is your educational background?

PW: I graduated from Purdue with a Bachelor of Biology, Environmental Biology and Ecology.

GZ: All right. Very neat. OK. And then do you currently live in Indianapolis? And roughly how long have you lived here?

PW: I do for going on four years now.

GZ: Four years. All right. OK. And then, kind of more generally, what is the central Indiana Land Trust? When was it established? And what are its main goals?

PW: I guess we're sort of young and I guess it depends on how you look at it. But we were established 1990 as a volunteer-led land trust with our goal being to protect high quality natural areas. Our scope has kind of grown and now we do the full third of the state, but we're basically looking for areas of conservation value that we can protect.

GZ: Yeah, yeah.

PW: Let nature be nature.

GZ: It's really cool that you guys are focused on Central Indiana because it is such an urbanized part of the state. So yeah, really neat to try to find that balance and still preserve some of those areas, even around Indy or in Indy.

PW: Yeah, there are a lot of little gems if you know where to look.

GZ: And then, related to the Central Indiana Land Trust preserves, how do you guys actually acquire properties?

PW: There are several different ways land can be protected. So for our nature preserves, they're commonly purchased at appraised value. Or they are purchased at a bargain offer. So, part of that purchase price is donated in essence, or full donation. Actually, Oliver's Woods, the one that I mentioned in Indianapolis, I forget the term, but Oliver had already passed. He left this property in his will, so it was fully donated.

GZ: So, you said you have, was it three preserves that are actually in Indianapolis?

PW: Yes, we have three preserves. And what I didn't mention is that there's another way that we are conserving land in Indianapolis and that's through private owner conservation easements.

GZ: Oh, OK.

PW: We have a few more of those too, but the ones that we actively manage are the three preserves.

GZ: Got it. OK. With those privately owned ones, I'm guessing it's like an easement for Public Works where the private owner still owns the property, but it can be used for conservation and managed for conservation?

PW: More or less so, yes. The private owner still owns it, and it's kind of like a sharing of rights and responsibilities. The owner of the land gives up the right. For all of our easements, every easement is a little different, but we won't take it unless they cannot subdivide the land anymore or build/develop it in that way.

GZ: Got it.

PW: After that, it's kind of an agreement between the landowner and us. If they want to do timber harvesting or not, hunting or not. But it's still privately owned land and it still gets sold and as private land, like if they want to sell land or sell to another privately owned person.

GZ: Got it. So then, you mentioned there are three preserves that are more traditional that are owned by you guys. What are those three preserves that are in Indy?

PW: So, Oliver's Woods Nature Preserve, White Owl Conservation Areas, and then White River Bluffs. They all have in common that they're along the White River.

GZ: Uh huh.

PW: That's kind of the main, I guess, feature that the Central Indiana Land Trust is protecting. It's that land along the river.

GZ: I mean that's really important land. It's a riparian corridor. And I've been doing a lot of research on just how important the White River is to Indy and Central Indiana's habitats. So, really cool that you guys have preserves along there. OK. From your perspective, why is it important to designate nature preserves in urban and suburban areas? Why shouldn't those just be pure development?

PW: For nature's sake, it's really good for them to have a place, for animals and plants to have a place to be. The leading cause of biodiversity loss is habitat loss. These places are important for fostering the animals and life, really. Especially in a city where there are not a lot of places for wildlife to go. I think specifically for Oliver's Woods. It's a hotspot for migrating birds. Being on the river and one of the wildlife islands in Indianapolis. It's good for these birds to have a spot to kind of rest as they migrate North or South. You can look at the human aspect too. I can't actually quote the science, so if you're interested you can do some more research, but I think studies are showing that the more people are outside, the higher the quality of life. They experience mood boosting or exercise opportunities. So, for human wellness, it is good to have spots like this. As a person who likes nature, I definitely appreciate having that. There's a wildlife aspect, but being in an urban area, there's also a human aspect that comes to the front.

GZ: Definitely and I have seen some of that research too. They're finding that even bird song can improve mental health, like reduce anxiety and depression in participants in different research studies. Tree cover and vegetation also impacts mood. It's really neat. I definitely think it's important to have preserves like this.

PW: I believe it. That's pretty cool.

GZ: Yeah, I know it's great. It's really neat. It's definitely emerging research – pretty recent stuff, but it's great to be able to quantify some of that too that. They're that they are researching it and trying to figure out how can we actually show this. You know, provide evidence. But I think it's something we've known for a long time. People love being outside, right? So, then, can you tell me, with those preserves, are they open to the public or are certain ones private? How does that work? Could you visit the ones that are in Indy?

PW: Yeah, so it's a little bit of everything. Of the three preserves I mentioned that are in Indy right now, just Oliver's Woods is open to the public.

GZ: Got it. OK.

PW: But it is more due to access issues than anything else. We are hoping to open White River Bluffs at some point in the near future once we get a trail on that.

GZ: Got it.

PW: Each preserve has its own personality, I guess. The White River Bluffs is on top of an about 80 foot bluff along the White River. There are hazards to just have people go without having a defined trail. We're working on that. And of course, there's always invasive species that need to be removed before that will be opened. Yeah, Oliver's Woods is fully open, and one of the perks of being along the river is that there are many options for people to come to visit this preserve in particular. Not only is it a good migratory bird hot spot, so for

birders who are interested in the spring and fall, it's great. But we also have a canoe launch, so we have river access. People can come and bring their canoes and kayaks and access the river that way. There are a couple of good spots north of the river from us and we're kind of the southernmost publicly accessible spot. We also partner with Indy Park and have a mountain bike trail that was already in existence before we came to hold the property. There's mountain biking trail on half of this preserve too. Definitely publicly accessible and there's a lot to draw the public here.

GZ: Yeah, that's really great.

PW: Another thing that makes Oliver's Woods and soon White River Bluffs a little different than our other preserves, which are mostly just land for nature, is that these are good encounter points for the general public. Oliver's Woods is basically our educational preserve where people can come out and see the Bald Eagles nest and go touch the river and kayak in it. They can view the birds. As an organization, we've been more focused on how we protect nature, but we're also slowly shifting to how we can bring people to nature and also into the mission of protecting nature.

GZ: Yeah, that's fantastic. Because I mean, I think that engaging people is a really important part of any kind of park and nature preserve consideration. The more people actually go and see and touch nature and feel it, the more they probably are going to care about it too and care about making it better and protecting it. But it's interesting as well that you're also taking into consideration the preserve. You know, is it good for the preserve itself to have people there yet. I think that's important as well. You don't want people walking into and trampling everything.

PW: Yeah, that is a concern. That's why the trails are really important because they allow access while minimizing the impact. We have a few preserves that are more remote, that have more threatened species or sensitive habitat.

GZ: Can you briefly talk about what you do to actually maintain those preserves? It's a really interesting position that you have and I'd love to hear a little bit more about that.

PW: Yeah, certainly. A lot of it is habitat restoration and habitat management. A lot of what is in basic management. So, we take out honeysuckle and autumn olive. We're removing these invasive species so that we can bring in native species that will revitalize the local ecosystem. So, not just the plants that we're bringing in, but those plants will hopefully feed the insects, which will hopefully feed the birds. It's all connected. As we bring in more natives, we see other natives pop up and we see more wildlife thriving on our preserves. Yeah, it's really cool to see. You just take out all the honeysuckle and suddenly there are a whole bunch of spring ephemerals the next year that you did not see before. That actually was one fun observation we had at our White Owl Preserve. About three years ago, we removed a section of honeysuckle. Almost immediately, next spring, there was a whole bunch of Dutchman's Breeches.

GZ: Oh, that's fantastic.

PW: I've never seen that many. So, it's was like, "Wow, it works! There's a reason for it."

GZ: Yeah, that's so cool.

PW: But also, in cases with honeysuckle at our river preserves. I believe the story goes that honeysuckle was brought in and encouraged to be planted as erosion control. But what happens is it actually negatively impacts erosion. Nothing grows under it. Basically, along all of our river frontage, we're working on and taking out all the honeysuckle and planting natives like Dogwood and Redbud. On the Oliver's Wood section, the most stable section of the bank is where we removed all the honeysuckle.

GZ: Oh wow.

PW: So yeah, it's for wildlife, it's also for erosion, why we are removing invasive species. Invasive species is a big one. And then planting other natives is another large section of what I do. Outside of town, we planted about 30,000 trees since I've been here.

GZ: Oh wow, that's crazy.

PW: So, we're reforesting areas and those are more of buffering our high-quality areas that are elsewhere. There's not much room to buffer in the city.

GZ: Yeah, yeah, a little more compact. That's really neat, though.

PW: But then yeah, as far as me, I do a little bit of everything at some point, but that's what I'm mostly doing, managing the habitat. Oh, and also I guess maintaining our infrastructure, our trails and canoe launch. If a tree falls on a trail, I'm one of the ones that comes and gets it off the trail. Signage repair, things like that.

GZ: Well, that's fantastic.

PW: A little bit of everything.

GZ: So glad to have people like you out there doing that. It's incredibly important.

PW: And it's an honor to be doing it.

GZ: I've got a couple more questions. How can people get involved in the Central Indiana Land Trust? Say somebody that lived in Indy wanted to volunteer?

PW: OK. Yeah, the best way is to visit our website at conservingindiana.org. Under the Events tab, you can find all of our upcoming events and volunteer activities. Spring is a great time to get involved because it is garlic mustard season, which is another invasive. It's very easy to hand pull. Our old growth forest down in the Shelbyville area has a great infestation, so we'll be doing a ton of garlic monster pulls in the spring. But there are other opportunities in the spring too. There's trash pickup and I think we'll be doing honeysuckle stuff too and other random things. So, the events tab on the website. If a person lives near a preserve, we have a preserve steward program. It's kind of getting started. But if they're interested, they would basically be assigned to a preserve and would monitor it. They would be our eyes on the ground because we're not able to always be at all our preserves all throughout the year. It's always good to have more eyes just checking to make sure that things are good, the trails are clear, no one's up to shenanigans. Yeah, things like that.

GZ: Yeah, very neat. I've done a couple garlic mustard pulls in the spring.

PW: Yeah, so you know what I'm talking about.

GZ: Yeah, it's satisfying too. It's fun to get a big trash bag and see how many you can grab.

PW: That's awesome. Thank you for your service. We need volunteers for that.

GZ: Alright. And then do you personally take time to stop and appreciate birds or other wildlife around you? And do you think the average Indy resident does? Why or why not?

PW: I personally do a lot, yes. Yeah, in job and outside of job. One of my hobbies is just finding different spots around town, walking around, and seeing what I can see. For the average Indy resident, that's hard because there are a lot of different people.

GZ: Yeah, definitely.

PW: It's hard for me to imagine that a lot of people do, but also within my circles, the answer would be yes. But I'm only one slice of the Indy experience. I'm more on the northside, so I'm not downtown. I can't necessarily speak to that, but yes. From the people that I know, yes. There are enough that do appreciate being outside for a pause.

GZ: And I do think it's difficult to say. I mean, we've got parks, we've got people that visit those. But then I'm sure some people have never stepped foot in Eagle Creek Park or Fort Harrison State Park. So, it probably does depend on the person.

PW: And also, as I think about that more, it depends on what the goal is. I know a lot of people who run outside, but I don't know if they ever actually stop and say, "Huh, what bird is that?"

GZ: And then do you feel like there are ample opportunities for Indy residents to learn about birds and the threats facing them? Where would you go if you wanted to learn more about native birds?

PW: So, for where I would go first, that would definitely be the Amos Butler Audubon Society. They often have hikes that are bird hikes. Unfortunately, I don't know about them as much as I should, but that would definitely be where I would direct people to, as you know. What was the first part of that? Sorry.

GZ: Do you think there are ample opportunities for residents to learn about birds and the threats facing them? Do you think there should be more opportunities or do you think there are probably a satisfactory amount?

PW: Yeah, I guess it depends. If they were looking for the opportunities, there would be enough. The Amos Butler Audubon Society does a great job. I know there are different nature centers, like Eagle Creek has a good nature center, and there are programs that happen at Holiday Park and Eagle Creek. So, if you know about them, yes. But if they aren't on your radar, I think that it would be very easy to go by without learning anything about birds unless you sought it out.

GZ: Yep, I think that's one of the things I'm trying to figure out, maybe find a solution to or make a recommendation for. How do you engage people that go through their daily life and maybe don't notice or are unable to identify birds? How do you get them enthusiastic and

how do you teach them those basics without having to go all the way out to Eagle Creek? It's a challenge. But I think nature preserves can be a part of that.

PW: I wonder if it even starts in their backyard with a backyard bird feeder. That's just a thought.

GZ: No, I think that's – I mean, that's where I started. Yeah, I started birding with backyard bird feeders. For a lot of people, that's the way to go.

PW: I mean it makes sense because it's bringing nature to you. And then once you find out a little bit about something, you appreciate it more and you want to learn more. It kind of snowballs.

GZ: Yeah, definitely.

PW: But yeah, how do we get that snowball to happen?

GZ: Yeah, yeah, I think backyard birding has a part in it, but I think so do parks and nature preserves that are that are located around the city, near people that have opportunities like you mentioned. You know, the ability to go out on a canoe or the ability to go on a mountain bike trail. Maybe you're more recreationally minded, but while you're out there you see a cool bird and that might spark your interest too. Even things like that, opportunities to engage, are important first and foremost.

PW: Definitely. I can say, we put on a couple of bird programs about raptors and owls last year.

GZ: Oh yeah?

PW: Yeah, but we're small and only so many people can go to those events. I think about thirty? It's a small park, but yeah, definitely.

GZ: And those were at Oliver's Woods?

PW: Yep.

GZ: Oh, fantastic. Alright. Well, I think those are all my questions. Did you have anything else you wanted to mention before I wrap up?

PW: Well, I guess, for Indianapolis being a bird-friendly city. From the Central Indiana Land Trust's perspective, we're a part of the motion for providing the habitat. Then there are things like policies and the development codes that are a whole different aspect. But it's all connected and we all play our own little part.

GZ: Yeah, definitely. And I've been trying to reach out to all kinds of stakeholders. I've had conversations with planners about birds in the comprehensive plan. I've talked to the Amos Butler Audubon Society about legal policies that require any buildings to have lights out standards or bird safe building standards. Unfortunately, I think Indy may not be as strong in terms of planning for birds in particular and maybe not legislatively, but as far as habitat goes, there seems to be habitat available and people dedicated to maintaining that habitat. But even on the planning side and at Amos Butler, there are individuals that are interested in adding a bird and wildlife focus to policy and planning. I think there's progress being

made and that's been really great to hear while I'm doing these interviews. There may be weaknesses, but there are also people that are dedicated to resolving that.

PW: Yeah, that's encouraging.

GZ: And I think you've got the perspective absolutely right. It's going to require a lot of different actors, everybody taking part in this to make it a bird-friendly city. It's not just one organization that can do it overnight. Alright, well, thank you so much again for taking the time. It took a little longer than the 15 minutes, but I really appreciate the time you took to sit down.

PW: Likewise, it was a pleasure, Genevieve.

GZ: And then I will be conducting this research and probably have it wrapped up around November. Would you be interested if I sent you a copy?

PW: Yeah, I would! That would be cool.

GZ: Yeah, trying to get as many people aware of it, so that maybe it does something. That's my goal for it. Maybe parts of it can be implemented or can at least stick in people's minds.

PW: I mean, plant the seed, yeah! Awesome.

GZ: Well, thank you so much so.

PW: Likewise. Have a great day!

GZ: You too. Bye.

Interview with Emilie Sweet

Position & Organization: Interpretive Naturalist for Fort Harrison State Park

Date: March 3rd, 2023

GZ: Hello, Emilie! I really appreciate you taking the time to join me today. Just to recap, my name is Genevieve and I'm a graduate student at Ball State working on my Master of Urban and Regional Planning. This interview is part of the research I'm conducting for my creative project (essentially my thesis). This interview, as well as the others I conduct, will help me determine how bird-friendly Indianapolis currently is. A bird-friendly city is best defined as one that seeks to protect native birds and encourages the public to engage with and appreciate birds in daily life. The interview should take no longer than thirty minutes depending on how in depth you decide to answer the questions. There are no wrong answers. Would it be alright if I recorded this interview? My professor would like me to submit a typed transcript. [Affirmative.] Additionally, may I quote you in my final paper? I'd love to share your perspective, but if you aren't comfortable with that, I can keep your responses anonymous. [Affirmative.]

GZ: Alright. Well, I'll just jump into the questions that I've written out then if that's good with you. Some of these are just straightforward demographic questions to start with. So, what organization do you currently work for? Who's your primary employer?

ES: State of Indiana/the Department of Natural Resources.

GZ: And then what is your position in the organization?

ES: I am an interpretive naturalist.

GZ: Right. And then do you serve on a board or volunteer for any other organizations in your free time?

ES: No, I do not. This job takes up a lot of my time.

GZ: I'm sure.

ES: So no, I don't.

GZ: Yeah, right. And then what is your educational background?

ES: I actually graduated with a bachelor's degree in wildlife biology and conservation from Ball State.

GZ: Oh cool.

ES: Not that long ago I might add, like this past summer.

GZ: Yeah, that's exciting. It's cool that you found a job right away.

ES: Yeah, I was very thankful and surprised. It was completely unexpected that I was able to get this. It was really a great thing.

GZ: Really cool. Yeah. And then I think you mentioned that you do live in Indy. How long have you lived here then?

ES: I moved into my apartment on October 13th of 2022, so not very long.

GZ: I'm gonna move into questions that are about Fort Harrison more specifically. Do you know when the park was established and when the Nature Center was established?

ES: The park was established in 1996. I don't know when the Nature Center was established. I know that it was previously in the building that is now the Museum of 20th Century Warfare. At some point, I think within the last 10 years, maybe last 15 years, it came over here and merged with the visitor center – the park office. So, now we are the Visitor Center with the Park Office being right when you walk in the door and the Nature Center to the right. It's just kind of like a merged building.

GZ: Cool. Got it. I've actually never been to the Fort Harrison Nature Center. I've been to the rest of the park several times. Where is it in the park? Because I've been like, I think honestly, three or four times and I've never passed by the Nature Center.

ES: It is tucked away in the very back. When you come into the front gate, you can go right after you drive in and you can go to Delaware Lake, which is where, you know, the Harrison Trace Trail and everything is. Or you can keep going straight and there is a left turn you can make or you can keep going straight into where the bathrooms are and the shelter areas is, that big wide open area. But if you go left, you'll go past the Lawrence Creek Trailhead parking lot and you keep going. Go up the hill, the saddle barn is up there. If you go past the saddle barn and go left and kind of go around all of like that big, grassy open area, the parking lot for the Visitor Center is over there. It's the very last building.

GZ: All right, that explains it.

ES: Yes, definitely.

GZ: Right. And then how does the physical environment in the park support native bird biodiversity?

ES: That's a great question. We have a wooded area and we also have open area. So it just depends on what kind of birds you're talking about. We also have plenty of dead trees that are still standing, which are great for like woodpeckers and things like that. We have migratory birds that come through here, which is fantastic. We do Sunday morning bird hikes during migration and they'll see all kinds of stuff. The wooded areas are extensive and we also have nature preserves that are in place. I don't know if you're familiar with nature preserves, but they are protected. Nothing can be taken out of them. Nothing can be altered in them without going through a very serious process of making sure that everything is exactly what is outlined in the nature preserve, just guidelines that they've got for that specific one. We also have feeders at our Nature Center. We have mostly European Starlings and House Sparrows that come to it. But we do get some woodpeckers and some Eastern Bluebirds and Blue Jays and things like that. The park itself is not very big. We have about 1600 acres, 1700 acres and only 1300 of it is accessible to the public.

We also have a nature preserve that is specifically for a Blue Heron Rookery. We do have a rookery and that nature preserve is completely closed off to the public.

GZ: Are most of those nature preserves located around the outside of the property?

ES: Kind of. We have four. So we have Warbler Woods, the Bluffs of Fall Creek, Lawrence Creek, and then we also have the Chinquapin Ridge Nature Preserve. Just the Chinquapin Nature Preserve is up on the north part. It's not really like attached to the park. It's just our property. If you take Lee Rd. where it curves, that's right where that is. And then Lawrence Creek Nature Preserve is out on the western part of the park. Our Bluffs of Fall Creek and Warbler Woods are more in the northern part, so they do kind of border the park a little bit. We don't have any over on the east part, but that's mainly because we have lot and loop which is like a housing addition over there. Yeah, it wouldn't make sense to have it over there.

GZ: Got it. It sounds like you've got a lot of different things that would support birds in the area, especially given that it's such an urbanized part of Indy. I mean, you're right in Lawrence, so to have an area like that at all is really cool. Wasn't it a military base or what was it exactly?

ES: This was a military reservation for the army and it was established back in 1903, and then in 1906 to 1908, is when it was constructed. We actually had soldiers there reporting for duty during that time. So, it has a very long military history. It's so weird because we always say that Fort Harrison is kind of a young state park, but we have just as much history as all the other state parks do. We were just a little late to the party.

GZ: It's really cool that it was able to be repurposed like it is now, as like a recreation space and a habitat.

ES: In 1991, when the Fort was listed for closure, it was very quick that the community turned around and – first of all, they tried to establish a need for it, for the government to not close it. Unfortunately, that failed, but a task force was put together the next year in 1992. And Evan Bayh was the governor at the time and that's when he was like, "Yeah, sure, let's do it." And in 1996, it was established, so it was pretty quick turnaround time so that they could preserve the wooded area that was part of the Fort. You can still see a whole bunch, not just at Fort Harrison State Park, but there are buildings all over the place in Lawrence that are from the original Fort, so.

GZ: Yeah, very cool. OK. OK. And then what are some examples of programs and events that you offer at the Nature Center?

ES: We offer a whole bunch of different stuff. I can look at what I've got this month. When I do hikes, the main thing that I like to look for is woodpeckers because we've got a whole bunch of them here. But like this month I've got herptile talks, mammal talks, wildflower walks. I've got one this month and I'll probably do a lot in April, and then we just have a spring walk. Then, I have a seasonal who's fantastic with birds. She's very good at identification, sound and sight. She's much better than I am. I will admit that. She likes to do beginner's bird hikes to get people out to come out and learn about birding and things like that. She does woodpecker walks specifically. I don't call mine woodpecker walks cause

who knows what we could come across. But she calls hers woodpecker walks. That's the kind of thing we do – a lot of hikes, a lot of talks in our program room. It doesn't necessarily have to be about one specific thing. It depends on our seasonals and what they're interested in. I like to give them creative freedom on what they decide they want to teach the public about because that's what I was given when I was seasonal. I would have felt very boxed in if I was given, "These are what you're going to do." But yeah, a lot of reptiles, a lot of birds, a lot of mammals. We just like to talk about some of the animals that you can find in the park.

GZ: Yeah, very neat. And it's cool that you do have the seasonals to kind of provide some variety there. If you let people talk about what they know about and what they're excited about, then it's probably going to be a better program too.

ES: Oh yeah, absolutely.

GZ: Yeah, alright. You mentioned you have bird hikes. Do you have any other bird related programs, like do you do anything for International Migratory Bird Day? Or is it mostly just the hikes?

ES: It's mostly the hikes. I haven't been here very long. But doing something for International Migratory Bird Day would be so fun. I would definitely enjoy doing that. It might look something like a hike, though, because getting out and seeing them is the most fun part of birding. Just talking about them and listening to the calls is fun, but actually getting to see them as the best. But we do also do indoor programs about birds. I know Sarah, my seasonal, she's done a program just about Great Blue Herons. I do eagle programs on the 4th of July to talk about our bald eagle. It's a great opportunity to talk about the bald eagle and birds of prey. Other programs that are really big are about owls. People love owls and learning about owls. So sometimes we'll do night hikes and try to find some owls out there and listening for their calls.

GZ: That's really neat. Right. Does the Nature Center promote any kind of like bird monitoring programs? I know there's like the Christmas Bird Count and Great Backyard Bird Count. Do you guys provide resources on any monitoring programs?

ES: We actually have the Christmas Bird Count. On a specific day in December, people come here and do the Christmas Bird Count. This was my first year doing it so I'm gonna say this as if I've done it for years but I haven't. I will lead a group in one area of the park and then there is somebody else who leads a group in another area. I think they divide it up into three areas, so three people will lead. It was really fun. It was super cold that day, but we saw a bald eagle and that was awesome.

GZ: Oh, wow!

ES: We were so excited.

GZ: That's super cool. Well, you guys actually do participate in some of those then. That's fantastic. And then do you guys have students that come on field trips to the Nature Center?

ES: Oh yeah.

GZ: Do you know if they're from public or private schools?

ES: Both.

GZ: And then, do you know what ages or grades are visiting the center?

ES: I typically see elementary and middle, mostly elementary. But it could be anybody. I haven't specifically done a high school – I don't see why I couldn't do a high school. It's something a high school might want to do, but it's typically elementary age kids that come a lot. I really enjoy doing preschool to elementary aged kids because they're so ready to learn, and so they're so marveled by things. They think it's so cool and high school students sometimes think they're stupid. But I would love it if I could get more high schoolers here. For now, usually my high schoolers that I see are volunteers like Eagle Scouts.

GZ: Got it. That makes sense. I don't think that I went on any nature-themed field trips in elementary school. But they don't really keep that up once you get to high school, which is a little sad. I think you see a drop off in people's interest in birds. They tend to be interested in birds and animals when they're kids. And then for a lot of people it drops off. Maybe when they're older they get interested again, but I think part of that is even going on field trips.

ES: We lose it in high school. That's huge. That's a great point. That is why a lot of interests do get dropped off. I feel like they do so much of it in elementary school. Like they're exposing you to so much. I will say I don't recall going on that many field trips when I was in high school. We did go to Conner Prairie. Umm, I don't know if you're familiar with Conner Prairie.

GZ: Yeah, I used to work at Connor Prairie. I'm very familiar with it.

ES: You did! We did 'Follow the North Star.' Yeah, it scared me to my very core. I'll remember it for the rest of my life. I will never forget.

GZ: Immersive learning for sure.

ES: Oh, yeah, definitely. That's the only field trip that I recall going on in high school, honestly. Yeah, nothing else. Nothing else will ever top it.

GZ: Yeah. And then, with the field trips at the Nature Center, what do they learn about while they're there?

ES: Every naturalist is different with the way they do private programming, which is what field trips are. Some might just come up with things and do it for the teacher, and the teachers are fine with that. Some might ask the teacher what they're interested in and then come up with something on their own. I have a menu, if you will, of programs that I have mastered, basically. I can do them well, I can do them for a long period of time. I can talk and talk and talk, like I could talk forever about a turtle or a snake. I could talk forever about that, and so I offer those to them because those are programs that I think that I do well and they could benefit from. I have a bat program. I'm telling you I could talk about bats for ages, ages. So that's why I offer them that way. It's easier on me and that list will probably grow as time goes on. I'll send it to the teacher. They look over it and they tell me

which one they think would be best for their students. That includes creek stomps, which is getting in and looking at macroinvertebrates. It could also include wildflower walks, tree identification hikes, reptile talks, Fort Harrison history talks, the bat chat, bird hikes, etc. I offer a general guided hike if they wanna do a hike. That's where I'll give them freedom to decide what we do. But those are just some examples of things that I offer that are popular and a lot of people enjoy.

GZ: Yeah, very cool. So then, does it seem like teachers are integrating birds and wildlife in their curriculum for some of these students, or do they really just visit the park to learn about nature for a single day?

ES: It depends. There are some schools that do like units on things. I have one school that will come in and they have a tree identification project. They come in and they collect leaves. They do like their project and they do it with me and then they go back to school with the leaves that they collected. Then we also have like the Nature School. They are constantly outside and doing things. I actually have them coming up next month, they're going to come and do a field trip with me. It really just depends on the school. I have a kindergarten class that's here every single Monday and I do a program with them once a month. Some teachers are really into it and they really want to get them here more than once. For others, it's just an idea that they have, which is fine too. Having the idea and bring them here is the first step into getting them integrated into the parks and being able to know what's here. A lot of times what happens, especially in Indianapolis, is that a lot of kids don't even know that we're here. They've never made it to this side of town or they never had anybody to take them here. The field trips are a great resource for them to get here, and a lot of the teachers really are interested in keeping it up and continuing it, even in the classroom.

GZ: Alright, OK. Outside of programming, how else does the Nature Center facilitate learning? Maybe you could talk about exhibits, viewing areas, if you have any like animals, any themed play areas, any interpretive trails?

ES: We have a lot of what you just said. We have a bird viewing area. It's not that big. It's a bench with a window where our bird feeders are. That's really all you need to see the birds. Like I said, that's mainly starlings and sparrows that are there, but sometimes you get your nice ones that come in. We also have educational ambassador animals. We have a box turtle, a black rat snake, a red-eared slider, a tiger salamander, and a blue gill. Those are my animals that I take care of here and they're great. They're awesome interpretive animals. They do great with kids touching them and that's a huge thing. Tactile is so important. I will let kids come up and do like, a two-finger touch on their shell or their scales. Then we also have displays that are in the Nature Center that talk about Fort Harrison's history, about Fort Ben in particular. And then we also have a tree line trail, and it has tree identification signs. There are probably more than 15, maybe 20 trees through the 1-mile trail that are marked. It just kind of gives like a tiny little paragraph about the tree and what it's used for and things like that. That is how I'm able to interpret without actually being there. I'm able to get people to go out and see things for themselves. We also have interpretive signs throughout the park. They're just history signs, basically. I have

four out here that talk about Camp Glen. There's some that talk about invasives. There's some that talk about Indiana State Park history, all kinds of stuff.

GZ: Yeah, that's fantastic. OK. Do you feel like there are opportunities for all ages to learn about and enjoy wildlife at Fort Harrison? Do you think that there's any age group that's underserved?

ES: I want to say no. One of my biggest things that I really push is inclusivity. I really want all people of all demographics, of all ages, of all abilities to be able to come and enjoy the park. Our paved trail is huge. Having a paved trail in your park is one of the best ways to get more people to come because that means that people who aren't as able bodied as everyone else, or who are older, are still able to go walk in the wilderness and still be surrounded by trees. I mean, I saw a barred owl when I was walking on the paved trail one time, and I squealed and jumped for joy. I didn't even see that when I was walking on a regular trail. You know, I will say sometimes I worry that little kids don't think it's fun, but we do have a playground and swings. Like I said, our park's not that big, so there's nowhere else really for a playground to go. But I think that that helps a lot with the younger kids that they're able to go and use the playground. We have hiking and biking trails. The people who are mountain bikers can come and use the mountain bike trails. We have plenty of hiking trails as well. Both mountain bike trails are hike-and-bike trails, so they're multi-use. We have a saddle barn. We're looking for someone to run it for the season, so I'm hoping we can get somebody. If not, it will be closed for the summer. But when we do have somebody, we have horses there and people can come and ride horses. We have plenty to do. People can come fish. It's a great area. And I think that we are hitting all our boxes. I would really like an outside opinion on that though. Sometimes you have this view like, "I'm doing great. This park's doing great." Someone else, however, is like, "No, you're not." So yeah, it'd be better if I had outside opinions on that, but from what I can see, I think we do hit every walk of life, pretty much.

GZ: Yeah, it definitely sounds like it. And I think that you hit on an important point there that sometimes having those recreational amenities and having a variety of them is what brings people of different ages together. Someone in their 20s might not be into birding or wildlife identification, but they might be into mountain biking, so they might come. While they're there, they still enjoy nature. And I also think the paved trail is another big asset. For sure, yeah. All right. And then, a related question, are certain demographics more likely to visit the Nature Center or are there any demographics that are notably absent?

ES: That's a great question. The problem is, like you said, you've never even seen the Nature Center before. We're pushed all the way to the back. People who are coming to just recreate, they're not really coming up here because they're using the Harrison trails or they're walking in on Fall Creek or Camp Creek Trail. The main demographic of people that I see come in here are older people. That might be because they're staying at the inn and they came over to see the park. Staying at the inn helps cause the staff can tell them where we're at. If they have questions, they can come in and say, "Does the park have a Nature Center?" The staff can tell them, "Yes, they do." They can tell them where it is. Other people are coming in to renew their annual entrance permit or they're coming in to renew their dog park pass. They're coming in for the park office, not for the Nature Center. But it does

kind of bring them over sometimes, so they can come and look at the animals. I do get kids in here when I do my programs when I specifically outline where my programs are. But it's usually older people. I wish I could see more kids come through, more families. But I usually just see older people, which is interesting.

GZ: Yeah, I do think the location probably has something to do with that. It makes sense that people would go there if they knew a specific program was going on. But maybe it is like that. How do you get people to wander in when it is out of the way? And then some last questions to wrap it up. Do you personally take time to stop and appreciate birds and wildlife? Do you think the average Indy resident does? Why or why not?

ES: I do. My boyfriend would probably be a good person to ask this. I freak out if I just see or hear a Robin. I get excited every single time I see a bird and I try to figure out what it is every single time I see a bird. I wish I had binoculars with me. I'm watching it, listening, trying to fumble to get my phone out so I can record its call so it can tell me what it is. There's Killdeer that keep coming around my apartment, and every time I go outside, I'm like, "Killdeer! Killdeer! Killdeer! Killdeer!" And they've been there for, like, days, and my boyfriend's like, "OK. I get it! They're still out here." We have a Blue Heron that's coming to our pond outside of our apartment. I see it when I take my dogs out, we'll just watch it slowly walking. I just love it. And I would say a lot of people, maybe not Indy residents, I don't know because I don't know every person who's coming through here, if they're from the area or not, a lot of them are. But anytime I bring up a bird, when I'm out, just like walking, everyone seems really interested and they're like, "Oh, what is it?" I think that more people are interested in them than we think. It's just a matter of bringing it out of them, like kind of bringing up that side of them that they might not even know about. It's kind of like opening doors for them and being exposed to it. If you live in a highly residential area, you're not going to get any of the cool – I mean, everything's cool – but you might not get some of the birds that you see here.

GZ: And I think that a lot of people probably never learned how to identify birds. They might see a bird and they're like, "Well, that bird is blue."

ES: Right.

GZ: They may not know what kind of blue bird it is, but I think they're interested. Maybe they don't have the terminology even to say what they're looking at, or to learn about it. But that's great that you see that people are enthusiastic even when you are just walking around. Then, my last question, how can visitors continue learning when they leave the park? Are there other places they can go to learn more about birds in particular?

ES: Are there other places in Indianapolis? I mean, you have Indy Parks, you have got Eagle Creek and things like that, that people could go to to get more information. At Eagle Creek, you can go look at eagles there. I've heard that there are Bald Eagles in the area. I haven't made it to Eagle Creek yet, but I would really like to go see it and just walk around the property. But any parks are a great resource to have because they're there. I think there's a couple that are bigger than others, but it's nice to have them a little spread out throughout the city. So that is what I would say. I've met a couple people from Indy Parks that helped with the Indiana Master Naturalist stuff, so they do things like that as well. That is kind of

where I've had the connection. I just haven't actually gone there. But from what I know of them, they would be great resources to go somewhere else, to see different kinds of birds, or see the same kind of birds, but get a different perspective from a naturalist.

GZ: Absolutely, yeah. And I definitely recommend Eagle Creek. That's probably one of my favorite ones down in Indy. If you go, there's a trail around the waterfowl nature preserve. They've got a big reservoir and they have a sandbar that goes around and through it. On both sides you're bordered by water, so you see a ton of birds while you're out there and it's really picturesque.

ES: OK. Well, I will be there as soon as the weather is warm. I'm going there cause that sounds awesome.

GZ: Maybe not today when it's windy and gross. But when the weather clears up, it'll be lovely.

ES: That sounds so great. I'm really looking forward to it now. Thank you for telling me about that.

GZ: Alright. Well, that wraps it up then. Thank you again for taking the time to chat with me. And I did want to ask, when my research is done, would you be interested if I sent you a copy?

ES: Oh, yeah! Definitely. I'm very interested in in this now. I'm invested. Please send me whatever if you ever have another question or anything. I'm glad I was actually able to answer the questions.

GZ: Oh yeah, you answered them all flawlessly. Alright, perfect. Well, thank you so much. Have a great rest of your day!

ES: Thanks, you too.

GZ: And we've got spring on the way. So, there will be more nice weather and outdoor opportunities.

ES: I need this weather to move on cause my hair's not going to recover from this for a few days.

GZ: Great. Well, thank you! Bye.

ES: Yeah! Bye.

Interview with Cookie Ferguson

Position & Organization: Interpretive Naturalist for Indiana Dunes National Park; Bird Town Indiana Coordinator for Indiana Audubon Society

Date: March 3rd, 2023

GZ: Hello, Cookie! I really appreciate you taking the time to join me today. Just to recap, my name is Genevieve and I'm a graduate student at Ball State working on my Master of Urban and Regional Planning. This interview is part of the research I'm conducting for my creative project (essentially my thesis). This interview, as well as the others I conduct, will help me determine how bird-friendly Indianapolis currently is. A bird-friendly city is best defined as one that seeks to protect native birds and encourages the public to engage with and appreciate birds in daily life. The interview should take no longer than thirty minutes depending on how in depth you decide to answer the questions. There are no wrong answers. Would it be alright if I recorded this interview? My professor would like me to submit a typed transcript. [Affirmative.] Additionally, may I quote you in my final paper? I'd love to share your perspective, but if you aren't comfortable with that, I can keep your responses anonymous. [Affirmative.]

GZ: Alright, so what organization do you currently work for?

CF: Well, actually, I am a Ranger at the Indiana Dunes National Park right now.

GZ: Oh really?

CF: Yes, I'm in interpretation. So I do all kinds of different programs. At the moment, I'm a seasonal, so I'm not actually technically employed right now, but I am doing a volunteer birding program which has been meeting once a week through the winter time. I hope to continue that until I get full time at park again. I am Secretary of the Dunes Calumet Audubon Society, and I am on the Board of the Indiana Audubon Society. So that's a little background plus I'm on the board of the Indiana Master Naturalists and I am also part of the Indiana Native Plant Society.

GZ: Oh wow, that's fantastic.

CF: I'm a little busy.

GZ: So yeah, I can tell. That's really great though.

CF: They kind of all go together honestly.

GZ: Yeah, honestly, it sounds like they would. So, you said Dunes Calumet Audubon Society, Indiana Audubon Society. What were those other two that you mentioned as well?

CF: The Indiana Native Plant Society. They're based out of Indianapolis. I am Vice President of the north chapter. They divide the state, I think into maybe 8 or 9 chapters. I am part of the north chapter, or northwest because that's where I live.

GZ: Got it. And what is your background? How did you get into this field? What did you study in school?

CF: Oh my goodness. Way back when, I went into teaching. When I started teaching, I had all my credentials in kindergarten. I went for a job and they said, "Well, we have a 6th grade class that hasn't had a full-time teacher since September. So would you be interested in the 6th grade?" I thought, oh boy, that's way out of my field. But at the time, I was K-8 certified. So I said, "OK." Well, it took about a week to figure out that first graders and 6th graders are a lot alike. You know, in a lot of different ways. And so I spent 30 years doing that. So I had a teaching background and that kind of led into the interpretation. Oh, I'm also part of the National Association for Interpretation, the NAI. I took that course and finished that.

GZ: OK.

CF: But what really pushed me out was the Indiana Master Naturalist program. I started that in around 2010. It is a 10-week program. Each week, you go wherever you're doing your program. I did mine in Elkhart, and we met at a different county park or city park every week. And we studied water, we studied birds, we studied plants, we studied, you know, amphibians, herps. We studied each of those. We got manuals on each of those. And then the best part of that program, and I would recommend it for anybody that has time, the best part is that you then have 30 hours of volunteer time in order to get your certificate. So you go either to where you took the course or you go to a state park, which is what I ended up doing. And you say, "Hey, I have 30 hours. What can I do?" I got to know the naturalist there, Brad Bumgardner, really well at the Indiana Dunes State Park. And he was an avid birder. He had been birding forever, and there was no way you could work for him and not learn birds, period. You know, that started the whole thing and I'm still working with him today. Now he's not at the state park anymore. He's the executive director of the Indiana Audubon Society.

GZ: Oh, OK.

CF: So basically, that's how I got started. I worked at the Indiana Dunes State Park for about 6 or 8 years. I volunteered there. They hired me, I worked there, then took a couple years off to help a friend get started with another business. Then, the National Park called and said, "Hey, you do birds, you interpret, you do programs, a lot of people know you. Would you come work for us?" So, the last three years I've spent working at the National Park level, which has been a great experience.

GZ: Yeah, that's fantastic.

CF: It's been a great ride. I can't complain at all.

GZ: Yeah, I actually, I studied elementary education for a while when I was in high school and then when I was in college. I do really enjoy engaging with kids and I love helping people learn. That's just such a fun thing to do.

CF: Well, that's what the teaching does for you. That's what it did for me. You know? And so it was just natural. When I learned something, I was able to tell other people about it, to spread the word. I think that's really important, especially in this day and age because people can't get their faces out of their phones. A lot of kids don't go outside. I worked with a lot of kids at the Indiana Dunes State Park. I ran the camp program for four or five years there, summer camp. There would be parents, school groups that would come and parents

would chaperone, and they'd say, "No, don't touch that. It's dirty. Don't get your hands on it. Don't touch the leaves. Don't touch." And I think it's just really important. Kids do touch things and kids do get outside and parents take them outside, you know. As bad as bad as COVID was, it did get a lot of people outside.

GZ: Yeah, absolutely. I taught in a summer camp during COVID and that was a challenge. We didn't want to spread anything, but also it was really important for kids to actually be outside and still engaging with each other, even if it was a little different than normal. It was a really rewarding experience to still have that opportunity. And I know that it was rewarding for them to still socialize and to still get out there and do things during the pandemic.

CF: It's really important because today people don't know how to talk to each other. They do a lot of e-mail. That's one thing. But I know that when we were interviewing for other staff members at the state park, one or two or three of the people they interviewed wouldn't even look at the other person. They would look at the wall behind them. They just didn't know how to talk to people. You know, we're losing that skill. We really are in general.

GZ: It's an important skill to have, for sure, yeah.

CF: So, when do you bird?

GZ: Right now, with grad school, only really on the weekends when I have time.

CF: Are there good places near you?

GZ: I usually go down to Indy, especially Eagle Creek. I live in Muncie right now, so sometimes I'll try to go to new places that are around Muncie, like Summit Lake State Park and Ouabache State Park.

CF: Eagle Creek, yeah. OK. Ouabache. You've got to go to Pokagon.

GZ: Oh yeah, I went up there a summer ago and that was lovely.

CF: OK. It's wonderful. Yeah, a lot of history there too.

GZ: Yeah, I gotta go back there. Yeah, I was surprised by that. I grew up in Central Indiana and that was one that I hadn't even heard of. But it's gorgeous up there. I think most of my friends that live down in Indy still don't know about it. I need to bring them up there.

CF: You know we have 35 state parks, and each one is different. Each one has a different history. Each one is a different landscape. You know the kettle lake, oh, the middle state park. Then Pokagon has all the history there with all of the things that were built by the CCC. You have to get to the Dunes. The Dunes is a wonderful place. The habitat there is amazing because of the glaciers leaving us so many things. The Indiana Dunes National Park is the fourth most biodiverse area in the whole United States. There are only three national parks that have more biodiversity than Indiana Dunes.

GZ: Wow, that's crazy. Yeah.

CF: It is crazy. The first is the Grand Canyon because it's a mile deep and it's, I don't know, a million square miles. The Smoky Mountains, and then the Cascades out in the West, in Washington. And then Indiana Dunes National Park. 22,000 square miles – that's it. Teeny. Right around the lake. It's gorgeous. Great birds.

GZ: Wow. Oh yeah.

CF: It's on the birding flyway.

GZ: Oh, really? Interesting.

CF: We get about 400 species.

GZ: I did a camping trip to celebrate when I graduated high school. I took three friends, and we all went and camped up at Indiana Dunes.

CF: Did you? Did you go to the State Park or the National Park?

GZ: I think we went to the State Park? I don't think the National Park had been established yet?

CF: Well, it was a national lakeshore. It became a national lakeshore in 1966.

GZ: Oh, OK.

CF: There's only like 4 national lakeshores left, and they wondered why we wanted to be a national park instead of a national Lakeshore because it was kind of a unique thing. But it's made a big difference being a national park. But we have a campground, a big campground. There are no facilities there, though. Just bathrooms and showers, but no electricity.

GZ: Yeah, yeah, definitely. It was gorgeous when I was up there. I can't remember what the trail was, but we went up the-

CF: The Three Dune Challenge!

GZ: Yeah, the Three Dune Challenge. Yep, that's the one. And it was a challenge! It was more difficult than we were thinking.

CF: It is, isn't it? Did you get your stickers?

GZ: No, we didn't get the stickers, no.

CF: Oh, no! You didn't get the stickers? You have to do that.

GZ: Yeah, I guess I'll just have to go back.

CF: You will, absolutely.

GZ: Alright, so then, do you currently live in Indy or elsewhere? Which part of Indiana do you live in?

CF: I live up in the dunes.

GZ: You live up in the dunes, okay.

CF: I live right outside of New Buffalo which is on the Michigan-Indiana state line right on Lake Michigan.

GZ: OK.

CF: I'm about 25 minutes from the park.

GZ: Got it. Alright. And then I've got some questions about the Bird Town program. Can you just describe it briefly and if you know, when was it established and why?

CF: You know, I don't know exactly when it was established. There are about 20 towns across the state of Indiana right now that are involved in it. It was established so that towns, as they were developing, would make areas for birds and think about urban development and native development. We push native plants, we push park areas, green areas. We tried trying to get rid of some of the invasive things that are around, you know. We're trying to get towns to establish marshes. That sounds funny to a lot of people, but marshes are important places. Number one, about 80% of our bird population needs marshes, mostly for food. You get your birds that walk through the shallower parts and, of course, the ones that swim through the deeper parts. Some of them get their food from the bottom, so it's important to have those. Marshes are one of the only places that will filter some of these toxins that we have going through our water systems through the settlement of different things. Our native plants are very good at getting rid of that with the cost not being near as much as trying to build some sort of filtration system. It's a good thing. There's a national push now. I don't know if you're familiar with it, but it's called Bird City.

GZ: No, I don't think so.

CF: We've kind of backed off on it a little bit. I can send you the gal who has kind of been in charge of Bird City, but they meet about once a month and they are trying to get together some policies so they can establish bird cities throughout the United States. The Indiana program is modeled after the Wisconsin program. The person I worked for, Brad Bumgardner, I think he was the person that pulled the Indiana Bird Town situation together and started that. Have you looked at the application and different things?

GZ: I have. Part of my research involved taking your criteria and criteria from Timothy Beatley, he wrote a book called the Bird-Friendly City that came out in 2020. I created my own scale using elements of both of those sets of criteria that I'm using to judge Indianapolis. So I have reviewed all of the criteria for the Bird Town program just to see which things Indianapolis should be looking at.

CF: Yeah, it's a big sprawling city. It needs to have those green areas. They're so important. You know, awhile back, I can't remember if it was in Indianapolis or not, but we had a special goose that came through to the wetlands. But it ended up getting hit on the highway. We need those areas, not far from urban, but we don't want those animals pushed out. You know what I'm saying?

GZ: Yeah, definitely. And there needs to be safe ways for animals to get through to access these areas as well. That's the big thing for Indianapolis. There are highways winding their way all throughout the city. So that's why sometimes it's important to have, like the White

River, riparian corridors. The birds can travel along and use these opportunities to get from one part of the city to another without hazards like cars and whatnot.

CF: Oh, absolutely, absolutely. And a lot of places are looking at these natural corridors, which is encouraging. You know, I was in Florida for a couple of weeks, and people are donating property so that animals can migrate safely, and that habitat can be maintained through there. Some of the big ranchers that have thousands of acres are donating certain areas to do that.

GZ: That's great.

CF: I think more people need to be aware and we need more habitat to be donated so that it can be protected.

GZ: I think so, yeah.

CF: It's a little scary. We're kind of at the point – I heard somebody the other day that said that individuals need to start looking at how they're planning and what they're doing, and that kind of thing. If we took all the undeveloped area right now and made it habitat, it wouldn't be enough to sustain the fauna that we have right now established. So it's a little scary in some areas.

GZ: Yeah, definitely.

CF: Bird Town is important as far as getting those areas and getting that information out.

GZ: And then I was going to ask, what do you think are the benefits to a community pursuing the certification? Why would they want to be a Bird Town?

CF: Well, the big one is economic. I mean, if you have a good birding area where you're getting birds – because they do migrate through Indiana. If you have an area that's attractive to birds, you're going to attract birders. And birders need to eat, birders need to stay overnight, birders need to buy gas. Birders are a little bit crazy sometimes. You get a special bird there and you're going to draw people from all over, not just Indiana. I had a friend and there was a special, I can't remember, I think it was an eagle, that was seen in the Boston area. She drove all the way from Michigan, just to see that bird.

GZ: Oh wow, yeah.

CF: You can see the economic impact of her all the way across the country, and she's not alone. There are a lot of people that do that kind of crazy stuff, you know? I think that's happening a lot in Central America because Costa Rica, Panama, all those areas that have those specialized birds and are seeing that tourism. In Ecuador, the tourism is amazing, if they can stop some of that clear cutting, that would be wonderful. But yeah, economic is I think one of the first things. Then, of course, the continuation of species. I've heard different numbers that we've lost some 3 billion birds in the last 10 or 15 years. I'm involved with a project called Climate Watch that the Audubon is working on, has been for the last 10 or 15 years. We look for species, either migration or numbers going down. I did the White-breasted Nuthatch and the Eastern Bluebird. We're losing some of those numbers in our area now. Are they moving or are they just not finding the food? You know, hard to know.

GZ: Yeah, that's interesting as well. I mean, part of my research is looking at existing threats to birds associated with urbanization. So, I know that cats are attacking birds too. There are strikes with windows, things like that.

CF: They say a billion, million feral cats. You know, I have cats, but they stay inside. They're not always happy about that, but they do stay inside. I mean, who's the boss? I've talked to people that say, well, my cat wants to go outside and I can't stop it. Wait a minute – you're a little bigger than that cat. It's a little crazy.

GZ: So, it's interesting. There are already threats facing birds, but you bring up an important point too that climate change is probably going to pose an additional threat that we don't fully understand yet, but it's definitely important. If cities can protect that habitat, it's an extra defense against anything that climate change does.

CF: Absolutely, because even if they get started with some, it's going to be a crowded situation. You've got to get enough sprawling because then when you get too many species, you're going to end up with disease and all different kinds of things, as well as losing birds and bird species. Are you familiar with Doug Tallamy?

GZ: I don't think so, no.

CF: Look him up. He is one of the top of people talking about keeping habitat in general. I saw a program he did, not too long ago, and one of the things he said was that a chickadee family with four chicks, from hatching until they mature, the parents have to find something like 10,000 insects.

GZ: Oh wow, yeah.

CF: That's a lot of insects for a two-month period or you know eight weeks.

GZ: Yeah, yeah.

CF: And if you don't have the habitat, you don't have the insects. It's all a circle. Circle of life kind of thing. You take one thing out and you can't imagine how much is affected by that. It's amazing.

GZ: Definitely, and that's why it's such a big deal for a city to have green space. Otherwise, if it's all concrete, if it's all development, there isn't going to be those insects available, seeds available, things for birds to eat. Even if they're migrating, they won't have anywhere to stop and eat.

CF: Right. And people need to know that green space does not mean mowed grass, trimmed bushes. I've taken kids out with a butterfly net and you go to a mowed field or lawn and you slide that butterfly net, you get almost no insects. But you go out to a prairie or you go out to someplace that's got some grass, tall things, you get a variety of moths and caterpillars and all different kinds of stuff. But people look at that and they think, oh, we're so proud of our lawns. We're one of the only societies that does that. You can have a little lawn, but you need to have open space. You need to have brush, shrubbery. There are butterflies that overwinter, in any kind of pile of sticks or anything that you have. If you burn all that in the

fall or in the spring, you're killing off a whole bunch of insects. You know, it's amazing how it's all tied together.

GZ: Yeah, yeah. It really is, yeah. Do you think there are also benefits to residents that might live in these Bird Towns? Can you describe what those might be?

CF: Oh, absolutely. It's just a matter of having a spot for them to get out. You know, there's nothing as good for the inside of a person as the outside of nature. You just have to go outside and sit and listen. You don't have to do anything. Go sit on a bench. You know, it's amazing. When I'm birding, I go out and I find a neat spot and I just stand there for maybe 10 or 15 minutes and stuff happens. Birds come in, you know, animals come around, and that's a really good feeling. I think a lot of people have missed that feeling. They just haven't had that. That's, you know, mental health, a whole variety of stuff, just having green space.

GZ: Yeah, absolutely.

CF: You know, I think it's important.

GZ: And then do you have any examples of some of those Bird Towns in Indiana, some that stand out to you?

CF: Oh gosh. We have quite a few around here. Porter is a Bird Town. I just looked at my list. Crawfordsville, I think we were working with at one point. I can't remember exactly. I don't have an updated list. Terre Haute is on the list. Chesterton, Fort Wayne, Kendallville, Bloomington, Carmel Porter, Connersville, Beverly Shores. Those were starting way back in 2013. So that might be one of the years we started Bird Town.

GZ: OK, 2013.

CF: Yeah, maybe. Around there, I think, yeah. Maybe 2012. It takes a while. You can't just fill out the application in an afternoon. That's part of the problem, getting people involved in that. You've got to put some effort into it. Michigan City, the gal I was trying to connect you with. Mary Murphy, she's so excited about Bird Town. She's going to present at a big birding festival here in May. It's a five-day festival. We had registration online, opened the 3rd of March, and within two hours we had 300 registrants coming to the bird festival. Last year, we had 750 people. This year, I think we're going to have more than that.

GZ: Oh wow.

CF: But she is going to be presenting about Bird Town at the festival and she got Michigan City on board. She's got three different signs. They're really nice signs that say Bird Town. Wait, let me grab one. I have one in the other room. I'll show you. [Holds up street sign for certified Bird Towns.]

GZ: Oh wow. Yeah. That looks really nice.

CF: You put that on one of your main roads, coming and going. It's a really nice introduction to people.

GZ: Definitely. Especially, I think one thing people underestimate is that a lot of young people my age, in their twenties and thirties, are really interested in living in green spaces, places that are like environmentally conscious, that care about the environment.

CF: And that's great.

GZ: It's a marketable thing too, if a town or a city wants to attract young people. They can take a stance and say, "Hey, we're a Bird Town." Or a Tree City USA, or whatever.

CF: Yeah, yeah.

GZ: All right. So, you mentioned that Fort Wayne is a bird town. Can you wager why Indianapolis hasn't gone through the process to be certified?

CF: I imagine they have been contacted. I don't know. It's a long process. You have to really get out and do it. And I've been so busy lately, I really haven't had time. My committee, I had a gal on the committee down in that area, she talked with several towns. But it's one of those things, if they're not on board right away, you really have to push and go back and do that kind of thing. It probably just got away from her, to be honest.

GZ: Yeah, got it. So then who is typically the responsible party that would fill out the application? Would it be somebody from the Audubon Society or is it somebody from the town?

CF: Usually the town. Yeah, I usually talk to the Parks Department.

GZ: OK.

CF: Whoever is in charge of that, then they usually hand it off to soil and water or whatever so that they can be involved in that. It takes a little while to fill it out.

GZ: Yeah, and I think maybe that is one of the barriers for Indy. I know their Parks Department is managing a lot right now. They're doing a lot of grant applications too, so maybe they're just short-staffed.

CF: Very busy.

GZ: Maybe to get them to that level, it might involve collaboration with the Parks Department, but maybe also the Office of Sustainability. I know they have the Amos Butler Audubon Society. For a city that large to document everything and fill out the application properly, maybe it will require multiple people figuring it out at the same time.

CF: Yeah, multiple people and then one person to write it up. Which, you know, that's time. And that's kind of a thing too, but.

GZ: And then once a city does apply, who reviews the application?

CF: The committee, usually Brad and myself. We kind of tabled the committee this year because we know Bird City is going to start working with all cities across the United States. So, we've been working in other areas right now. We've got that festival coming up and there's a lot to do for that. Right at the moment, not a lot going on there.

GZ: Then, are there any regional collaborative efforts between Bird Towns? I know you mentioned that Bird City will be the national effort, but do you know if, within Indiana, there are currently any regional efforts? Possibly a Central Indiana effort? Or is it pretty isolated?

CF: It's been pretty isolated and that's part of the problem too. I think if we had people in different parts of the state that could spearhead it, if they decide to go ahead with it and not let Bird City come in. You know, that kind of thing. But I really think the Bird City program, they seem pretty organized and there's a pretty big staff on that too, I think that's going to get off the ground here pretty soon.

GZ: Got it. Do you think there will be a transition then from Bird Town Indiana to Bird City? Or will Bird Town Indiana still exist?

CF: I don't know. TBD.

GZ: This is my last question. Are there resources available from the Indiana Audubon Society for communities that are interested in making bird-friendly choices in their policies and their development? Or where would you recommend they go to learn more about that kind of thing?

CF: They definitely could reach out to Indiana Audubon. I'm sure there's people, myself included, that would talk with them and suggest different kinds of things. Another organization would be the Indiana Native Plant Society. They definitely would have a lot of input and could help the city or town decide which plants would be the best. Definitely natives. Some of those other plants are pretty, but they're either invasive or... The Callery Pear is one that a lot of cities put in because it blooms beautifully in the springtime. It's a big white tree, you'll see it, but it is very invasive. If you look through the woods, you'll see Callery Pear taking over and, unfortunately, we've had a lot of areas in Indiana that have been logged or farmed and now have grown more natural. But there are still gaps in there and that's where our invasives jump in. That's where we get our Autumn Olive and we get a lot of those invasive plants. They're opportunists. One of them, I think it's Autumn Olive, even sends out a toxin in the soil that won't let native plants grow near it. Yeah, it's amazing what some things can do.

GZ: Alright, I think those are all the questions that I really had that I wanted to get some answers to.

CF: Well, it's good to know you.

GZ: Yeah, it was great to meet you. It was great to sit down and talk about this. I was wondering, when I'm finished with my research, would you like me to send you a copy?

CF: I definitely would. Yes, absolutely.

GZ: Okay, fantastic! Alright, well, thank you. Have a great rest of your day! Hopefully it's not as stormy as it is over here. It's been pouring.

CF: Is it snowing over there?

GZ: For us, it's pouring rain.

CF: Pouring rain. It was switching to snow up here, but it's still raining. We're supposed to get 8 inches, but I don't think so.

GZ: Oh wow, yeah. All right. Well, have a great day.

CF: Thank you very much kiddo. I look forward to reading your paper.

GZ: Sounds good. Bye.

CF: OK. Bye bye.

9.2 List of Parks and Nature Preserves

City Parks*

**Not including athletic complexes, recreation centers, pools, aquatic centers, and pocket parks*

Acton Park	Irving Circle Park
Al Polin Park	James Foster Gaines Park
Alice Carter Park	John Ed Park
Andrew Ramsey Park	JTV Hill Park
Arsenal Park	Juan Solomon Park
Babe Denny Park	Kelly Park
Barton Park	Kessler Park
Basswood Park	Kin Hubbard Memorial Park
Beckwith Park	Krannert Park
Bel-Aire Park	Lentz Park
Bellamy Park	Little Valley Park
Bertha Ross Park	Martin Luther King Jr. Park
Beville Park	McCarty Triangle Park
Blickman Educational Trail Park	McCord Park
Bluff Park	Moreland Park
Bowman Park	Mozel Sanders Park
Brightwood Park	Northwestway Park
Broad Ripple Park	O'Bannon Park
Broadway and 29th Park	Olin Park
Brookside Park	Orange Park
Browns Corner Park	Oscar Charleston Park
Canterbury Park	Paul Ruster Park
Carson Park	Perry Park
Centennial and 20th Park	Porter Playfield
Centennial and Groff Park	Presidential Place Park
Chapel Hill Park	Pride Park
Christian Oaks Park	Ransom Place Park
Christian Park	Red Maple Grove Park
Clayton and LaSalle Park	Retherford Park
Colorado Park	Reverend Charles Williams Park
Colts Canal Playspace	Rhodium Park
Commons Park	Ridenour Park
Dan Wakefield Park	Ringgold Park
Denver Park	Riverside Park
DeQuincy Park	Riverwood Park
Doris Cowherd Park	Robey Park
Dubarry Park	Roselawn Park
Eagle Creek Park	Ross Claypool Park
Edna Balz Lacy Park	Sahm Park

Ellenberger Park	Sexson Park
Elwood and Mary Black Park	Skiles Test Park
Eva Talley Park	Southeastway Park
Finch Park	Southside Park
Forest Manor Park	Southwestway Park
Fox Hill Manor Park	Spades Park
Frank Young Park	Stacy Park
Franklin and 38th Park	Stamm Park
Franklin Township Community Park	Stanley Stader Park
Frederick Douglass Park	Stout Field Park
Friedman Park	Stringtown Park
Gardner Park	Tarkington Park
Garfield Park & Conservatory	Thatcher Park
Gateway West Park	Thompson Park
German Church and 30th Park	Tolin Akeman Park
Glenns Valley Nature Park	Towne Run Park
Graham Martin Park	Virginia Lee O'Brien Park
Greene Park	Washington Park
Gustafson Park	Watkins Park
Hanover North Park	Watson Road and 36th Park
Haughville Park	Wes Montgomery Park
Hawthorne Park	Wildwood Park
Hendricks Park	Willard Park
Highland Park	Windsor Village Park
Holliday Park	Wish Park
Indianola Park	Wolf Run Park

State Parks

Fort Harrison State Park	White River State Park
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Nature Preserves

Marott Woods Nature Preserve	Bluffs of Fall Creek Nature Preserve
Scott Starling Nature Sanctuary	Lawrence Creek Nature Preserve
Eagle's Crest Nature Preserve	White Owl Conservation Area
Spring Pond Nature Preserve	White River Bluffs Nature Preserve
Chinquapin Nature Preserve	Oliver's Woods Nature Preserve
Warbler Woods Nature Preserve	

9.3 Bird-Friendly Indianapolis Guide

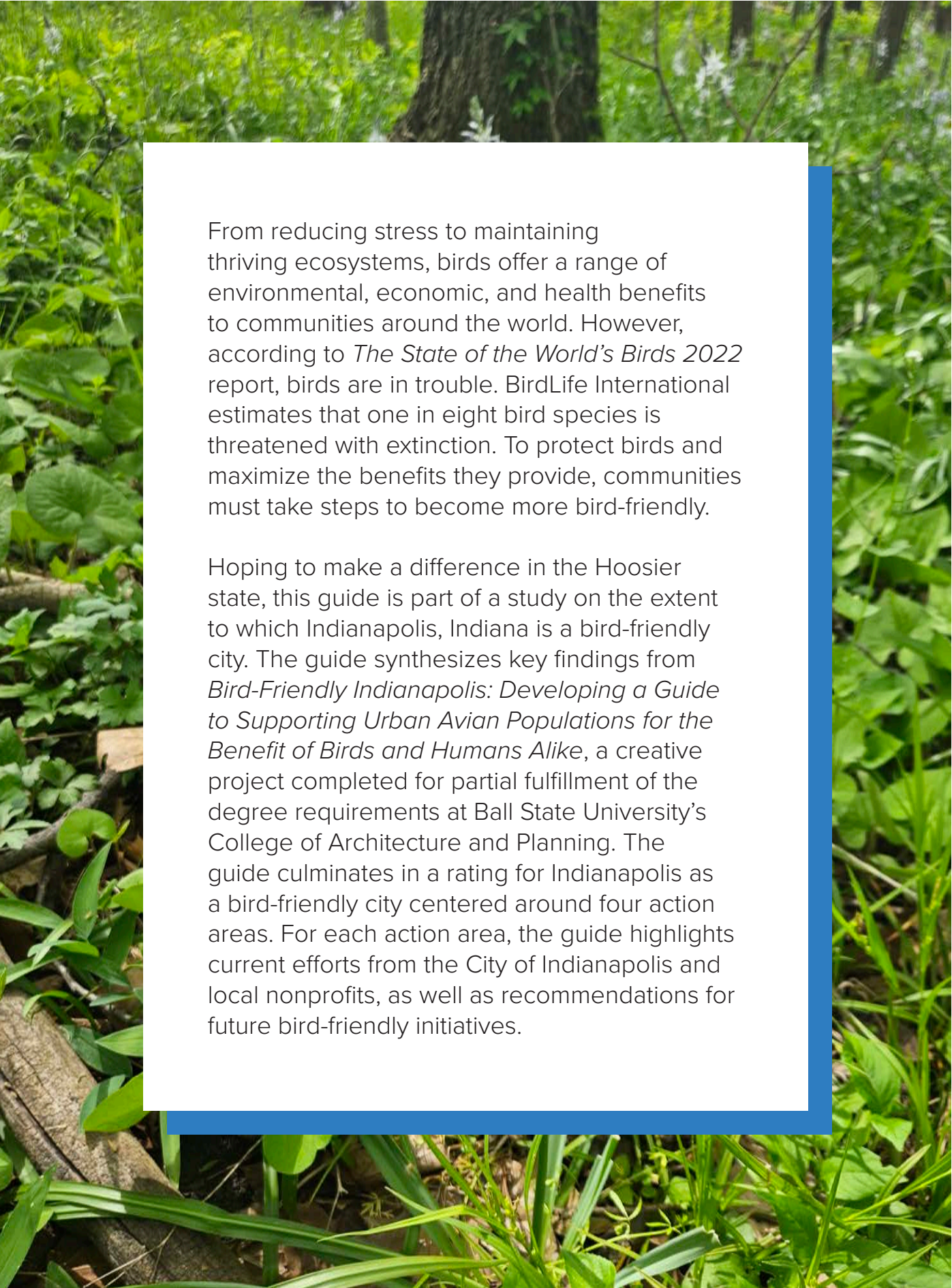
See following pages.



BIRD-FRIENDLY INDIANAPOLIS GUIDE

2023

Genevieve Zircher | Ball State University



From reducing stress to maintaining thriving ecosystems, birds offer a range of environmental, economic, and health benefits to communities around the world. However, according to *The State of the World's Birds 2022* report, birds are in trouble. BirdLife International estimates that one in eight bird species is threatened with extinction. To protect birds and maximize the benefits they provide, communities must take steps to become more bird-friendly.

Hoping to make a difference in the Hoosier state, this guide is part of a study on the extent to which Indianapolis, Indiana is a bird-friendly city. The guide synthesizes key findings from *Bird-Friendly Indianapolis: Developing a Guide to Supporting Urban Avian Populations for the Benefit of Birds and Humans Alike*, a creative project completed for partial fulfillment of the degree requirements at Ball State University's College of Architecture and Planning. The guide culminates in a rating for Indianapolis as a bird-friendly city centered around four action areas. For each action area, the guide highlights current efforts from the City of Indianapolis and local nonprofits, as well as recommendations for future bird-friendly initiatives.

Cover photo by Matt Zuro from the Cornell Lab of Ornithology's Macaulay Library.
Above photo by Genevieve Zircher.

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CHAPTER 01

INTRODUCTION



The Indiana Statehouse in downtown Indianapolis. Photo by Genevieve Zircher.

“Where birds thrive, people prosper.” This motto, often associated with the National Audubon Society, reflects the innate relationship between the well-being of birds and humans. Prior research has revealed that birds have a direct, as well as indirect, effect on human well-being. For example, studies have shown that people living in neighborhoods with more birds, shrubs, and trees were less likely to suffer from depression, anxiety, and stress (Cox et al., 2017). Additionally, birds thrive in a variety

of habitats, but tend to do well in areas with extensive tree canopies, native prairies, and preserved wetlands. Each of these habitats provides unique benefits to humans, from reducing urban heat island effects to flood prevention (Bowler et al., 2010; EPA, 2006). Emerging research focuses on applying the benefits of birds to urban environments by creating bird-friendly cities. A bird-friendly city is one which minimizes physical risks to birds and encourages the public to engage with and appreciate birds in daily life.



Top Left: A northern cardinal. Photo by Mason Maron from the Macaulay Library.

Top Right: The Bird Town Indiana program is an initiative of the Indiana Audubon Society. Sign from the Indiana Audubon Society.

Bottom: The Depew Memorial Fountain at University Park. Photo by Genevieve Zircher.

The Indiana Audubon Society encourages communities in Indiana to be more bird-friendly through their Bird Town program, launched in 2013. While Fort Wayne and Bloomington have both made efforts to become certified Bird Towns, the City of Indianapolis has yet to do the same. Out of a concern that Indianapolis may not be doing enough to protect native birds or maximize the benefits that birds provide, this guide explores the extent to which Indianapolis, Indiana, is a bird-friendly city.

The guide synthesizes key findings from the creative project, *Bird-Friendly Indianapolis: Developing a Guide to Supporting Urban Avian Populations for the Benefit of Birds and Humans Alike*. The guide culminates in a bird-friendliness rating for the city, which captures how well the physical environment, policies, programs, and organizations support birds and encourage residents to engage with wildlife. The purpose of the guide is to make the research accessible and actionable. By describing threats to birds and reflecting on current bird-friendly initiatives, the guide aims to increase public awareness of bird conservation in Indianapolis. Additionally, the guide offers recommendations for future initiatives that can be implemented by local stakeholders.

CHAPTER 02

BACKGROUND



The Canal Walk in downtown Indianapolis. Photo by Genevieve Zircher.

What is a bird-friendly city?

A bird-friendly city is one which minimizes physical risks to birds and encourages the public to engage with and appreciate birds in daily life.

Right: Lofts in downtown Indy. Photo by Genevieve Zircher.

Below: Eagle Creek Reservoir. Photo by Genevieve Zircher.



Bird-friendly cities have much in common with biophilic cities. Biophilic cities are those that “provide close and daily contact with nature... but also seek to foster an awareness of and caring for this nature” (Beatley & Newman, 2013). Both biophilic cities and bird-friendly cities are rooted in the concept of biophilia, the “innately emotional affiliation of human beings to other living organisms” (Beatley & Newman, 2013). In simpler terms, humans are drawn to nature. We’re fascinated by the world we live in and the creatures we share it with. Following this logic, urban planners and community leaders should seek to integrate nature into cities to maximize the well-being of residents. Biophilic cities and bird-friendly cities offer slightly different approaches to this urban-nature integration.

The concept of biophilic cities focuses broadly on the intersection of nature and humanity within the urban environment, incorporating elements such as green building design and green space access. Conversely, the concept of bird-friendly cities refines this idea by focusing specifically on birds and the vital role they play in natural and built environments. The idea of bird-friendly cities represents a collective interest

in bird conservation, but the concept itself benefits from having a symbol (or a mascot) for sustainable initiatives – sometimes quite literally. For example, the City of Vancouver designated Anna’s Hummingbird as their official “City Bird” (Vancouver Bird Advisory Committee, 2020). People may resonate more with a program or policy designed to help a particular living creature (like a hummingbird). Even without a city bird, the goal of making a community more welcoming to native wildlife is generally appealing.

As an extension of biophilic urbanism, bird-friendly cities are expected to provide similar benefits to humans that biophilic cities are theorized to. In “Biophilic Cities are Sustainable, Resilient Cities” (2013), Beatley and Newman describe how biophilic cities strengthen the adaptive capacity of urban residents, leading to resilient outcomes. Essentially, with access to nature, residents adopt healthier behaviors (walking, hiking, biking), help each other more, create friendships, and develop strong commitments to the places they call home. As this adaptive capacity builds, residents experience resilient outcomes, including reduced loss of life, reduced economic disruption, reduced ecological damage, and improved health. In essence, residents live happier and more meaningful lives. Bird-friendly cities can provide these benefits, and the unique benefits attributed to birds. As such, it’s important for cities around the world to make efforts to become more bird-friendly for the benefit of humans and birds alike.

What benefits do birds provide?



*A northern cardinal in an eastern redbud tree.
Photo by Zachary Vaughan from the Macaulay Library.*

Past research has explored the benefits that birds provide humans, from mental health benefits to environmental benefits. Even in cities, the presence of birds can have a positive impact on residents' daily lives.

Supporting Our Mental Health and Emotional Well-Being

At the University of Exeter, Daniel T. C. Cox and colleagues conducted a study on the mental health benefits of birds (Cox et al., 2017). They found that afternoon bird abundance lowered feelings of depression, anxiety, and stress for urban residents. Other researchers, authors, and creatives (e.g. Rachel L. Carson, Kyo Maclear, Katie Fallon, and Joe Harkness) have described the soothing effects of seeing or hearing birds, including University of Virginia professor, Timothy Beatley. In *Bird-Friendly City* (2020), Beatley remarks that “birdsong has delivered doses of hope and optimism and pleasure” throughout his life (p. 4). Birds charm us and help us feel connected to nature, even in bustling urban environments.

Contributing to Local Economies

Birds also provide economic benefits. For instance, vultures aid in waste management and sanitation, insectivorous birds keep mosquito populations in check, and hummingbirds help pollinate community gardens and urban agricultural operations (Beatley, 2020). Each of these contributions has significant monetary value. Ecotourism and birdwatching can also be economic drivers.



Each year, the Eagle Creek Park Ornithology Center attracts over 70,000 visitors from over 40 U.S. states and 15 countries. Photo by Genevieve Zircher.

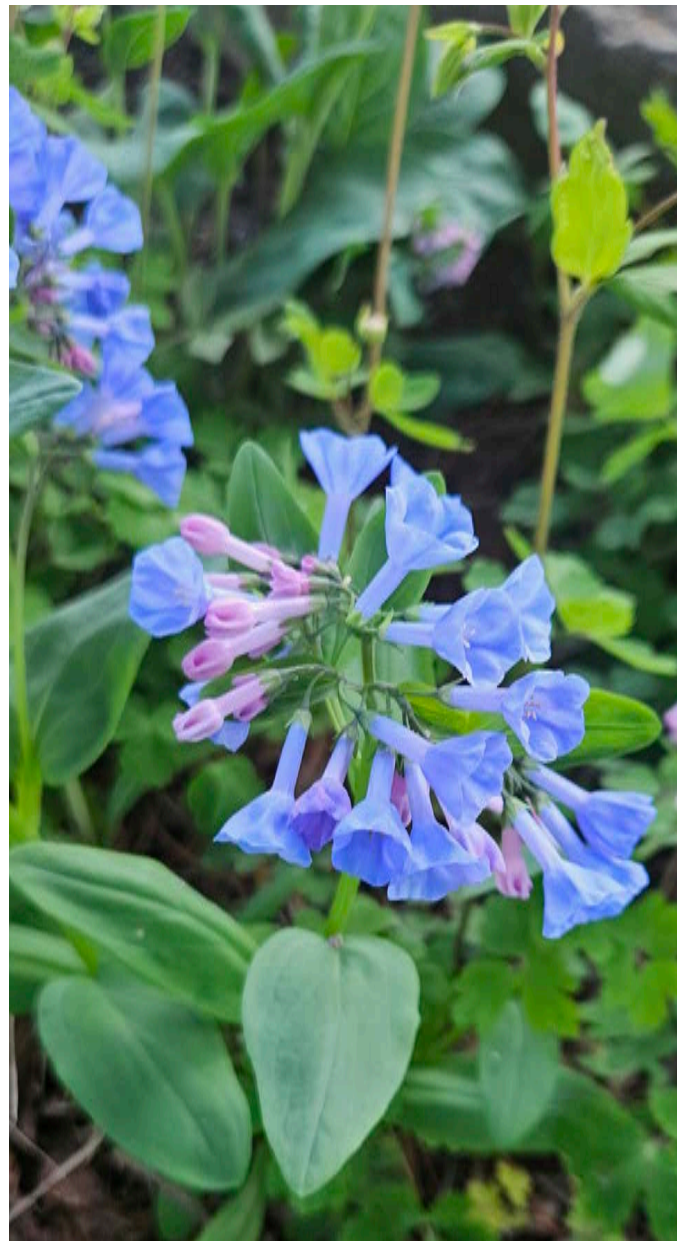
According to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, there are 45.1 million bird watchers in the United States. 36% (16.3 million) of these individuals travel away from home to observe wild birds (U.S. Fish and Wildlife Service, 2016). According to BirdLife International, birders spend an estimated \$39 billion each year on bird-related trips and equipment in the United States (Haskell, 2022). There are opportunities for cities to capitalize on native birds, whether migratory or year-round residents, as local assets.



A family learns about birds at the Eagle Creek Ornithology Center. Photo by Genevieve Zircher.

Helping Ecosystems Thrive

Birds provide crucial environmental benefits. According to Dr. Christopher J. Whelan of the University of Illinois at Chicago, birds play an important role in ecosystems around the world, serving as “predators, pollinators, scavengers, seed dispersers, seed predators, and ecosystem engineers” (Whelan et al., 2008). Even in death, the bodies of birds contribute to nutrient cycles, such as the carbon cycle, keeping nature in balance. Additionally, birds thrive in a variety of habitats but tend to do well in areas with extensive tree canopies, native prairies, and preserved wetlands. In these habitats, birds serve as indicators of environmental health, particularly biodiversity (Gregory & Strien, 2010). When we protect birds, we protect these important habitats. Each of these habitats supports a diverse range of flora and fauna, while also providing unique benefits to humans, from reducing urban heat island effects to flood prevention (Bowler et al., 2010; EPA, 2006). As climate change puts increasing pressure on communities around the world, the benefits of birds and their native habitats cannot be understated.



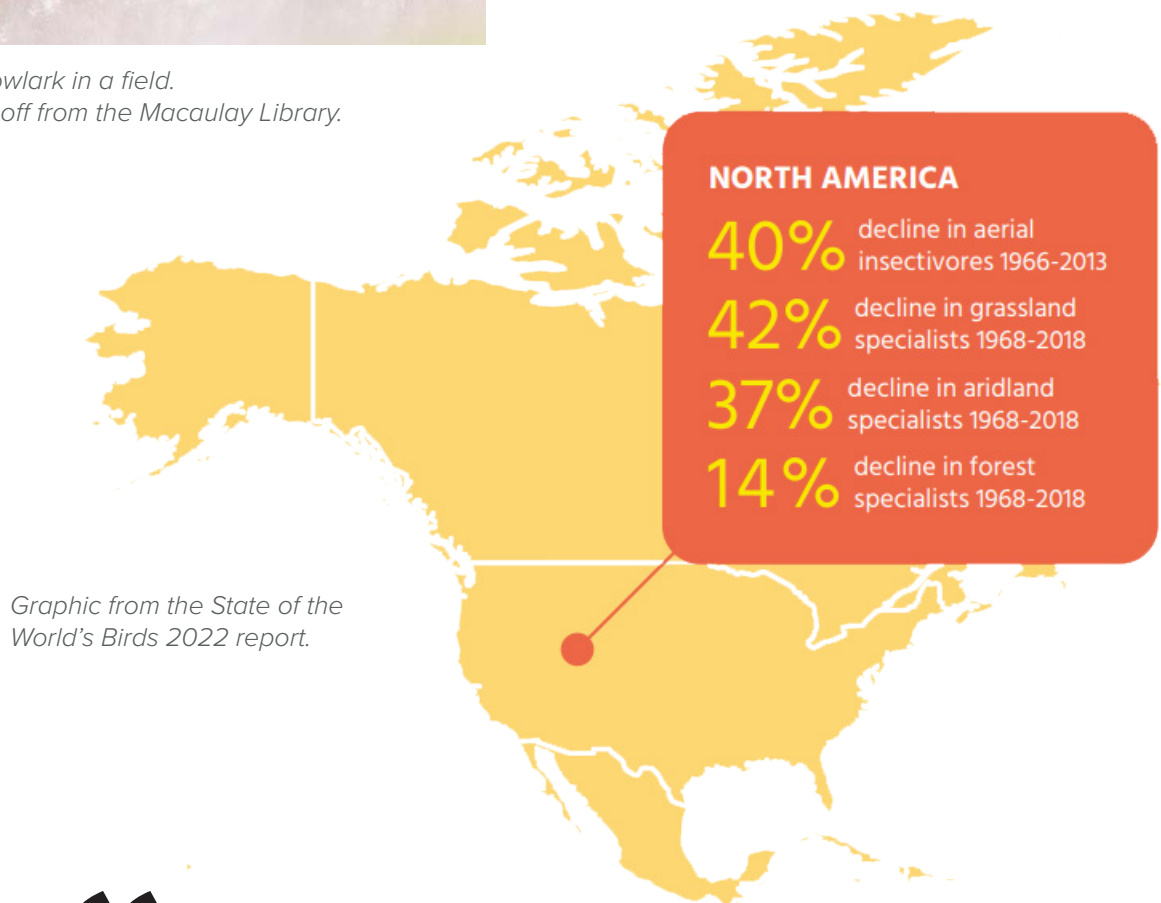
Virginia bluebells at Washington Park. Photo by Genevieve Zircher.

What are the threats facing birds?



An eastern meadowlark in a field.
Photo by Brad Imhoff from the Macaulay Library.

Despite the benefits that birds provide, their situation is rather precarious. Since 1970, bird populations in North America have declined by 29%, a net loss of approximately 3 billion birds (Rosenberg et al., 2019). According to BirdLife International's *State of the World's Birds 2022* report, "one in eight bird species [around the world] is threatened with extinction" (Haskell, 2022, p. 3). Many of the threats facing birds are anthropogenic in origin.



Graphic from the *State of the World's Birds 2022* report.

“

[O]ne in eight bird species [around the world] is threatened with extinction.

*Quote from Lucy Haskell
Science Officer for BirdLife
and lead author of State of the
World's Birds report.*

From left to right:

A cat catches a bird. Stock photo from Shutterstock.

A dead robin. Photo by ro5ered on iNaturalist.

A protest sign. Stock photo by Markus Spiske.

Cat Predation



In the United States, predation by free-ranging domestic cats is responsible for an alarming 1.3 - 4 billion bird fatalities annually (Loss et al., 2013). Dr. Scott Loss, a professor of Natural Resource Ecology and Management at Oklahoma State University, is particularly concerned about this predation. If left unchecked, Dr. Loss and his colleagues predict that domestic cats will contribute to the decline of native bird populations, disrupting North American ecosystems.

Window Strikes



The built environment itself presents another significant threat to birds. An estimated 365 to 988 million birds die annually from building collisions in the United States (Loss et al., 2014). Because of its reflective nature, mirroring trees, vegetation, and the open sky, birds don't perceive glass as a barrier. This means that windows and other glass surfaces can be deadly hazards. Birds are also negatively impacted by light pollution, chemical pollution, noise pollution, vehicle collisions, and habitat loss associated with urbanized environments (Seress & Liker, 2015).

Climate Change



On a global scale, birds experience instability due to the far-reaching effects of climate change. Rising temperatures can disrupt a bird's "maintenance (the energy needed by organisms to maintain their basal levels of activity and condition), reproduction, [the] timing of breeding and migration," ultimately reducing their survival rates (King & Finch, 2013). The outlook for birds may seem bleak, if not for an emerging interest in making cities safer, more accommodating places for our feathered friends.

Why Indianapolis?

Researchers have studied bird-friendly cities around the world, from Toronto to Singapore.

Some communities have developed official bird strategies or adopted building and design guidelines. Others are pursuing bird-friendly projects through public programs, private development, nonprofit work, and/or grassroots efforts. Out of these endeavors, little has been written about bird-friendly pursuits in the Midwest, let alone in Indiana. This guide addresses that gap in the literature.

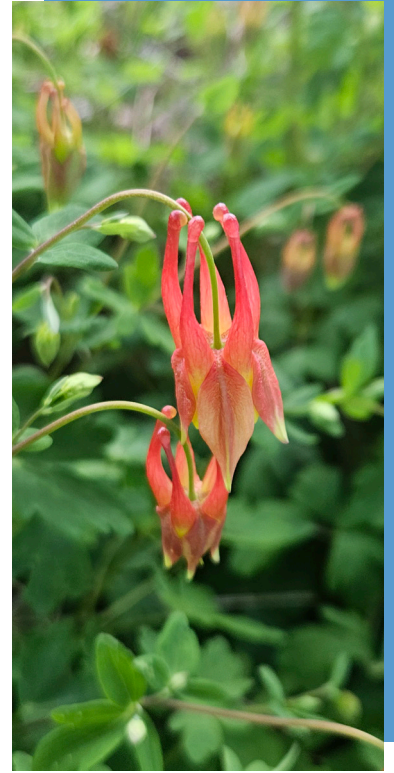


Photo by Genevieve Zircher.



*Looking down Mass Ave in downtown Indianapolis.
Photo by Genevieve Zircher.*

Additionally, despite being Indiana's capital city, Indianapolis has yet to participate in the state's premiere bird-friendly program. Established in 2013 by the Indiana Audubon Society, Bird Town Indiana recognizes communities across the state that demonstrate a commitment to preserving native bird populations. Although other communities, from Fort Wayne to Bloomington, have opted into the program, Indianapolis has yet to do the same. By exploring current programs, policies, and initiatives, this guide aims to investigate the extent to which Indianapolis is a bird-friendly city and determine whether the city is truly lagging behind its peers. The goal is to ensure that the city maximizes the benefits of birds and contributes meaningfully to bird conservation.

The Idle is a public park overlooking the I-65 and I-70 interchanges in Indianapolis.
Photo by Genevieve Zircher.



Photo by Genevieve Zircher.





The Activity Center at Southeastway Park. Photo by Genevieve Zircher.

CHAPTER 03

RESEARCH PROCESS

This guide is part of *Bird-Friendly Indianapolis: Developing a Guide to Supporting Urban Avian Populations for the Benefit of Birds and Humans Alike*, a creative project conducted for partial fulfillment of the Master of Urban and Regional Planning degree requirements at Ball State University's College of Architecture and Planning. The research process involved reviewing literature on bird-friendly cities, developing a unique scale to rate Indianapolis, and employing research instruments to assess the city. Research instruments included mapping and analysis with ArcGIS Pro, interviews with stakeholders, and descriptive inventories of parks/nature preserves, bird-related organizations, and bird-focused programs and policies in Indianapolis.



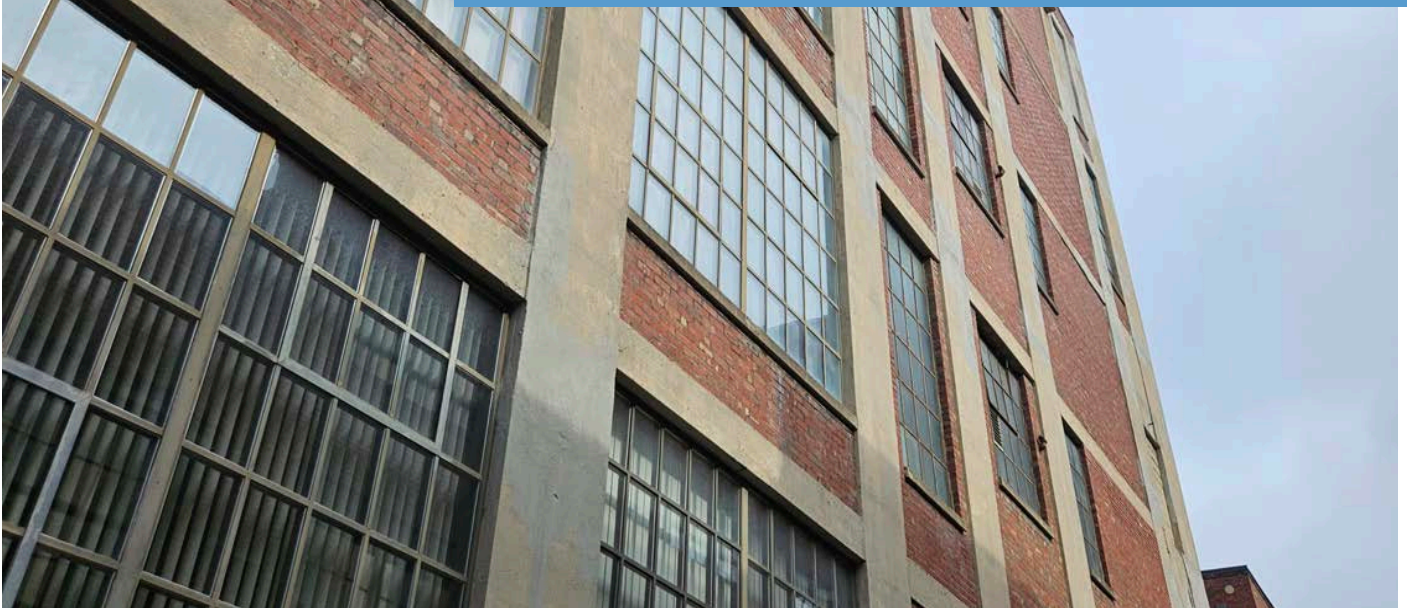
A downy woodpecker. Photo by Matthew Plante from the Macaulay Library.

*A repurposed industrial building in downtown Indianapolis.
Photo by Genevieve Zircher.*



As part of the research process...

- Five maps were created to assess physical characteristics in Indianapolis, including land cover, impervious surface cover, tree cover, the distribution of parks, and the distribution of water bodies and wetlands.
- Ten stakeholders were interviewed, including representatives of the City of Indianapolis, Indiana Audubon Society, Amos Butler Audubon Society, and Central Indiana Land Trust.
- Site visits were conducted at six parks and nature preserves in Indianapolis to assess physical conditions, engagement opportunities, and accessibility.
- In addition to the six parks/preserves, descriptive inventories were completed for 15 organizations, 17 programs, and 8 policies impacting Indianapolis' status as a bird-friendly city.

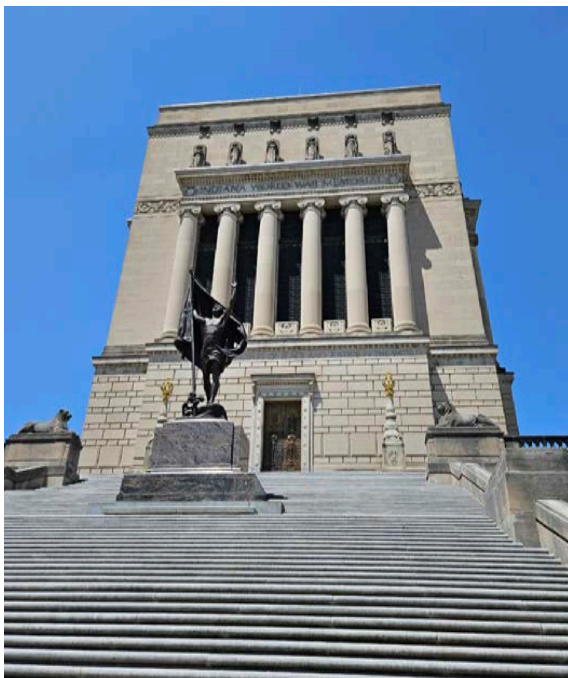


CHAPTER 04

RATING INDIANAPOLIS

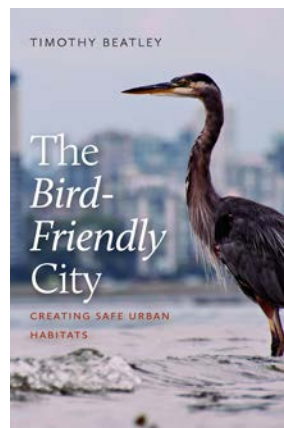
Bird-Friendly Scale

As part of the research process, a unique scale was developed to assess ‘bird-friendliness’ in Indianapolis. The scale was created by combining criteria from two different models for bird-friendly cities. The first model comes from *The Bird-Friendly City: Creating Safe Urban Habitats* by sustainable city researcher, author, and professor Timothy Beatley. The second model comes from the Indiana Audubon Society’s Bird Town Indiana program. The goal is for the scale to be ambitious, yet sensitive to social, political, and environmental contexts. The scale can reasonably be used to analyze cities in Indiana and the greater Midwest.



*The Indiana War Memorial in downtown Indy.
Photo by Genevieve Zircher.*

The scale features four distinct categories (i.e., action areas), each with its own set of criteria. The four categories are Planning for Bird Conservation, Protecting and Promoting Nature in the City, Reducing Hazards to Birds, and Education and Engagement. Communities are rated from Poor to Outstanding (i.e., 1 to 5) based on the proportion of criteria met and how well-distributed criteria (i.e., the associated programs, amenities, and initiatives) are geographically. Table 1 outlines the categories and criteria for a model bird-friendly city. A checkmark has been placed next to criteria that Indianapolis successfully meets. For criteria the city has yet to meet, there is an unchecked box. Table 2 describes the ratings on the scale (i.e., the extent to which a city can be considered ‘bird-friendly’).



*Left: The cover to *The Bird-Friendly City* by Tim Beatley.*

Below: The logo for the Indiana Audubon Society.

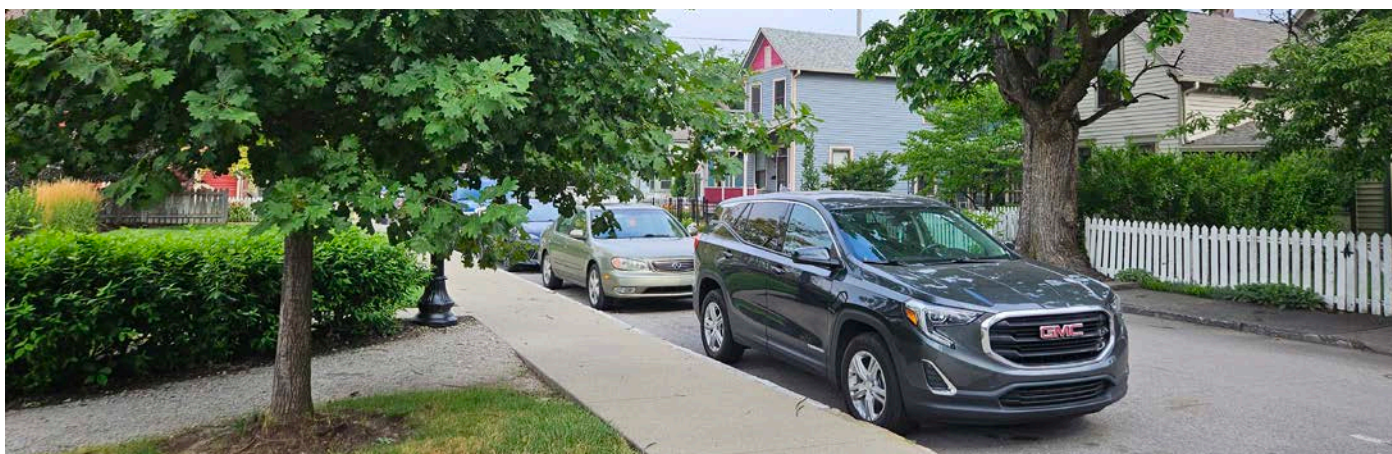


Table 1: Categories and Criteria for a Bird-Friendly City

A model 'bird-friendly' city meets all (or most) of the following criteria...
Category 1: Planning for Bird Conservation
<ul style="list-style-type: none"><input type="checkbox"/> The city has an official bird strategy.<input checked="" type="checkbox"/> The city's comprehensive plan mentions birds or the intent to protect and expand bird habitat.<input checked="" type="checkbox"/> The city's zoning ordinances feature a conservation or protection district that safeguards wildlife habitat from intrusive development.<input type="checkbox"/> The city designates one or more official city birds.<input type="checkbox"/> The city has a standing bird advisory committee.
Category 2: Protecting and Promoting Nature in the City
<ul style="list-style-type: none"><input checked="" type="checkbox"/> The city has many public parks and other places to watch birds.<input checked="" type="checkbox"/> The city has tree-lined, pedestrian-friendly sidewalks and trail networks.<input checked="" type="checkbox"/> Parks, nature preserves, and green spaces are planted with bird-friendly plants.<input checked="" type="checkbox"/> Water bodies and wetlands are preserved and feature native plants and natural shorelines.<input checked="" type="checkbox"/> Local ordinances encourage new development to limit impervious surfaces, instead maximizing green space and utilizing permeable pavement alternatives.<input checked="" type="checkbox"/> Local ordinances do not restrict "wild" or natural lawns and landscaping.<input type="checkbox"/> The city offers public information on the control and removal of invasive species.<input checked="" type="checkbox"/> The city participates in "Tree City, USA" or an equivalent program focused on urban forestry and/or natural resource management.
Category 3: Reducing Hazards to Birds
<ul style="list-style-type: none"><input type="checkbox"/> The city has mandatory bird-safe building standards for new development.<input type="checkbox"/> The city provides property owners with information on how to protect birds from window strikes.<input type="checkbox"/> The city has adopted an official lights out program for migratory seasons that involves mandatory participation from municipal-owned properties (backed by law) and voluntary participation from privately-owned properties.<input checked="" type="checkbox"/> The city controls free-roaming cats with an educational program, Trap-Neuter-Release (TNR) program, or other related programs.<input checked="" type="checkbox"/> The city features one or more wildlife rehabilitation centers.
Category 4: Education and Engagement
<ul style="list-style-type: none"><input checked="" type="checkbox"/> City residents can join active, bird-related social groups and organizations.<input checked="" type="checkbox"/> Many organized bird walks are available, as well as other events that make the enjoyment of birds easy.<input checked="" type="checkbox"/> The city is represented in at least one bird monitoring program such as the Christmas Bird Count, Great Backyard Bird Count, Indiana Audubon Society Big May Day Count, or Swift Night Out.<input type="checkbox"/> The city officially recognizes and celebrates World Migratory Bird Day.<input type="checkbox"/> The city provides information to property owners on methods to create and enhance backyard habitats for birds.<input checked="" type="checkbox"/> Local parks host abundant citizen science opportunities to engage the public and promote awareness of native birds.<input checked="" type="checkbox"/> Schools or educators incorporate birds in their curriculum through field trips, programs like Flying WILD, or through other means.

Table 2: Rating Bird-Friendly Cities

<p>This scale assigns ‘bird-friendly’ ratings from Poor (1) to Outstanding (5). The rating is based on how well a city meets the criteria described in Table 1 AND how well-distributed those criteria (and their benefits) are throughout the city. A model city strives to meet all the criteria in each of the categories while also ensuring that criteria are equitably designed and thoughtfully implemented. Bird-friendly cities should benefit all residents.</p>
<p>Outstanding (5)</p> <p>Meets all or nearly all of the criteria in each category. The criteria (parks, programs, etc.) are also well-distributed throughout the city to maximize the benefits to both birds and humans in an equitable manner.</p>
<p>Very Satisfactory (4)</p> <p>Meets more than half of the criteria for each category. The criteria (parks, programs, etc.) are mostly well-distributed, but there may be limited neighborhoods where bird-related initiatives and investments are lacking.</p>
<p>Satisfactory (3)</p> <p>Meets approximately half of the criteria in each category. The criteria may be somewhat unequally distributed. For example, some parts of the city may have more parks, programs, and local organizations than other areas. City officials must stay alert to potential issues of social and environmental equity.</p>
<p>Unsatisfactory (2)</p> <p>Meets less than half of the criteria for each category. The criteria are unequally distributed with parks, programs, and organizations concentrated in a few parts of the city. City officials should investigate issues of social and environmental equity.</p>
<p>Poor (1)</p> <p>Fails to meet all or most of the criteria for one or more categories. The criteria (parks, programs, etc.) are concentrated in more affluent parts of the city, benefiting predominantly white residents. This pattern fails to effectively support urban avian populations and calls into question issues of social and environmental equity.</p>



A residential neighborhood in Indianapolis. Photo by Genevieve Zircher.

Final Rating and Assessment

The bird-friendly scale assigns ratings from Poor (1) to Outstanding (5). The rating is based on how well the given city (1) meets the criteria described in each of the four categories and (2) how well-distributed those criteria (and their benefits) are throughout the city. A model city strives to meet all the criteria in each of the categories while also ensuring that criteria are equitably designed and thoughtfully implemented. Bird-friendly cities should benefit all residents, regardless of race and socio-economic class.

Overall, the City of Indianapolis receives a score of Satisfactory (3) on the bird-friendly scale. The Satisfactory rating indicates that Indianapolis meets approximately half of the criteria in each category, even though the city may be stronger in some categories than others. Indianapolis excels in *Protecting and Promoting Nature in the City* and *Education and Engagement*.

3/5 City of Indianapolis
2023 Final Rating
Satisfactory

Unfortunately, criteria that have been met may not benefit everyone in Indianapolis to the same degree. While policy-based criteria can be applied across the city's jurisdiction, other criteria tend to benefit the residents of affluent, white neighborhoods. For example, the following criteria may not be equitably distributed:

- Tree-lined sidewalks and trails;
- Parks with nature-based programming, interpretive staff, and citizen science opportunities;
- Natural water bodies and wetlands;
- Bird walks and other social events.



*A red-tailed hawk perches on a pole.
Photo by John Troth from the Macaulay Library.*

City residents residing in majority black and Hispanic neighborhoods on both the eastside and westside may have fewer opportunities to engage with birds due to a lack of preserved habitat (including smaller public parks) and a deficiency of nature-based events and programming. City officials should stay alert to potential issues of social and environmental equity. The city's rating indicates that there are areas for improvement to better serve residents and protect native wildlife

CHAPTER 05

ACTION AREAS

Planning for Bird Conservation

This action area centers on the efforts of local government to protect birds and bird habitat through traditional municipal tools, including policy documents, zoning ordinances, and advisory committees.

Current Actions

- The *Indy Parks Comprehensive Master Plan 2016-2021* mentions birds 25 times in reference to the importance of parks as both bird habitat and recreational sites for birdwatching.
- *Thrive Indianapolis*, the city's plan for community resilience and sustainability, includes goals for promoting native planting, expanding the tree canopy, removing invasive species, and reducing impervious surfaces.
- The regional *White River Vision Plan* sets actionable goals for restoring the health of the White River and adjacent habitat.
- The city's *Land Use Pattern Book* designates an Environmentally Sensitive Areas Overlay designed to protect "high-quality woodlands, wetlands, and other natural resources."



The Bird City Network (BCN), launched in June 2023, unites Bird City Programs across the Americas to foster innovation in bird conservation. Art by Cindy Menjivar.



Thrive Indianapolis is the city's guide to long-term sustainability. Cover from the Office of Sustainability.

Recommendations

- 1.1 Adopt the Bird-Friendly Indianapolis Guide as an official guiding document.
- 1.2 Create a standing bird advisory committee to tackle bird conservation issues and brainstorm cross-sector solutions in Indianapolis.
- 1.3 Designate an official city bird to enhance public awareness of conservation issues and demonstrate Indianapolis' interest in addressing these issues.
- 1.4 Coordinate with the Indiana Audubon Society to become a certified Bird Town.
- 1.5 Participate in the national Bird City Network.



Top: The White River flows through Hamilton County before moving south through Indianapolis. Photo by Genevieve Zircher.



Left: Once a federal- and state-endangered species, bald eagles have rebounded in Indiana thanks to dedicated conservation efforts. Today, bald eagles can be found nesting along the White River in Indianapolis. Photo by Brian Smith from the Macaulay Library.

“

By setting goals to restore and preserve habitat in urban areas, plans like the White River Vision Plan contribute to bird conservation.

Protecting and Promoting Nature in the City

This action area focuses on the preservation, character, and quality of greenspaces. This category also addresses efforts to incorporate nature in developed areas by reintroducing native plants, restoring natural shorelines, transitioning to native lawns, and removing invasive species. By protecting and promoting nature in the city, both within designated parks/preserves, as well as outside of these public spaces, Indianapolis supports the environmental health of Marion County and Central Indiana. A city that supports a thriving ecosystem also supports a thriving population. Many of the initiatives in this action area have far-reaching effects on resident health and well-being, from providing outdoor recreation opportunities to protecting air and water quality.



*A blue jay perches in a tree.
Photo by Martina Nordstrand
from the Macaulay Library.*



*Oliver's Woods protects 53 acres of habitat in Indianapolis.
Photo by Genevieve Zircher.*

Current Actions

- Indy Parks and Recreation operates and maintains 214 parks, which account for 11,608 acres of preserved greenspace. The largest of these is the 5,300-acre Eagle Creek Park.
- Indianapolis is home to two state parks, including the 1,700-acre Fort Harrison State Park. The Fort Harrison State Park features both publicly accessible recreation areas and private nature preserves.
- Greenways crossing through the city serve as important wildlife corridors, linking parks and other greenspaces. By increasing connectivity, greenways help reduce habitat fragmentation. Greenways in Indianapolis include the 22.6-mile Fall Creek Greenway, the 17.8-mile White River Greenway, the 10.3-mile Monon Trail, and many others.
- The Central Indiana Land Trust, a local nonprofit, owns and manages three nature preserves in Indianapolis. The preserves are located along the White River, helping protect riparian habitat.



Recommendations

2.1 Coordinate with Keep Indianapolis Beautiful, Reconnecting to Our Waterways, and the Indiana Native Plant Society to provide information about the control and removal of invasive species on the city's website.

2.2 Pursue opportunities to incorporate a diverse mix of native plant species in Indy parks, especially in downtown parks and neighborhood parks.

2.3 Implement recommendations of the Indianapolis/Marion County Pedestrian Plan and Indy Greenways Master Plan to expand pedestrian infrastructure in underserved neighborhoods.

2.4 Use the Environmentally Sensitive Areas Overlay to protect remaining wetlands in Indianapolis from disruptive development.



Top: A trail winds through Eagle Creek Park.

Right: Native plants for sale outside of the Earth Discovery Center at Eagle Creek Park.

Reducing Hazards to Birds

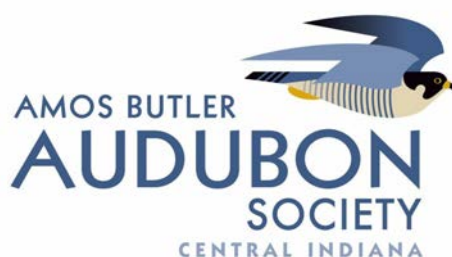
Birds are experiencing threats to their survival, many of which are anthropogenic in nature. Since 1970, bird populations in North America have declined by 29%, a net loss of approximately 3 billion birds (Rosenberg et al., 2019). Birds offer environmental, economic, and intrinsic value to communities across the United States. Consequently, to protect birds as the unique asset that they are, it's important to reduce bird fatalities. This action area focuses on minimizing the threats facing birds in urban environments, from window strikes to light pollution to cat predation.



*Downtown Indianapolis at night.
Photo by Genevieve Zircher.*

Current Actions

- The Amos Butler Audubon Society's Lights Out Indy initiative is focused on preventing bird deaths and saving energy by promoting bird-safe buildings and reducing nighttime lighting.
- Operation Night Light was a collaborative initiative between the City of Indianapolis and AES Indiana in 2016 to retrofit 26,434 streetlights with high-efficiency LED lights to save energy, improve safety, and decrease light pollution at night.
- The Trap-Neuter-Return program from Indy Neighborhood Cats and the Indy Humane Society traps free-roaming cats and neuters them, preventing them from reproducing. The goal of the program is to slowly reduce the cat population, allowing native bird populations to rebound.



Lights Out Indy is an initiative of the Amos Butler Audubon Society, a chapter of the National Audubon Society serving Central Indiana.

Recommendations

3.1 Share information from the Cornell Lab of Ornithology, National Audubon Society, and American Bird Conservancy about how property owners can prevent bird window strikes.

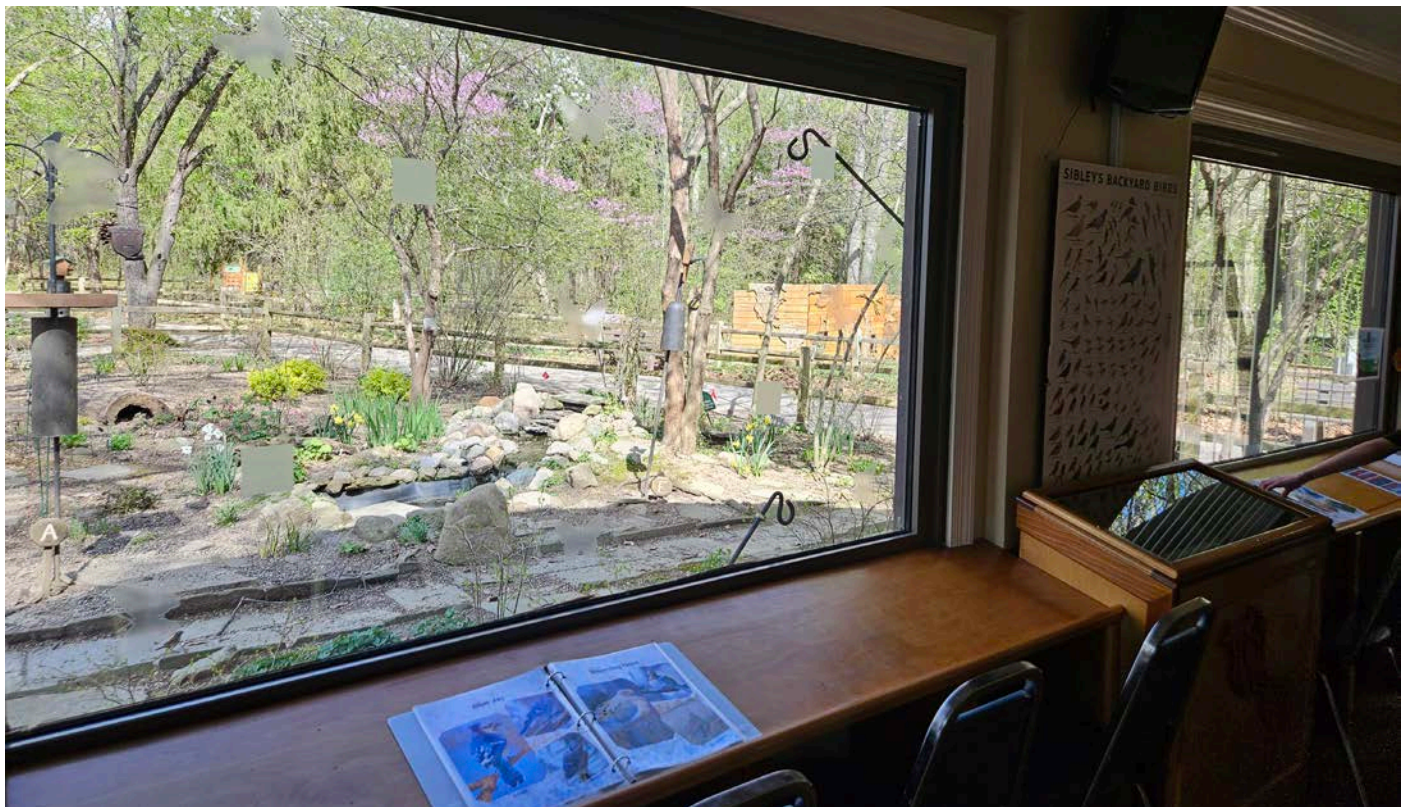
3.2 Adopt an ordinance requiring municipal-owned properties to participate in Lights Out Indy.

3.3 Partner with the Amos Butler Audubon Society (ABAS) to expand the Lights Out Indy program through funding or administrative assistance. Consider making the program an official city program, or a joint venture between the City of Indianapolis and ABAS.

3.4 Coordinate with the Amos Butler Audubon Society to develop and adopt bird-safe building standards for consideration in the issuance of development permits. The American Bird Conservancy’s Model Bird-Friendly Building Guidelines may serve as a starting point for discussion.



The Bird-Friendly Building Design Guide from the American Bird Conservancy and the New York City Audubon provides solutions to mitigate window strikes. The guide also contains a model ordinance for bird-friendly construction. An updated version of this ordinance from November 2022 can be found on the American Bird Conservancy’s website.



Decals are applied to the windows in the observation room at the Eagle Creek Ornithology Center, allowing visitors to see out while preventing window collisions. Photo by Genevieve Zircher.

Education and Engagement

The final action area focuses on educating city residents about birds, as well as providing residents with opportunities to see, hear, and enjoy birds in their community. Experiences with birds, from peaceful solo excursions to social gatherings with friends and family, can spark curiosity, promote relaxation and mental clarity, and instill a love of nature in urban residents. As people become familiar with and learn to appreciate birds, they may become inspired to care for the environment in a broader sense, taking steps to lead more sustainable lifestyles, act as environmental stewards, and/or advocate for the environmental health of their city.



A nature-themed play area at the Holliday Park Nature Center. Photo from the Holliday Park Foundation.



Above: The exhibit hall in the Eagle Creek Ornithology Center features approximately 100 taxidermy birds. Photo by Genevieve Zircher.

Left: Visitors can observe taxidermy birds up close to learn how to better ID them in the wild. Photo by Genevieve Zircher.

Current Actions

- Interpretive staff at Indianapolis nature centers offer field trips for K-12 students to learn about native wildlife.
- Parks and preserves throughout the city offer weekly and monthly programs to learn about the natural environment. Programs include naturalist-led hikes, beginning birder workshops, bird counts, and educational programs centered around specific species.
- The Amos Butler Audubon Society (ABAS), a chapter of the National Audubon Society, serves Central Indiana and provides ample opportunities for members to engage with and learn about birds.
- BirdIndy, a collaborative effort between the City of Indianapolis and community partners, was established in response to the enactment of the Urban Conservation Treaty for Migratory Birds in 2011. Notable achievements included developing a trail guide, installing educational signage, creating an interactive app, and making birding kits available at local libraries. The program was discontinued but could be brought back at any time.

Recommendations

4.1 Recognize and celebrate World Migratory Bird Day by hosting special events at public parks.

4.2 Encourage homeowners, businesses, schools, and churches to participate in the Indiana Wildlife Federation’s Certified Wildlife Habitat program to create thriving greenspaces for Hoosier wildlife.

4.3 Bring back the Bird Indy program to support the enjoyment of birds in parks and greenspaces across Indianapolis. Update and restore the Bird Indy page on the city’s website to help residents find birding sites near them.

4.4 Use a Lighter, Quicker, Cheaper approach to enhance the visitor experience in Indy parks and encourage learning. For example, add signage educating visitors about native wildlife, create more opportunities to sit and watch birds, and/or recruit local artists to paint nature-inspired murals and sidewalk art.

4.5 Hire a small unit of interpretive naturalists that can travel to different Indy parks, particularly those in underserved communities without access to a nature center or staff naturalists, to facilitate educational events and programs.



A BirdIndy sign at Washington Park directs visitors to a broken webpage. Photo by Genevieve Zircher.



Established in 1993, World Migratory Bird Day is an annual global campaign that celebrates the migration of birds across countries and continents. Art by Augusto Silva.



A sign at Eagle Creek Park allows visitors to measure their ‘wingspan.’ Photo by Genevieve Zircher.

CHAPTER 06

IMPLEMENTATION

This chapter summarizes recommendations for future initiatives that the city may pursue to become a model bird-friendly community in the State of Indiana, and the broader Midwest. Each recommendation is accompanied by an estimated cost, responsible parties, and a suggested timeframe. Short-term projects can be achieved in 1-2 years and long-term projects can be achieved in 3-5 years.

Table 3: Recommendations for Future Initiatives in Indianapolis

Category 1: Planning for Bird Conservation			
Recommendation	Estimated Cost	Responsible Parties	Timeframe
1.1 Adopt the Bird-Friendly Indianapolis Guide as an official guiding document.	No Cost	City-County Council, Metropolitan Development Commission	Short
1.2 Create a standing bird advisory committee to tackle bird conservation issues and brainstorm cross-sector solutions in Indianapolis. Following the example of the Vancouver Bird Advisory Committee, members should represent diverse interests and institutions.	No Cost	City-County Council, Indy Parks and Recreation, Amos Butler Audubon Society	Short
1.3 Designate an official city bird to enhance public awareness of conservation issues and demonstrate Indianapolis' interest in addressing these issues. In Vancouver and Seattle, residents voted for their official city bird. Voting can be conducted online, or in-person at nature centers, city parks, and school classrooms.	Little to No Cost for Voting Materials	City-County Council, Indy Parks and Recreation, Amos Butler Audubon Society	Short
1.4 Coordinate with the Indiana Audubon Society to become a certified Bird Town.	\$100 application fee	Office of the Mayor, Indy Parks and Recreation, Indiana Audubon Society	Short
1.5 Participate in the national Bird City Network.	No Cost	Office of the Mayor, Indy Parks and Recreation, Bird City Network	Short

Category 2: Protecting and Promoting Nature in the City

Recommendation	Estimated Cost	Responsible Parties	Timeframe
2.1 Coordinate with Keep Indianapolis Beautiful, Reconnecting to Our Waterways, and the Indiana Native Plant Society to provide information about the control and removal of invasive species on the city’s website.	No Cost	Office of Sustainability, Keep Indianapolis Beautiful, Reconnecting to Our Waterways, Indiana Native Plant Society	Short
2.2 Pursue opportunities to incorporate a diverse mix of native plant species in Indy parks, especially in downtown parks and neighborhood parks.	Project-Dependent	Department of Public Works, Indy Parks and Recreation	Ongoing
2.3 Implement recommendations of the Indianapolis/Marion County Pedestrian Plan and Indy Greenways Master Plan to expand pedestrian infrastructure in underserved neighborhoods.	Project-Dependent	Department of Public Works, Greenways Development Committee	Ongoing
2.4 Use the Environmentally Sensitive Areas Overlay to protect remaining wetlands in Indianapolis from disruptive development.	No Cost	Department of Metropolitan Development	Ongoing



A ruby-throated hummingbird sipping nectar from a flower. Photo by Ryan Yann from the Macaulay Library.

Category 3: Reducing Hazards to Birds

Recommendation	Estimated Cost	Responsible Parties	Timeframe
3.1 Share information from the Cornell Lab of Ornithology, National Audubon Society, and American Bird Conservancy about how property owners can prevent bird window strikes.	No Cost	Office of Sustainability, Cornell Lab of Ornithology, National Audubon Society, American Bird Conservancy	Short
3.2 Adopt an ordinance requiring municipal-owned properties to participate in Lights Out Indy.	No Cost	City-County Council	Short
3.3 Partner with the Amos Butler Audubon Society (ABAS) to expand the Lights Out Indy program through funding or administrative assistance. Consider making the program an official city program, or a joint venture between the City of Indianapolis and ABAS.	Varies Depending on Approach and Resourced Needed	Office of Sustainability, Amos Butler Audubon Society	Long
3.4 Coordinate with the Amos Butler Audubon Society to develop and adopt bird-safe building standards for consideration in the issuance of development permits. The American Bird Conservancy’s Model Bird-Friendly Building Guidelines may serve as a starting point for discussion.	No Cost	Department of Metropolitan Development, Amos Butler Audubon Society, Office of Sustainability	Long



A great-horned owl at the North Mudflats in Eagle Creek Park. Photo by Ryan Sanderson from the Macaulay Library.

Category 4: Education and Engagement

Recommendation	Estimated Cost	Responsible Parties	Timeframe
4.1 Recognize and celebrate World Migratory Bird Day by hosting special events at Indianapolis parks.	Minimal Cost Depending on Desired Programming	Indy Parks and Recreation	Short
4.2 Encourage homeowners, businesses, schools, and churches to participate in the Indiana Wildlife Federation’s Certified Wildlife Habitat program to create thriving greenspaces for Hoosier wildlife. This can be achieved through a webpage or social media post(s).	No Cost	Office of Sustainability, Indiana Wildlife Federation	Short
4.3 Bring back the Bird Indy program to support the enjoyment of birds in parks and greenspaces across Indianapolis. Update and restore the Bird Indy page on the city’s website to help residents find birding sites near them.	Little to No Cost for Website Maintenance	Office of Sustainability	Short
4.4 Use a Lighter, Quicker, Cheaper approach to enhance the visitor experience in Indy parks and encourage learning. For example, add signage educating visitors about native wildlife, create more opportunities to sit and watch birds, and/or recruit local artists to paint nature-inspired murals and sidewalk art.	Project- Dependent	Indy Parks and Recreation, Department of Public Works	Short
4.5 Hire a small unit of interpretive naturalists that can travel to different Indy parks, particularly those in underserved communities without access to a nature center or staff naturalists, to facilitate educational events and programs.	Salary + Benefits for Team of Naturalists (1-2 people)	Indy Parks and Recreation	Long

CHAPTER 07

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A trail along Eagle Creek Reservoir.
Photo by Genevieve Zircher.

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A building in downtown Indianapolis along the Cultural Trail. Photo by Genevieve Zircher.

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Back cover photo by Alex Lamoreaux from the Cornell Lab of Ornithology's Macaulay Library.

BIRD-FRIENDLY INDIANAPOLIS GUIDE



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