



Purple Martins returning to their nightly migration roost in downtown Nashville © Kim Bailey

# CITY OF NASHVILLE URBAN BIRD TREATY PROPOSAL

**2023 U.S. FISH AND WILDLIFE SERVICE APPLICATION**



OFFICE OF MAYOR  
**JOHN COOPER**





Ruby-throated Hummingbird © Charlie Curry

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Warner Park Nature Center © Laura Cook

## INTRODUCTION

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### A Growing and Increasingly Diverse City

Nashville is the seat of Davidson County and state capital of Tennessee, located in Middle Tennessee along the Cumberland River. The Metropolitan Government of Nashville and Davidson County is a consolidated city-county government, and Metro Nashville refers to the entirety of Davidson County. Also known as Music City, the area is known for its technology, healthcare, music, and tourism industries. It is also home to several institutions of higher education, including four Historically Black Colleges and Universities. Nashville is one of the most rapidly growing metropolitan areas in the country, with a 20% population increase over the past decade. This growth has resulted in development of previously undeveloped properties, which has decreased species habitat, tree canopy, and availability of green space. This has resulted in detrimental environmental and natural resource impacts, as well as increased human pressure on local wildlife, including bird populations.

As the city grows, it is important to balance a strong economy with preservation of natural resources, minimizing detrimental environmental impacts, ensuring environmental inclusion and equity, and improving the quality of life. The Urban Bird Treaty program (UBT) will play a significant role in meeting these goals.

### A City Focused on Preservation of Natural Resources

Nashville lies within the Outer Nashville Basin in the Interior Plateau ecoregion, characterized by rolling hills of temperate deciduous forest. Predominate land covers include a mix of intense urban development, suburbs, and pastureland. Bisecting Nashville, the Cumberland River is highly biologically diverse and supports hundreds of fish and freshwater mussel species. At the same time, the Cumberland River and its tributaries are significantly threatened due to pollution and habitat fragmentation.

One prominent feature of Nashville is its large parks system. It is the mission of Metro Parks and Recreation to sustainably and equitably provide everyone in Nashville with an inviting network of parks and greenways that offer health, wellness, and quality of life through recreation, conservation, and community. Metro Parks oversees 15,134-acres of public lands, including 178 parks and ninety-nine miles of greenways. Within that system of parks, four large parks (Beaman Park, Bells Bend Park, Shelby Bottoms, and Warner Parks) encircle the city and host staffed nature centers that provide environmental education and outdoor opportunities. Those four parks, along with the 600-acre Mill Ridge Park in Southeast Nashville, 800-acre Ravenwood and Lytle Park, 600-acre Peeler Park and Taylor Farm in Neely's Bend of the Cumberland River, and the 790-acre Hamilton Creek Park, which hosts the federally endangered flowering prairie clover (*Dalea foliosa*), collectively comprise 8,000-acres of Metro Nashville's Natural Areas.

The state of Tennessee owns and manages, through the Tennessee Wildlife Resources Agency, the Percy Priest Wildlife Management Area (WMA) on the northern part of Percy Priest Lake. The WMA includes approximately 2,000 acres in Davidson County, with a mixture of agricultural lands, old fallow fields and shallow water ponds.

Within Nashville, five areas are designated as Tennessee State Natural Areas: Couchville Cedar Glade, the Hill Forest within Warner Parks, Mount View Glade, Radnor Lake, and most of Beaman Park. The State Natural Areas program, administered by the Tennessee Division of Natural Areas, seeks to represent all natural communities that make up Tennessee's natural landscape and to provide long-term protection for Tennessee's rare, threatened, and endangered plants and animals.

Four areas within Nashville have been designated by Audubon and Tennessee Wildlife Resources Agency (TWRA) as Important Bird Areas: Old Hickory Lake, Radnor Lake State Natural Area, Shelby Bottoms & Greenway, and Warner Parks.

The combination of these lush and diverse parks contributes significantly to Nashville as an important area for migrating, nesting, and overwintering birds. Three hundred twenty-five bird species have been documented in Nashville (per eBird). Located on the eastern edge of the Mississippi Flyway, millions of birds migrate through Nashville annually. Neotropical migrants and species of greatest conservation need, such as Wood Thrush, Yellow-billed Cuckoo, Louisiana Waterthrush, and Kentucky Warbler regularly breed in Nashville. Species such as Hermit Thrushes, Brown Creepers, Winter Wrens, Dark-eyed Juncos, Pine Siskin, and Purple Finches winter here.

### Why Nashville?

The actions outlined in this proposal will benefit the numerous migratory, breeding, and wintering birds in Nashville, engage diverse communities, and increase awareness of the city's birds and habitats and how essential they are to the welfare of Nashville's residents and visitors.

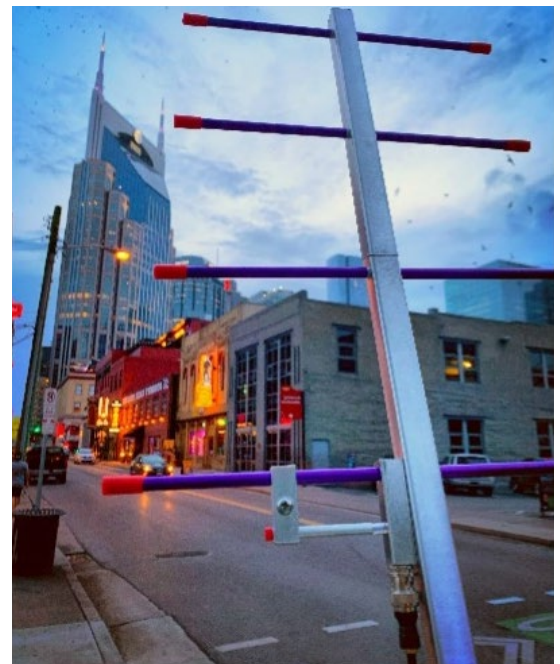
The impetus to become part of the Urban Bird Treaty Program (UBT) started in spring 2022 after issues arose with a Purple Martin migration roost in downtown Nashville. While Purple Martins have historically roosted along the Cumberland River near Nashville, with numbers reaching 80,000 birds, in August 2020 approximately 150,000 Purple Martins began roosting in the heart of downtown at the Nashville Symphony's Schermerhorn Symphony Center. This amazing migration phenomenon received [local](#) and [national](#) attention.

The Purple Martins returned to the migration roost at the Nashville Symphony in 2021, drawing [more national attention](#). But in 2022, to avoid lasting and damaging effects on the building and institution, the Symphony decided to cut down the roost trees in an attempt to redirect the Purple Martins elsewhere. The local conservation community coalesced to provide guidance to the Symphony to safely divert the migration roost. Moving ahead, there is a commitment to finding lasting solutions to ensure the safety of Purple Martins and other migratory bird populations.

The complexities of hosting such a large influx of birds in an urban environment led to the realization that Nashville needed a plan in place to support not just the Purple Martins, but all native birds in Nashville. The U.S. Fish and Wildlife Service (USFWS)'s UBT provides an opportunity for Nashville to create bird-friendly habitats while providing communities the opportunity to connect with nature through bird-related activities.



*Purple Martins Fly over the Schermerhorn Symphony Center in September 2020 © Terry Cook*



*Tracking radio-tagged Purple Martins in downtown Nashville © Terry Cook*



*Purple Martin in Flight © Terry Cook*



*An adult Red-tailed Hawk observing the photographer © Terry Cook*

Nashville's proposal to become part of the UBT community reflects our commitment to create a thriving habitat for birds. Nashville's Bird Agenda will build upon our community's programs and activities to ensure our city is safe and welcoming for birds and engaging for all communities.

With the designation of an UBT city, and in partnership with stakeholder organizations and government agencies, we will work to implement Nashville's Bird Agenda to achieve the following Goals:

- Goal 1: Protect, restore, and enhance urban habitats for birds,
- Goal 2: Reduce urban hazards to birds,
- Goal 3: Educate and engage urban communities in caring about and conserving birds and their habitats.

Nashville's Bird Agenda Goals 1 and 2 have been informed by partners, an in-person stakeholders meeting in October 2022, and numerous resources, including:

- [Tennessee's State Wildlife Action Plan \(SWAP\)](#) has identified 81 bird Species of Greatest Conservation Need (SGCN), many of them occur within Davidson County. The Mill Creek Watershed and Interior Low Plateau Cedar Glades have been identified as important Conservation Opportunity Areas (COAs) in the plan. The COAs provide desired goals and objectives to keep species from being added to the federal threatened and endangered species list. In each of the COAs there are desired changes to conserve SGCN species and the habitats on which they depend.
- The North America Bird Conservation Initiative (NABCI) Nashville is part of the [Central Hardwoods Joint Venture](#) region. The joint venture is a partnership of state, federal, non-government and academic organizations that work to conserve birds and their habitats within the region. The joint venture has identified a list of priority birds and habitats to focus conservation actions. The priority species have been identified using the Partners in Flight Avian Conservation Assessment Database and delineated by habitat (Forest-Woodland, Grass-Shrubland, Grassland and Wetland). The joint venture develops and implements science-based tools to address the conservation needs of these species at local and regional scales.
- The Eastern Partners in Flight Working Group occurs within the designated boundary of Nashville's Bird Agenda and is focused on the conservation of landbird species. This group is focused on convening partners to focus on conservation delivery, full annual cycle conservation and data management in the eastern United States, Canada and Central and South America.
- The Non-game Bird Technical Section within the Mississippi Flyway Council is a forum for cooperative interaction among state, provincial, territorial, tribal, university, conservation organization, and federal biologists, with the goal of implementing integrated management and research programs for birds. The Technical Section discusses and develops national, international, and Flyway-wide projects that complement conservation activities at international and local levels.

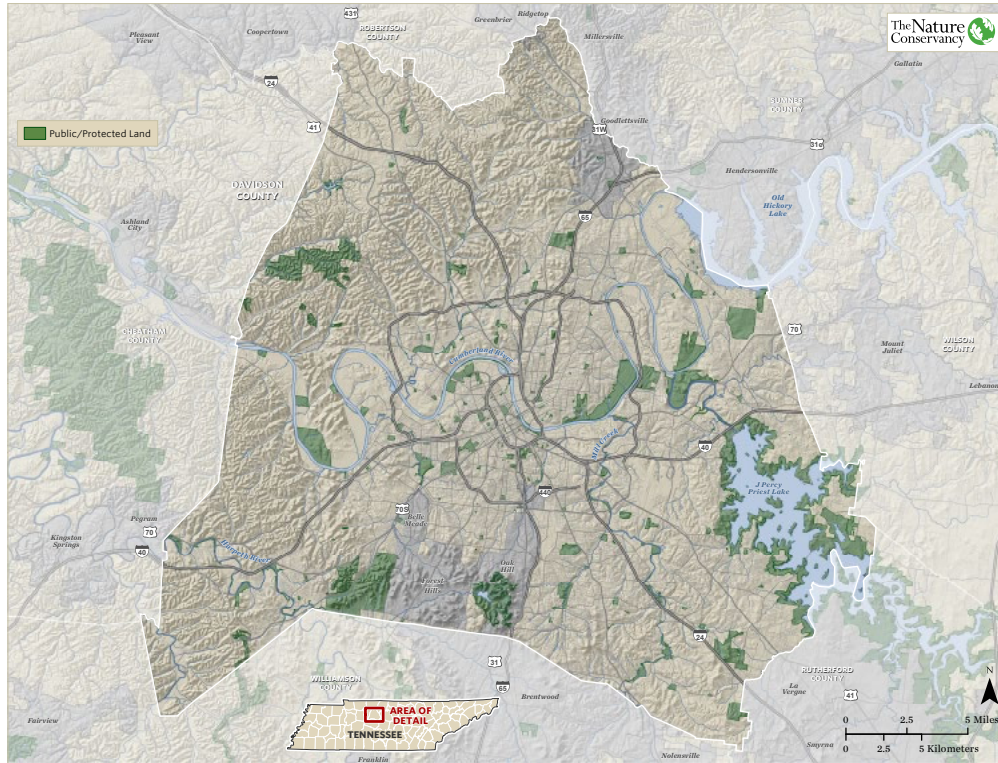
Nashville's Bird Agenda Goal 3 to engage communities has also been informed by partners, an in-person stakeholders meeting in October 2022, and numerous resources, including:

- Plan to Play: [Countywide Parks and Greenways Master Plan](#)
- [Nashville Open Space Plan](#)
- The Mayor's Office staff dedicated to [Sustainability, Resilience, and the Environment](#)

# GEOGRAPHY AND COMMUNITY

The proposed UBT designation will apply to Nashville and Davidson County, which is a consolidated city-county geography under the Metropolitan Government of Nashville.

**Figure 1. Davidson County spans 526 square miles and is home to over 703,000 residents**



As Nashville has grown, its population has become increasingly diverse. In the 1970s, Nashville and Davidson County's population was approximately 80% white (non-Hispanic). Fast-forward to today, the diversity of the city's population is comprised of 56.4% white (non-Hispanic) and 42.3% people of color.<sup>1</sup>

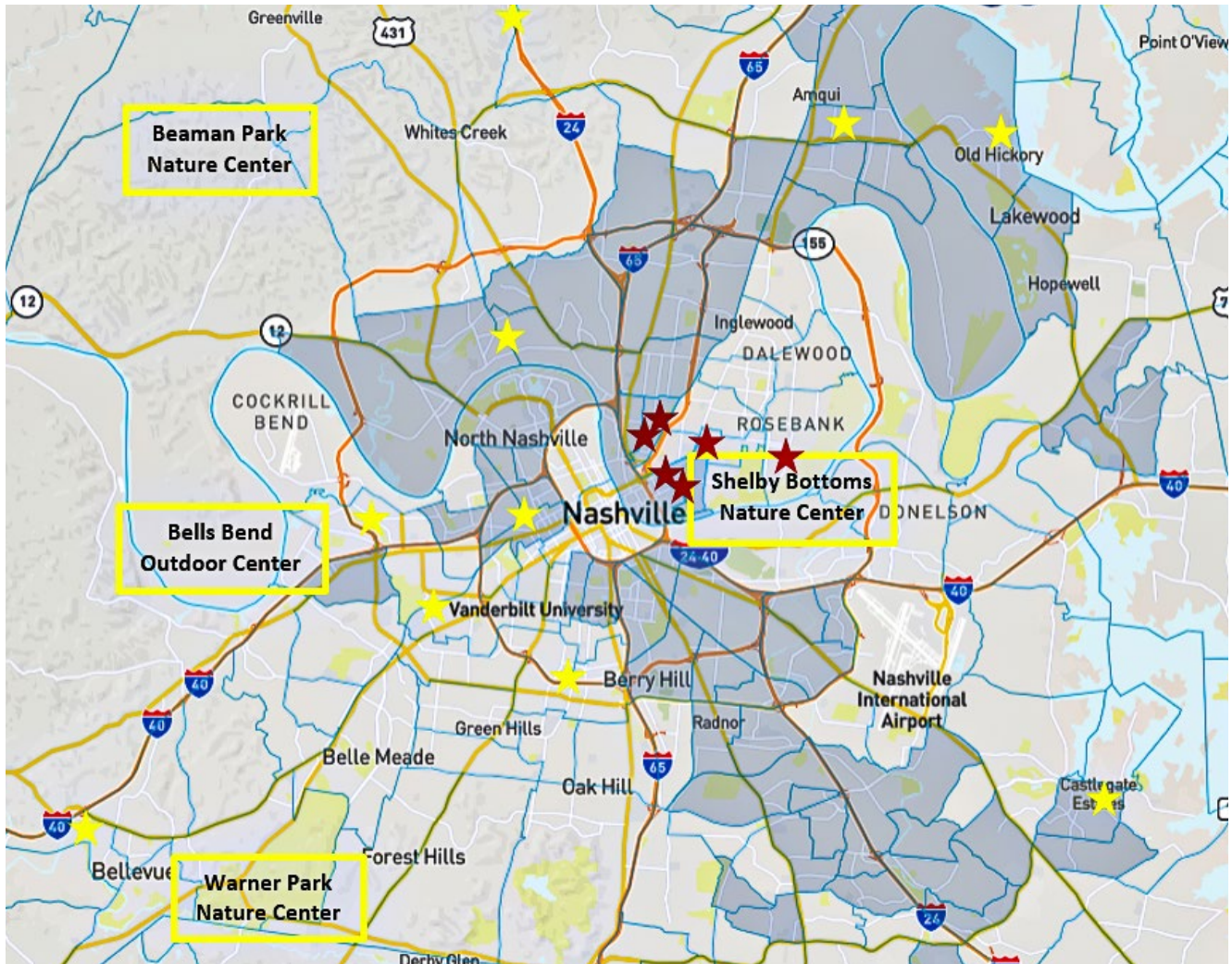
**Table 1. Davidson County's population demographics from the U.S. Census Bureau<sup>1</sup>**

	Davidson County Population
Persons under 5 years	6.3%
Persons 65 years and over	13.1%
Black or African American	27.2%
American Indian and Alaska Native	0.5%
Asian	3.9%
Native Hawaiian and other Pacific Islander	0.1%
Hispanic or Latino	10.6%
White alone, not Hispanic or Latino	56.4%
High school graduate or higher	90.1%
Median household income	\$66,047
Persons in poverty	15.0%

<sup>1</sup> See generally, <https://www.census.gov/quickfacts/fact/table/davidsoncountytennessee/>.

The Council on Environmental Quality has released the Climate and Economic Justice Screening Tool to support identification of census tracts that are overburdened and underserved. According to this tool, Figure 2 displays the blue shaded census tracts characterized as disadvantaged.

**Figure 2. Census Tracts Identified as Disadvantaged and Sites Providing Environmental Programs**



- Blue shading:** Census tracts characterized as disadvantaged
- Yellow boxes:** Nature Centers
- Yellow Stars:** Community Centers currently hosting environmental programs
- Red Stars:** Community Centers identified for new expansion of environmental programs

In addition to Nashville Tennessee Ornithological Society and Audubon, the majority of bird-related programming in Nashville occurs at Metro Nashville Parks & Recreation’s Nature Centers. There are four in total, located in each of the four largest Metro Parks—Warner Park, Shelby Bottoms, Beaman Park, and Bells Bend Park. The four Nature Centers in Nashville have been overlaid on Figure 2, with their distance from the blue shaded census tracts demonstrating a challenge geographically to reach overburdened and underserved communities. Examining the differing demographics surrounding each Nature Center helps to inform strategies for engaging underserved communities.

**Table 2. Demographics within a 5-mile buffer of each Nature Center<sup>2</sup>**

	Beaman Park Nature Center	Bells Bend Outdoor Center	Shelby Bottoms Nature Center	Warner Park Nature Center
Location	Northwest Davidson County near Joelton, 5911 Old Hickory Blvd., Ashland City, TN 37015	Rural Scottsboro in pastoral bend of the Cumberland River, 4187 Old Hickory Blvd., Nashville, TN 37218	East Nashville along urban area of the Cumberland River, 1900 Davidson Street, Nashville, TN 37206	Suburban West Nashville, 7311 Highway 100, Nashville, TN 37221
People of Color	37%	29%	45%	17%
Low Income	28%	24%	37%	12%
Unemployment Rate	7%	4%	5%	2%
Limited English-Speaking Households	2%	3%	4%	1%
Less Than High School Education	14%	8%	12%	2%
Under Age 5	7%	6%	6%	6%
Over Age 64	20%	16%	10%	18%

To address geographical distance from underserved communities, a variety of programming has been historically provided, including [The Urban Nature Program](#), a partnership with [Metro Parks Community Centers](#), Warner Park Nature Center and Friends of Warner Parks on-going since 1988. This program offers high-quality outdoor and environmental education experiences and programming for approximately 1,800 urban youth from Nashville’s diverse communities annually. Community Centers participating in the program are featured on Figure 2 as yellow stars. Through this mapping process, underserved communities with no current bird-related environmental education programming were identified. As a result, Shelby Bottoms Nature Center has committed to providing new programming at six additional community centers located in the disadvantaged census tracts, or just adjacent by a couple blocks and serving the shaded area’s population. These additional community centers are demonstrated by red stars (Figure 2).

Specific aspects of the Urban Nature Program at Community Centers include:

- The **People Exploring Nature (PEN) Pals** program engages with local community centers and provides opportunities for youths aged 8-12 years from diverse backgrounds to explore in nature and build skills to be a naturalist. PEN Pals includes summer day camps, fall campfires, and night hikes.
- After-school **Nature Detective Clubs** are offered at Metro Parks Community Centers. Youth meet once to twice monthly with an Urban Naturalist to explore, observe, and develop an appreciation for nature in their neighborhood park.



*Volunteer and Master bird bander, John Kell showing a recently banded Tufted Titmouse to PEN Pals participants © Laura Cook*

2 Demographic information obtained from the U.S. Environmental Protection Agency’s EJ Screen Tool, accessible at <https://www.epa.gov/ejscreen>.





*Bird Camp kids try out binoculars for the first time © Kim Bailey*

Of note, in 2005 Nashville’s Nature Centers received funding from the USFWS’ Urban Conservation Treaty program. This funding allowed them to host 7 bird club sessions at 5 community centers from March through May. They were so well received that two week-long summer bird camps and two more 7-week bird club sessions were held in Fall 2005. The summer bird camps continued through 2009 when the funding was completed. Bird camps for underserved youth continued from 2010-2012 with funding provided by Friends of Warner Parks.

With the recent hire of a new coordinator for Nashville Park’s **Urban Nature Program**, the program will continue to grow and offer outdoor and environmental education opportunities for underrepresented school-aged kids through Metro Parks Community Centers.

Additional engagement has occurred through college internships. For the past several years, Warner Park Nature Center has hosted paid college internships. These include:

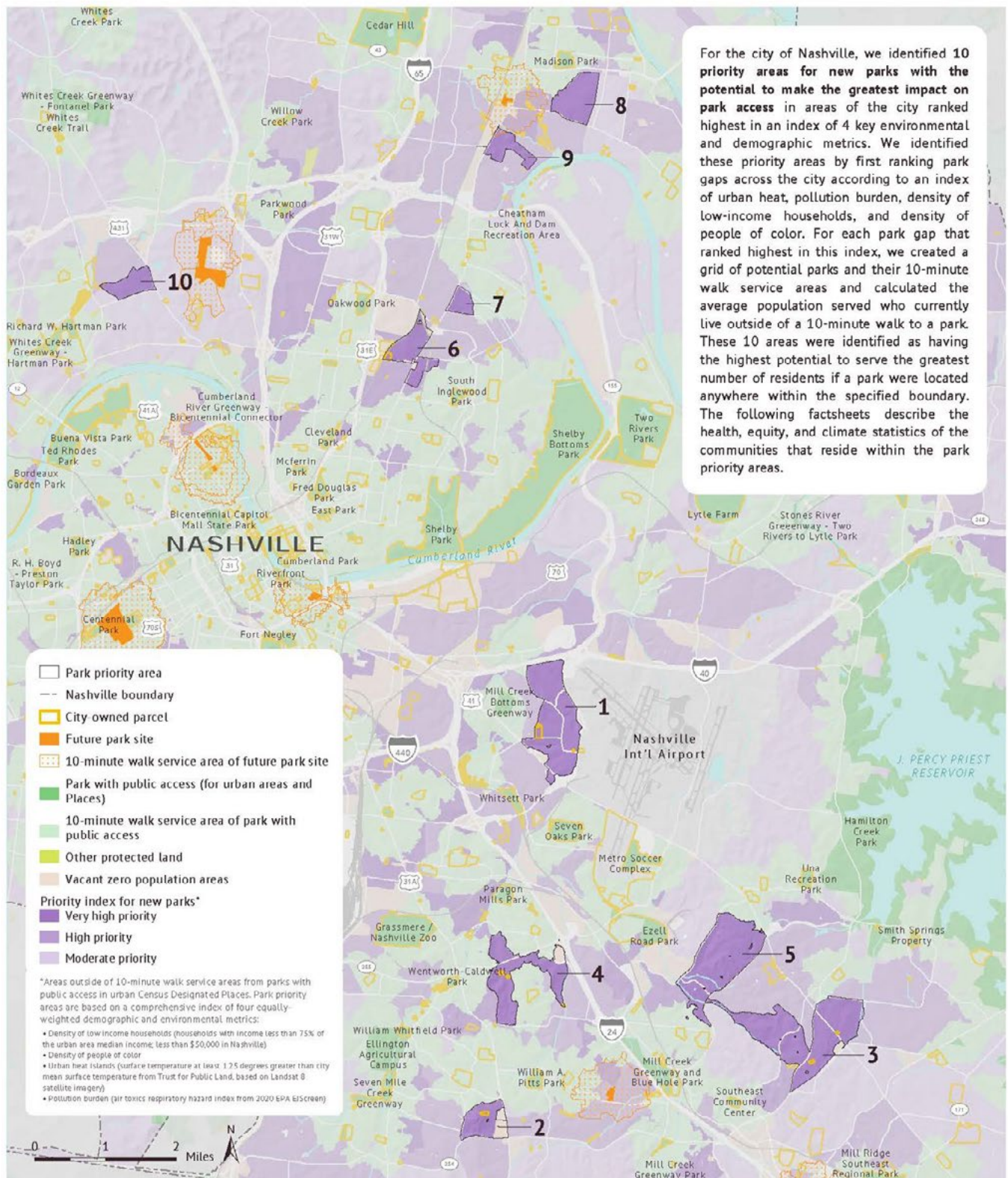
- a summer internship through Lipscomb University with a focus on avian research projects with the BIRD Program
- a semester internship through Tennessee State University, a HBCU, focused on avian research with the BIRD Program
- a semester internship through Tennessee State University, a HBCU, working with Warner Park Nature Center staff on environmental education and engagement



*Naturalist and permitted bird bander Rachel Anderson with park visitors © Patty Ghertner*

Additional work was completed between the City of Nashville and Trust for Public Land (TPL) to improve nature access for underserved neighborhoods. The Trust for Public Land (TPL) developed a tool called ParkServe, which [displays park access across and within Nashville and Davidson County](#). In 2022, TPL and the City evaluated opportunities to increase resident 10-minute walk access to parks. TPL produced a report that identifies locations where park access is severely lacking, taking into consideration population demographics (Figure 3). This analysis can also serve as a proxy for identifying populations and neighborhoods of the city that may be underserved or underrepresented from an environmental perspective and help guide prioritization of areas for habitat protection and restoration to meet the dual goals of supporting bird habitat and underserved communities.

Figure 3. Priority areas for new parks in Nashville



# Priority areas for new parks

NASHVILLE, TENNESSEE

September 1, 2022. Copyright © Trust for Public Land. Trust for Public Land and Trust for Public Land logo are federally registered marks of Trust for Public Land. Information on this map is provided for purposes of discussion and visualization only. [www.tpl.org](http://www.tpl.org)



# PARTNERSHIP

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The Nashville UBT partnership is comprised of six core partner entities, who came together to develop this plan and are committed to implementation, evaluation, and reporting to the U.S. Fish and Wildlife Service's UBT. The core partners hosted one stakeholder meeting with thirty attendees to collaboratively develop the Bird Agenda with committed partners for each Action's implementation. Additional stakeholders were engaged individually as follow up to the meeting and draft materials for the application were shared with a larger group of more than 90 stakeholders. A full list of stakeholders engaged in the process is included in **Appendix A**.

## **Core Partner Team:**

- David Hanni, Tennessee Wildlife Resources Agency, [david.hanni@tn.gov](mailto:david.hanni@tn.gov)
- Denise Weyer, Nashville Metro Parks, [denise.weyer@nashville.gov](mailto:denise.weyer@nashville.gov)
- Kendra Abkowitz, Mayor's Office / Sustainability & Resilience Officer Metro Nashville, [Kendra.abkowitz@nashville.gov](mailto:Kendra.abkowitz@nashville.gov)
- Kim Bailey, Bird Safe Nashville, [kimhbailey@hotmail.com](mailto:kimhbailey@hotmail.com)
- Laura Cook, Warner Park Nature Center BIRD Program / Friends of Warner Parks, [laura.cook@nashville.gov](mailto:laura.cook@nashville.gov)
- Lindsay Hanna, The Nature Conservancy, [Lindsay.Hanna@tnc.org](mailto:Lindsay.Hanna@tnc.org)
- Terry Cook, The Nature Conservancy, [terry.cook@tnc.org](mailto:terry.cook@tnc.org)

Many of the partners engaged in the development and implementation of this Bird Agenda have a deep commitment to underserved communities within Nashville. Below are a few examples, not meant to be comprehensive, of Bird Agenda partner organizations striving to ensure inclusion, diversity, and equitable access to the outdoors through programmatic engagement:

- Metro Parks and Recreation's mission is to sustainably and equitably provide everyone in Nashville with an inviting network of parks and greenways that offer health, wellness and quality of life through recreation, conservation and community. Metro Parks' ten Regional and seventeen Neighborhood Community Centers, four Nature Centers, Fort Negley's historical education program, and Metro Parks' outdoor recreation program, Outdoor Nashville, provide free programmatic engagement opportunities through school and youth groups, outreach programming, summer camps, and internships.
- Friends of Mill Ridge Park welcomes the diverse community of Southeast Davidson County with facilities, programs, services, activities, and events for outdoor recreation, education, conservation, and enrichment through programs such as book clubs, trail work, and bird counts.
- Urban Green Lab (UGL) teaches communities how to live sustainably through a suite of grassroots educational programs aimed at making sustainability learning just a part of life. This includes programs for teacher training, workplace coaching, and family empowerment. UGL also leads the Nashville Food Waste Initiative and the Nashville Environmental Justice Initiative.
- Cheekwood Estate and Gardens is a historical landmark that serves as an inspiration for a diverse and broad audience. Initiatives include school programs, access programs, art and garden outreach, community advisory committees, and cultural partnerships.
- The Root Nashville campaign is a public-private partnership to plant 500,000 trees that will help create more healthy and climate-resilient neighborhoods in Nashville, with a special emphasis on creating an equitable canopy distribution through planting efforts in areas with fewer trees. Too often, neighborhoods with less canopy coverage are lower-income, and have a higher population percentage of people of color.

Nashville's UBT partnership is committed to building and sustaining meaningful relationships with additional community groups in underserved communities. Disadvantaged communities identified by the Climate and Economic Justice Screening Tool will be a focal area for deepening relationships with historically unengaged communities, and a priority geography to implement the Bird Agenda Actions related to education and engagement.

## Mission, Goals & Objectives of Nashville’s Bird Agenda:

**Mission:** The purpose of the Bird Agenda is to work collaboratively to benefit the numerous migratory, breeding, and wintering birds in Nashville by increasing awareness and education, reducing bird hazards, and by conserving and restoring important habitat.

**Vision:** To make Nashville a city that is safe and welcoming for birds, and inclusive of all communities in engagement and educational activities.

Table 3 highlights the goals and objectives identified by stakeholders as priorities for the next five years of the Nashville Bird Agenda. Each objective has corresponding Actions and partners detailed in the Bird Agenda (Table 5).

**Table 3. Priority Goals and Objectives for the Nashville Bird Agenda**

<b>GOAL 1:</b> <b>Conserve Urban Habitats for Birds</b>	<b>GOAL 2:</b> <b>Reduce Urban Hazards to Birds</b>	<b>GOAL 3:</b> <b>Educate and Engage Urban Communities in Caring about and Conserving Birds and their Habitats</b>
<b>Objective 1.1:</b> Create, restore, protect, and ensure best management practices for bird habitat (required)	<b>Objective 2.1:</b> Address disturbance by invasive and detrimental species	<b>Objective 3.1:</b> Celebrate World Migratory Bird Day (required)
<b>Objective 1.2:</b> Promote native and beneficial plants for birds	<b>Objective 2.2:</b> Address bird collisions with glass (required)	<b>Objective 3.2:</b> Increase awareness of birds and their habitats in your community
<b>Objective 1.3:</b> Support bird focal species	<b>Objective 2.3:</b> Address light pollution (required)	<b>Objective 3.3:</b> Educate and engage youth and young adults including diverse underserved communities.
<b>Objective 1.4:</b> Ensure clean water and natural waterways	<b>Objective 2.4:</b> Address the threat of disease, pollution, pesticides, and other environmental hazards	<b>Objective 3.4:</b> Involve the community in conservation and stewardship
		<b>Objective 3.5:</b> Promote community science, monitoring, and research



*Female Belted Kingfisher hunting for fish at Metro’s Lytle Park © Terry Cook*

**Prior Partner Accomplishments:**

There are many activities that have occurred in the past three years to support migratory birds, habitat conservation, and education. The Nashville UBT core group conducted a survey for key stakeholders in the Nashville Metro area to identify what activities were recently accomplished. A total of 18 survey respondents reported on over 50 activities that meet the Goals and Objectives of the UBT. A table of detailed accomplishments made by the stakeholder network, including activity descriptions, audience reached, partners, outcomes, and time frame is available in **APPENDIX B**. Table 4 summarizes the goals and activities previously accomplished; demonstrating the breadth and reach of existing work.

**Table 4. Summary of Partner Accomplishments by Goal and Objective**

Goal 1	Control invasive and detrimental plants
Goal 1	Create, restore, and protect bird habitat
Goal 1	Promote native and beneficial plants for birds
Goal 1	Provide bird nesting habitat
Goal 1	Support bird focal species (inventories or research on focal species)
Goal 2	Address bird collisions with glass
Goal 2	Address light pollution
Goal 3	Educate and engage youth and young adults
Goal 3	Ensure access to nature to diverse and under-resourced communities
Goal 3	Increase awareness of birds and their habitats in your community
Goal 3	Involve the community in conservation and stewardship
Goal 3	Promote community science, monitoring, and research (eBird, CBC, iNaturalist, etc.)

# NASHVILLE'S BIRD AGENDA:

Nashville's Bird Agenda (Table 5) was created in collaboration with the core group of partners and numerous stakeholders via the October 2022 Stakeholder meeting and through follow-up with individuals. As the Bird Agenda is implemented, partners will go through an additional process of prioritization based on feasible timelines and available funding. Actions are anticipated to be completed within a 3 to 5-year timeline. The core group of partners has made these Actions as specific, measurable, achievable, relevant and time-bound (SMART) as is feasible at this time. While Actions are specific and relevant to supporting the overarching goals, there is recognition that details may change during implementation due to changing variables and/or resource opportunities.

**Table 5. Nashville's Bird Agenda**

Goals, Objectives, Actions 2023-2027	Partners for Implementation
<b>Goal 1: Conserve Urban Habitats for Birds</b>	
<b>Objective 1.1: Create, restore, protect, and ensure best management practices for bird habitat</b>	
Action 1.1.1. Identify and implement seasonal best management practices for birds on metro-owned public lands. This includes properly timed mowing, minimal use of herbicides/pesticides, and retaining snags and standing dead trees for cavity nesting birds.	Metro Parks Nature Centers (Nature Centers), Metro Departments, Nashville Zoo
Action 1.1.2. Work with private business and non-governmental landowners to adopt seasonal management best practices that protect nesting birds on their properties.	Tennessee Wildlife Federation, The Habitat Connection
Action 1.1.3. Develop and receive approval for a natural areas designation plan for new or existing public lands and/or portions of publicly owned land (local, state, federal) as 'natural areas' that would be primarily managed for the benefit of native plants, wildlife, and ecosystems, and may include passive recreational activities.	The Nature Conservancy (TNC), Metro Departments
Action 1.1.4. Identify priorities for potential land acquisitions, donations, or conservation easements that could benefit priority bird, wildlife, riparian and native plant communities.	TennGreen, TNC, Metro Departments
Action 1.1.5. Restore 200 acres and implement a maintenance plan for habitat on publicly owned land (Metro Parks, TWRA, TN State Parks) with special emphasis on native grasslands.	TNC, TN Wildlife Resources Agency (TWRA), TN State Parks & State Natural Areas, Metro Departments
Action 1.1.6. Collaborate with local communities to create native habitat and demonstration gardens in and on public properties, community centers, libraries, or other sites to provide nature access that can be easily visited by socioeconomically diverse groups.	Urban Green Lab, Nature Centers
Action 1.1.7. Explore opportunities for permanent dedicated funding in Metro Nashville to support habitat protection and restoration.	TNC, Mayor's Office, Trust for Public Land
Action 1.1.8. Sponsor a small grants program for habitat restoration projects to improve bird habitat.	Wild Ones, TWRA, Garden Club of Nashville, Metro Departments
<b>Objective 1.2: Promote native and beneficial plants for birds</b>	
Action 1.2.1. Maximize the value of vacant lots and right-of-way space (e.g., power lines, pipelines, etc.) and Nashville's flood buyout sites by promoting and advocating for native plantings that support birds throughout the year. See <a href="#">Homegrown National Park</a> and <a href="#">Audubon's Plants for Birds Program</a> .	Cumberland River Compact, Harpeth Conservancy, NES, TN State Parks & State Natural Areas, Metro Departments

Action 1.2.2. Advocate for the incorporation of native trees, native shrubs, native herbaceous plants, and/or cultivars of native species in public and private landscaping. See <a href="#">Homegrown National Park</a> and <a href="#">Audubon's Plants for Birds Program</a> .	Urban Green Lab, Nature Centers, Metro Departments, Cheekwood
Action 1.2.3. Develop and promote a city-recommended list of native tree, shrub and forb species that support birds throughout the year, recommended for use by parks and new developments (business and sub-division developers). See <a href="#">Homegrown National Park</a> and <a href="#">Audubon's Plants for Birds Program</a> .	Urban Green Lab, Nature Centers, Tennessee Invasive Plant Council, Metro Departments
Action 1.2.4. Host plant sales with high emphasis on native plants that support birds.	Wild Ones, Garden Club Nashville
<b>Objective 1.3: Support bird focal species</b>	
Action 1.3.1. Utilize the Tennessee State Wildlife Action Plan (SWAP) and state and federally listed species to identify the suite of birds that occur within Davidson County and have also been determined by SWAP to be of greatest conservation need.	TWRA
Action 1.3.2. Promote the conservation of focal species (e.g., Eastern Bluebird, Barn Swallow, Rusty Blackbird, Osprey, Chimney Swift, Loggerhead Shrike) through research, state of the art habitat management techniques, and/or public education.	TWRA, Nature Centers, Friends of Warner Park's Warner Park Nature Center BIRD Program (BIRD Program), Southeastern Avian Research (SEAR), Austin Peay State University, Nashville Zoo
Action 1.3.3. Install a permanent Motus receiver station in downtown Nashville to inform Purple Martin roost behavior, benefiting other avian research projects. Identify other sites where the installation of additional Motus stations provide increased opportunities to support research of priority species.	BIRD Program, Nashville Zoo, TNC
Action 1.3.4. Utilize eBird, iNaturalist and local expert-derived information to construct species lists for each nature center and public lands over 100 acres and identify areas/habitats where birds of greatest conservation need are most often observed.	Nature Centers, TNC
Action 1.3.5. Create an informal Purple Martin task force to annually identify and document the migration roost, and to work with partners to ensure the safety of the martins.	Bird Safe Nashville (BSN), BIRD Program, Nashville TOS, TNC, Mayor's Office, Metro Departments
<b>Objective 1.4: Ensure clean water and natural waterways</b>	
Action 1.4.1. Implement wetland habitat restoration or installations to mitigate flooding along waterways and greenways.	Cumberland River Compact, Harpeth Conservancy, Metro Departments
Action 1.4.2. Conduct riparian habitat restoration to promote bird habitat and water quality improvement.	Cumberland River Compact, Harpeth Conservancy, Metro Departments
Action 1.4.3. Continue to improve Metro Nashville sewer systems to eliminate unauthorized flows of untreated raw sewage and control overflows of combined sewage and storm water per the agreement with the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC).	Cumberland River Compact, Harpeth Conservancy, Metro Water Services
Action 1.4.4. Implement actions from the Clean Water Act and the EPA's National Menus of Best Management Practices for Stormwater into the City's stormwater management plan.	Metro Water Services
Action 1.4.5. Require water quality buffers on new development and redevelopment projects.	Metro Water Services

<b>Goal 2: Reduce Urban Hazards to Birds</b>	
<b>Objective 2.1: Address disturbance by invasive and detrimental species</b>	
Action 2.1.1. Provide rationale to the USDA for why a proposed plant species is or may become invasive and recommend that it be removed from lists provided to regions where proposed species are not native.	Tennessee Invasive Plant Council
Action 2.1.2. Hold at least 25 community exotic invasive removal events on public lands with an emphasis on areas of importance to birds.	Nature Centers, Friends of Warner Park, Garden Club of Nashville Weed Wrangle®, Tennessee Invasive Plant Council
Action 2.1.3. Assess the feasibility of passing a Metro ordinance to ensure the use of native plants on appropriate and publicly owned lands including parks and rights of way and encourage other publicly owned properties to do the same.	Metro Departments and UBT Core Group
Action 2.1.4. Assess the feasibility of prohibiting cat trap/neuter/release programs within Metro Nashville.	UBT Core Group
<b>Objective 2.2: Address bird collisions with glass</b>	
Action 2.2.1. Form a working group to explore the feasibility of passing a city ordinance that requires new building construction to follow bird-safe design, construction, and operation guidelines (e.g., Toronto Green Standard, San Francisco ordinance, NYC ordinance).	Metro Departments, BSN, Nashville Zoo
Action 2.2.2. Educate the public about the benefits of window modifications that improve glass visibility and reduce glass reflectivity, including through demonstration displays in public areas.	Nature Centers, Mayor's Office
Action 2.2.3. Work with Architectural firms, City Planning Committee, and Nashville Civic Design Center to raise awareness of the importance of bird-friendly design.	BSN
Action 2.2.4. Work with Metro to assess the feasibility of designing or retrofitting high profile public or private buildings to reduce bird collisions using Bird-Friendly Buildings guidelines by American Bird Conservancy and Audubon.	UBT Core Group, BSN, Mayor's Office, Metro Departments, Wild Birds Unlimited, Audubon
<b>Objective 2.3: Address light pollution</b>	
Action 2.3.1. Sign up federal, state and Metro buildings and more businesses and individuals for the voluntary Lights Out Program during spring and fall migration periods.	BSN, Metro Departments
Action 2.3.2. Provide organizations and educational institutions with educational outreach programs about Lights Out and other objectives of the UBT program.	BSN, Urban Green Lab, Nature Centers, Audubon
Action 2.3.3. Create a communications campaign that highlights Lights Out and bird-friendly building design and/or retrofitting to reduce collisions.	Nashville Wildlife Conservation Center
Action 2.3.4. Form a working group to explore the feasibility of passing an ordinance requiring city buildings to have downcast lighting and shielded lighting throughout the city and refrains from installing or using blue wavelength lights (4000 Kelvin) in all outdoor publicly owned fixtures with a target of approximately 2700 Kelvin.	Metro Departments, NES, Tennessee Chapter International Dark Sky Association
Action 2.3.5. Work with Nashville Department of Transportation (NDOT) and Nashville Electric Service (NES) to transition to Dark Sky compliant lighting on roads and in problematic areas.	Metro Departments, NES, Tennessee Chapter International Dark Sky Association
Action 2.3.6. Form a working group to explore the feasibility of extending Dark Skies to core downtown buildings.	Metro Departments, Tennessee Chapter International Dark Sky Association
Action 2.3.7. Certify Warner Parks and consider other large Metro city parks as an 'Urban Night Sky Place' with the International Dark Sky Association.	Warner Park Nature Center, Tennessee Chapter International Dark Sky Association



<b>Objective 2.4: Address the threat of disease, pollution, pesticides, and other environmental hazards</b>	
Action 2.4.1. Educate the public about the importance of cleaning bird feeders and bird baths regularly to prevent the spread and impact of diseases like Avian Bird Flu. Coordinate with the TN Department of Agriculture and TWRA to communicate the current status of diseases within the Nashville area.	The Habitat Connection, Nature Centers
Action 2.4.2. Engage communities in at least 25 trash clean ups (especially of plastics) on land and in waterways.	Cumberland River Compact
Action 2.4.3. Create and post educational signage about the negative impacts of feeding wildlife and of hazardous trash, especially plastics, monofilament, and fishing line.	Nature Centers
Action 2.4.4. Ensure the implementation of Metro Nashville Integrated Pest Management strategies to minimize use of pesticides, herbicides, rodenticides, and other chemicals which are harmful or fatal to birds on city-managed property.	Metro Departments
Action 2.4.5. Explore policies to encourage voluntary efforts to limit distribution of single use plastic (straws, shopping bags, balloons, etc.) and provide clean-up containers for microfilaments, when applicable.	UBT Core Team, Mayor's office
<b>Goal 3: Educate and engage urban communities in caring about and conserving birds and their habitats</b>	
<b>Objective 3.1: Celebrate World Migratory Bird Day</b>	
Action 3.1.1. Celebrate <a href="#">World Migratory Bird Day</a> across the city's nature centers and promote community stewardship and appreciation of native birds and their habitats.	Nature Centers, Metro Nashville Public Schools
Action 3.1.2. Engage diverse and historically unengaged communities with planning and participation at each World Migratory Bird Day event.	Nature Centers, Metro Nashville Public Schools
Action 3.1.3. Engage diverse and historically unengaged communities to create art which celebrates migratory birds and hold community art exhibitions displayed in nature centers.	Nature Centers
Action 3.1.4. Engage Mayor's Office and partners to promote World Migratory Bird Day event and Nashville's Bird Agenda Actions.	Nature Centers
<b>Objective 3.2: Increase awareness of birds and their habitats in your community</b>	
Action 3.2.1. Continue to offer high quality environmental education opportunities at the four nature centers and expand opportunities within the park system and community centers to support the goals of the UBT Program.	Nature Centers, TN State Parks & State Natural Areas
Action 3.2.2. Install accessible birdwatching amenities in public parks, community centers and private parks such as bird blinds, observation decks, interpretive signs, binocular loan out programs, birdwatching/trail guides, and remote web cameras on nest platforms. Promote on Birdability.	Nature Centers, TN State Parks & State Natural Areas
Action 3.2.3. Conduct speaker or workshop events with topics focusing on issues relating to birds, wildlife, habitat conservation, native plants for birds, environmental stewardship and engaging communities in nature.	Audubon, Nashville TOS, Nature Centers, Nashville Zoo
Action 3.2.4. Provide information on municipal tourism and/or Chamber of Commerce or other local partner website about local birdwatching sites, lists of native birds, tips for native landscaping for birds, local educational resources, birdwatching events, bird-related community science projects and bird clubs.	TWRA, Nashville TOS, Metro Nashville Public Schools
Action 3.2.5. Develop and promote accessible city-wide birding trails with onsite and online information, which may include signage, a map of sites, habitat descriptions and birds that can be seen, and birdwatching and education programs at these sites.	Metro Departments, TWRA, Radnor Lake State Natural Area and Division of State Natural Areas, Nashville TOS

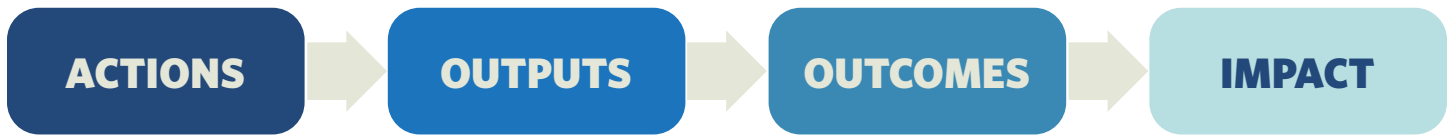
<b>Objective 3.3: Educate and engage youth and young adults, including diverse underserved communities</b>	
Action 3.3.1. Facilitate and recruit Eagle Scouts for bird conservation projects such as bird blinds, nest boxes, educational signage, and habitat restoration.	Nature Centers
Action 3.3.2. Offer day camps and community center outreach programs to local youth, including diverse underserved youth, covering topics that relate to birds and conservation.	Nature Centers, Metro Nashville Public Schools
Action 3.3.3. Partner with local university professors to recruit students for volunteering and paid internship opportunities in bird-related conservation and stewardship.	Nature Centers, Lipscomb University, Belmont, Tennessee State University
Action 3.3.4. Conduct teacher workshops to inspire and encourage teachers to incorporate bird-related topics into curriculum.	Urban Green Lab, Nature Centers, Metro Nashville Public Schools
Action 3.3.5. Hire a recent graduate as the Urban Bird Treaty Program Coordinator, to focus on community engagement with underserved communities and stakeholder coordination for implementation, evaluation, monitoring and reporting activities.	TNC
<b>Objective 3.4: Involve the community in conservation and stewardship</b>	
Action 3.4.1. Educate the public about the responsibilities and best practices of providing food and clean water for birds and discern the benefits of landscaping with native plants to provide natural food sources through website, newsletters, public events, and the National Audubon Society's <a href="#">Plants for Birds</a> program.	Urban Green Lab, Nature Centers, The Habitat Connection, Cumberland River Compact, NES
Action 3.4.2. Implement an annual communications campaign about issues and actions related to World Migratory Bird Day events, creating bird-friendly communities, the city's Urban Bird Treaty designation, and other national bird initiatives.	Urban Green Lab, UBTP Core Group, Nature Centers, Metro Departments
Action 3.4.3. Engage property owners in a bird-friendly yard recognition program (e.g., National Wildlife Federation's <a href="#">Backyard Certification Program</a> ) to work toward a significant number of recognized or certified yards.	Habitat Connection, Green Smart Yard Program
Action 3.4.4. Promote and provide educational opportunities for landscapers and garden centers/nurseries to learn about the detrimental effects to birds and other wildlife of exotic plants (nandina, bush honeysuckle, privet).	Nature Centers, Cheekwood, Tennessee Invasive Plant Council
Action 3.4.5. Work with interested parties such as veterinary clinics, Metro government, and rescue organizations to educate about the critical importance and advantages of keeping cats indoors.	BSN
<b>Objective 3.5: Promote community science, monitoring, and research</b>	
Action 3.5.1. Engage community members in community science programs such as <a href="#">Christmas Bird Count</a> , <a href="#">Great Backyard Bird Count</a> , <a href="#">City Nature Challenge</a> , <a href="#">Project Feeder Watch</a> , <a href="#">Globe at Night</a> , and/or other long- term local bird monitoring programs that incorporate <a href="#">dBird</a> , <a href="#">eBird</a> and/or <a href="#">iNaturalist</a> .	Nature Centers, Nashville TOS, Cumberland River Compact, Audubon, Metro Nashville Public Schools, Tennessee Chapter of the International Dark Skies Association
Action 3.5.2. Engage community members in Purple Martin migration roost monitoring and education.	BIRD Program, Nashville TOS
Action 3.5.3. Engage community members in bird collision monitoring to identify hazardous buildings that result in high mortality rates.	Audubon, BIRD Program
Action 3.5.4. Educate the public about birds' full annual cycle through public banding, MOTUS, and other research projects across multiple parks.	Nature Centers, BSN

# EVALUATION: MONITORING AND ASSESSMENT

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The Nashville UBT will establish a Monitoring and Assessment Plan to track activities and learn from these metrics to adapt and improve future actions. The Nashville UBT plans to hire a program coordinator to assist with monitoring activities and will develop a survey template to track and report metrics for each Action.

The UBT will use the PRISM Toolkit for Evaluating the Outcomes and Impacts of Small/Medium Sized Conservation Projects to establish the Monitoring and Assessment Plan. The Figure below is adapted from the PRISM Toolkit and demonstrates the project stages that will be evaluated.



**Actions** are the specific activities listed in the Nashville Bird Agenda and will be monitored for occurrence.

**Outputs** will be tracked as specific metrics that are required by the UBT annual report and will include quantitative measurements such as acres of habitat restored/conserved, number of native plants planted, number of nest sites monitored, number of people engaged in activities, etc. (see **Appendix C** for full details). These will be reported as Outputs.

**Outcomes and Impacts** are more difficult to quantify and therefore evaluate. The theory of change supported by our Bird Agenda is that specific Actions will help to meet the Objectives and Goals. The Objectives and Goals can be thought of as the Outcomes and Impacts we are working towards. Once Actions and Outputs are tracked, it can be evaluated whether the overarching Objectives/Outcomes and Goals/Impacts have been reached.

For example, to assess whether the overarching Goal #1 to “Conserve Urban Habitat for Birds” has been reached, we will evaluate the Actions that have been completed, the specific number of Outputs that have been measured, and extrapolate to what extent has the Objective to “Create, restore, protect and ensure best management practices for bird habitat” been achieved? Extrapolating quantitative data to larger, long-term Outcomes and Impacts can be difficult, and additional monitoring dimensions may be included, such as overall bird population counts to evaluate overarching goals.

This evaluation process will be followed on an annual basis to evaluate progress towards goals. An adaptive management approach will be followed, with the intent to learn from successes and shortfalls in order to adapt and improve future actions.



*An Indigo Bunting; Adult males are a brilliant blue. © Terry Cook*

## NASHVILLE UBT DESIGNATION

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The Nashville UBT core team, partners, stakeholders, and Mayor’s office are committed to the implementation of this Bird Agenda. We recognize these efforts will benefit our native birds and provide an opportunity to better engage all communities within Nashville. We look forward to collaborating with U.S. Fish and Wildlife Service as participants in the UBT program.

# APPENDIX A: STAKEHOLDER LIST

AFFILIATION	NAME
Greenways for Nashville	Amy Crownover
Nashville Electric Service (NES)	Antonio Carroll
Harpeth River State Park	Bill Morton
The Habitat Connection	Bryn Beauchamp
Metro Councilmember	Burkley Allen
Oasis Center	Carmen Nelson
Baker Donelson	Chris Sloan
Vanderbilt University	Chris Vanags
TennGreen Land Conservancy	Christie Henderson
U.S. Fish and Wildlife Service	Chuck Hunter
Metro Greenways	Cindy Harrison
Nashville Food Project	CJ Sentell
Nashville Tennessee Ornithological Society and Southeastern Avian Research	Cyndi Routledge
Interfaith Power & Light	Daniel Joranko
Belmont University	Darlene Panvini
Friends of Mill Ridge Park	Darrell Hawks
Tennessee Wildlife Resources Agency (TWRA)	David Hanni
Metro School District	David Proffitt
U.S. Fish and Wildlife Service	Dean Demarest
Nashville Wildlife Conservation Center	Debbie Sykes
Metro Parks Natural Resources & Nature Centers (Nature Centers)	Denise Weyer (and others from Nature Centers)
Hands On Nashville	Drew Himsworth
Harpeth River Conservancy	Dorie Bolze
Tennessee Women in Green	Elaine Boyd
personal (Graham Gerdeman photography) / BIRD Program Volunteer	Graham Gerdeman
West Meade Conservancy	Hans-Willi Honneger
Metro Public Health	Hugh Atkins
Friends of Shelby Park & Bottoms	Isaac Santos
Bird Safe Nashville (BSN)	Jackie Byrom
Vanderbilt University Landscape Architect	James Moore
Cheekwood Estate & Gardens in Nashville	Jane MacLeod
Nashville Department of Transportation (NDOT)	JD Lane
Tennessee Advisory Commission on Intergovernmental Relations (TACIR)	Jennifer Barrie
Metro Nashville Public Schools	Jennifer Berry
Metro Tree Advisory Committee	Jennifer Smith
Friends of Warner Parks	Jenny Hannon
Metro Nashville Parks and Recreation	Jim Hester
Nashville Zoo at Grassmere	Joe de Graauw
Tennessee Wildlife Resources Foundation	Joey Woodard
AWC Family Foundation	John Carney
The Wood Thrush Shop	John Carreau
Metro Nashville Parks and Recreation	John Cassidy
The Habitat Connection	John Kell
Lipscomb University	John Lewis
Bee City	Katherine Haynes

BIRD Program Volunteer	Kathy Shaw
Mayor's Office	Kendra Abkowitz
Bird Safe Nashville (BSN)	Kim Bailey
Abundant Life Adventure Club	Dr. Kim Walker
TennGreen Land Conservancy	Kristen Hanratty
Friends of Warner Park's Warner Park Nature Center BIRD Program (BIRD Program)	Laura Cook
Metro Department of General Services	Laurel Creech
Tennessee Wildlife Federation	Lindsay Gardner
The Nature Conservancy	Lindsay Hanna
Tennessee Invasive Plant Council	Margie Hunter
Greenways for Nashville	Marissa Pappas
Root Nashville	Meg Morgan
Cumberland River Compact	Mekayle Houghton
Nashville Chapter Tennessee Ornithological Society (Nashville TOS)	Melinda Welton
GroWild, Inc.	Mike Berkley
Mayor's Office	Mike Jameson
Belmont	Mohamad Feron
TrailBlazUS Outdoors	Moise Baptist
Metro Nashville Parks and Recreation - all departments, Nature Centers, Maintenance	Monique Odom
Nashville Public Library	Niq Tognoni
Trust for Public Land	Noel Durant
BIRD Program Volunteer	Patty Ghertner
Cheekwood Estate & Gardens in Nashville	Peter Grimaldi
Metro Water Services	Rebecca Dohn
Friends of Shelby Park & Bottoms	Rebecca Ratz
Wild Ones	Richard Hitt
Bird Safe Nashville / Chicago Bird Collision Monitors	Robbie Hunsinger
TDEC Division of Natural Areas	Roger McCoy
U.S. Fish and Wildlife Service	Roxanne Bogart
Harpeth Conservancy	Ryan Jackwood
American Muslim Advisory Council	Sabina Mohyuddin
Friends of Warner Park's Warner Park Nature Center BIRD Program (BIRD Program)	Sandy Bivens
Cumberland Harpeth Audubon	Stacy Elliot
Austin Peay State University	Stefan Woltman
BIRD Program Volunteer	Steve Ghertner
Radnor Lake State Park	Steve Ward
Invasive Plant Control, Inc. (IPC)	Steven Manning
BIRD Program Volunteer	Susan Bradfield
Advocate, Tennessee Chapter International Dark Sky Association (TN Chapter IDA)	Theo Wellington
The Nature Conservancy	Terry Cook
Friends of Radnor Lake	Tina Corkum
Urban Green Lab	Todd Lawrence
Nashville Downtown Partnership	Tom Turner
Tennessee Wildlife Federation	Tony Lance
Bells to Beaman Corridor	Tyler Skelton or Mary Phillip
Warner Park Nature Center/Metro Nashville Parks	Vera Roberts
Nashville Chew Crew	Zach Richardson

# APPENDIX B: PRIOR PARTNER ACCOMPLISHMENTS

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 1	Support bird focal species (inventories or research on focal species)	Long-term avian research project includes year-round banding, species specific research, and Motus research	school groups, universities, park visitors, summer camps, garden clubs, Pen Pals	Research contributes to partner organizations such as Cornell University (via eBird, BirdCast, Project FeederWatch), Institute for Bird Populations, Purple Martin Conservation Association, the Bird Genoscape Project with UCLA	The banding station has been in operation for over 40 years, engaging about 4000 park guests and visitors each year	1982-current (ongoing)	BIRD Program at Warner Park Nature Center, Friends of Warner Parks
Goal 1	Provide bird nesting habitat	At Warner Parks we provide housing for numerous cavity nesting species - 3 gourd systems for Purple Martins, 50 nest boxes for bluebirds, tree swallows, and other species, and a Chimney Swift tower. Two structures within the parks host Barn Swallow nesting	school groups, universities, park visitors	We contribute our nest monitoring to the Tennessee Bluebird Society, iNaturalist Swallow Tracker Project, and Purple Martin Conservation Association	Annually fledgling from provided structures: 200 bluebirds, 200 Barn Swallows, 50 Purple Martins	Bluebirds since 1936, martins since 2001, Barn Swallows since 2018 (ongoing)	BIRD Program at Warner Park Nature Center, Friends of Warner Parks
Goal 1	Promote native and beneficial plants for birds	All species planted at the nature center are native, programs focused on benefits of native plants, the Sandy Bivens Bird Garden	schools, universities, garden clubs, park visitors	The Habitat Connection	Annually engage 500+ park visitors	1982 - current (ongoing)	BIRD Program at Warner Park Nature Center, Friends of Warner Parks
Goal 1	Promote native and beneficial plants for birds	Converted my yard to native plants with wildflower / pollinator garden and addition of native understory trees. Removal of non-natives such as nandina shrubs.	n/a	n/a	increased and safer habitat for breeding birds and migrants.	past 3-5 years (ongoing)	Graham Gerdeman (self)

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 1	Create, restore, and protect bird habitat	Restore a small meadow (1.2 acres) to native grasses and wildflowers to support bird habitat.	Homeowners association for this townhome complex	Wild Ones Middle TN and Franklin Smart Yards	This project is currently underway with completion targeted for 2023.	Project started in 2020 with expected completion in 2023.	The Habitat Connection
Goal 1	Promote native and beneficial plants for birds	Provided guidelines and recommendations to homeowner for removal of invasive plants and suggested native plants to plant in their yard to attract more birds.	Individual homeowner.	Wild Ones Middle TN	Homeowner removed invasive plants and planted native plants to receive designation as a Certified Bird Sanctuary.	2022 (ongoing)	The Habitat Connection
Goal 1	Create, restore, and protect bird habitat	Consult and advise homeowner on removing invasive plants and recommend native plants to improve bird habitat. Work with homeowner to implement recommendations.	Homeowner	Wild Ones partnered at 3 sites	Invasive plants removed and native plants planted at 7 sites	2021 (ongoing)	The Habitat Connection
Goal 1	Create, restore, and protect bird habitat	Inventoried street trees for the health of the trees, identify low canopy neighborhoods, provide health, underserved and flooding map overlays, and use as a tool for tree management and planting locations.	Urban forestry organizations local and statewide; neighborhood associations; environmental, park friends, and watershed organizations; academia and extension	Metro Departments: Water, Department of Transportation, Parks, Codes, Planning, General Services, Metro Tree Advisory Committee and the Root Nashville Campaign. Others Nashville Tree Foundation, Nashville Tree Conservation Corps, Cumberland River Compact	Nashville is a Tree City USA, an Arbor Day Foundation recognition program. Each year the number of trees planted are part of the application. The Root Nashville Campaign has a goal of planting a half million trees by 2050 and have set some annual goals	Annual timeframes (ongoing)	Metro Water and Metro Tree Advisory Committee
Goal 1	Control invasive and detrimental plants	Invasive plant species and native seedling planting volunteer events.	Volunteers from Nashville, including group of Scouts as part of an Eagle Scout project and college students from Belmont, Fisk, and Tennessee State University.	Scouts; Belmont University, Fisk University, and Tennessee State University (student volunteers)	5.08 acres cleared of invasive plants; 239 native seedlings planted; 500 volunteers have served more than 1000 hours	December 2021-present (ongoing)	Friends of Shelby Park and Bottoms

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 1	Create, restore, and protect bird habitat	TennGreen owns 4.13 acres known as the Belle Forest Cave Arboretum. We protected the forested habitat, maintain a small grassland area, and remove invasive species.	Nashville public	Hands on Nashville; Radnor2River	4.13 acres conserved	We've owned and managed the land since 2014 (ongoing)	TennGreen Land Conservancy
Goal 1	Create, restore, and protect bird habitat	In 2021, TennGreen Land Conservancy donated 19.34 acres known as Hills Island to Cumberland River Compact	Nashville public	Cumberland River Compact	19.34 acres preserved	Received land in 2006 and donated in 2021	TennGreen Land Conservancy
Goal 1	Create, restore, and protect bird habitat	Operate, maintain, promote, and activate regionally and nationally accredited arboretum and public garden	members and guests from Nashville and throughout the country; approx. 300K annual attendance, incl. approx. 10,000 school field trip participants	Metro Tree Advisory Committee	55 acres; 2.1K accessioned trees, incl. native plant collection	2019 to present	Cheekwood Botanical Garden and Museum of Art
Goal 1	Promote native and beneficial plants for birds	Beginning in September 2019, we took over the maintenance of the native gardens at Westmeade Elementary School. Initially, we spent most of our time removing invasive plants that had taken over. Then we added native plants that support birds and pollinators	Elementary school children and visitors to the school.	None	Increases in bird and pollinator activity.	Past three years. (ongoing)	Wild Ones Middle Tennessee Chapter
Goal 1	Promote native and beneficial plants for birds	We helped prepare for and install a native plant garden at the Friends of Mill Ridge Park building.	Park visitors in southeast Davidson County.	Cumberland River Compact	50 new native plants to help provide food and nesting material for birds	November 12, 2022 (ongoing)	Wild Ones Middle Tennessee Chapter
Goal 1	Create, restore, protect, and ensure best management practices for bird habitat	Metro Parks and its Nature Center facilities manage over 6000 acres of natural area land - restoring sections, protecting habitat, and managing with best management practices for birds.	Nashville public/ park users	TNC	6000 acres of natural area protected and managed for birds and other wildlife	1975-present	Metro Parks



GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 1	Promote native and beneficial plants for birds	Each nature center creates and maintains native plant gardens and promotes the use of native plants through educational programming, printed literature, and social media	Nashville public/ park users		100K+ visitors visit nature centers each year with potential to learn about native plants	1975-present	Metro Parks Nature Centers
Goal 1	Support bird focal species	Year-round bird banding station at Shelby Bottoms Nature Center, and long-term nest box monitoring project in Shelby Bottoms Park	Nashville public/ park users		100s of visitors per year visit the banding station, learning about bird biology and conservation	1997-present	Metro Parks'- Shelby Bottoms Nature Center
Goal 1	Ensure clean water and natural waterways	Metro Parks, especially its Nature Centers, hosts or facilitates stream cleanups in many Metro parks and greenways	Nashville public/ park users	Cumberland River Compact, TN Scenic Rivers Association, Friends of Warner Parks, Friends of Shelby Park, Friends of Beaman Park, Friends of Bells Bend	Miles of streams within Metro Parks are cleaned every year, providing better habitat to birds	Occurs annually	Metro Parks, Parks advocacy ("Friends") groups, river advocacy groups
Goal 2	Address bird collisions with glass	All windows at nature center buildings have bird-friendly decals	school groups, universities, park visitors	Warner Park Nature Center	0 bird strike kills since installation	2020 - current (ongoing)	BIRD Program at Warner Park Nature Center, Friends of Warner Parks
Goal 2	Address bird collisions with glass	We sponsored, along with Metro Government to have all windows in the Nature Center fixed with some sort of bird collision approved materials. In essence we turned the Nature Center into a 'showcase' for what the average person could do to prevent window strikes	Anyone visiting the Nature Center.	Shelby Bottoms and Metro Parks.	So far there have been zero additional window strikes.	Due to the Pandemic complications, it took 2.5 years from conception to completion	Nashville Chapter of Tennessee Ornithological Society

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 2	Address light pollution	Invited a small group of citizens and groups to strategize plan for Lights Out Nashville initiative.	Mayor Cooper signed Lights Out Nashville Resolution, several metro buildings (including Bridgestone) and about 65 citizens signed up to participate initially. Several media outlets featured.	Cumberland Harpeth Audubon Society, Warner Park BIRD Program, Nashville TOS, Owl's Hill, Dark Skies Initiative	Lights Out Nashville Resolution with 8 commercial buildings and 88 citizens who have signed pledge to date, Bird Safe Nashville website	started weekly meetings in January of 2022 - Resolution signed in April 2022, Summer break, regrouping to advocate for reducing bird glass collisions (ongoing)	Bird Safe Nashville (BSN)
Goal 2	Address disturbance by invasive and detrimental species	Each Metro Parks Nature Center conducts and facilitates invasive plant removals in its associated park	Nashville public/ park users	Parks advocacy groups - "Friends of" Warner Parks, Shelby, Bells Bend Park, and Beaman Park, Garden Club of Nashville, others	Dozens of acres of natural area parks are cleared of invasive plants, providing better habitat to birds	Occurs annually	Metro Parks Nature Centers, Parks advocacy groups
Goal 2	Address bird collisions with glass	Shelby Bottoms Nature Center was first Metro Parks facility to install bird collision prevention methods on all glass, and function as a demonstration site for visitors to apply these techniques at home	Nashville public/ park users (homeowners, renters)	Nashville Chapter of Tennessee Ornithological Association, Friends of Shelby	Dozens of window strikes per year have been eliminated and 1000s of visitors per year are exposed to deterrence techniques and educational information about bird collisions	2021-present	Metro Parks' Shelby Bottoms Nature Center
Goal 2	Address light pollution	Metro Parks' Shelby Bottoms Nature Center installed all new boardwalk walkway lights facing downward	Nashville public/ park users	Friends of Shelby	The nature center does not contribute to light pollution, provides better, darker habitat for birds, and teaches the public about light pollution and downward facing lighting at home	2019	Metro Parks' Shelby Bottoms Nature Center
Goal 2	Address light pollution	All Metro Parks Nature Centers turn off all building lighting at night	Nashville public/ park users		The nature centers do not contribute to light pollution, providing better, darker habitat for birds, and teaching the public about light pollution	2007-present	Metro Parks Nature Centers

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 3	Increase awareness of birds and their habitats in your community	Both Warner Park Nature Center and BIRD Program staff have numerous year-round activities to raise awareness of birds and habitat from public banding station, bird walks, explore with a naturalist and webinars and other public engagement programs	school groups, universities, park visitors	Warner Park Nature Center	We engage thousands of park visitors each year 4000+	1982 (ongoing)	BIRD Program at Warner Park Nature Center, Friends of Warner Parks
Goal 3	Promote community science, monitoring, and research (eBird, CBC, iNaturalist, etc.)	Presented 4 interactive Zoom webinars called "Birding with Stacy" to teach local community about Birdwatching Basics, Backyard Birding, How to be a Citizen Scientist using eBird, Merlin, & iNaturalist, and local BIRD Banding Project	Brentwood Library patrons - 40 - 70 participants for each webinar and 10 - 20 participants per bird walks	CHAS Chapter, Brentwood Library, Warner Park BIRD Program (guest speaker)	trained up to 100 people about local bird conservation efforts and practical ways to improve home environment to help birds thrive. Library purchased 3 pairs of binoculars for patrons to check out, Native Plant Garden planted in courtyard	June and July of 2020 (ongoing)	Cumberland-Harpeth Audubon Society (CHAS) Chapter
Goal 3	Educate and engage youth and young adults	Lipscomb University Biology Department Student Internship in Bird Research at Warner Parks. For the last 7 years, this project has placed 1 - 2 college students at Warner Parks to assist with the bird research program during the summer.	Lipscomb students and Warner Parks researchers and staff. Together they reach the public visiting the park, the scientific community when the work is presented at professional meetings, and the Lipscomb University community.	Lipscomb University Biology Department	This research has resulted in 9 public presentations from 2017 - 2022 on bird research at the local, regional and national level. National professional meetings include the Purple Martin Conservation Association 2022, The Wilson Ornithological Society	May - July 2016 (ongoing)	Lipscomb University Biology Department
Goal 3	Educate and engage youth and young adults	During COVID, we developed optional at home learning opportunities to engage with the natural world through walks and had students write about the birds that they saw.	Middle school students in MNPS	NA	student engagement	Spring 2020 - 1 week program	Metro Nashville Public Schools

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 3	Educate and engage youth and young adults	Embryology studies using chicken eggs.	K-8 students in MNPS	Piccolo Farms	student engagement	Spring 2022 (ongoing)	Metro Nashville Public Schools
Goal 3	Educate and engage youth and young adults	STEAM Expedition: 3rd grade students in 19 elementary schools in MNPS attend an in-school field trip at Owl's Hill. Owl's Hill Nature Sanctuary will be visiting Grade 3 students as the fall STEAM Expedition. The experience will have two parts.	3rd grade students in 19 elementary schools in MNPS.	Owl's Hill Nature Sanctuary	Student engagement.	Fall 2022 (ongoing)	Metro Nashville Public Schools
Goal 3	Ensure access to nature to diverse and under-resourced communities	Wildlife Education at Johnson Alternative Learning Center- introduced nature journaling and service-learning projects on an on-going basis	students from Johnson Alternative Learning Center	Johnson Alternative Learning Center	43 students taught a dozen species, 1 service-learning project of their choosing (enrichment for wildlife animals)	January-April 2022 (ongoing)	Nashville Wildlife Conservation Center
Goal 3	Educate and engage youth and young adults	After-school programming on an on-going basis to teach students about birds- cut short due to COVID. will resume in 2023	Schools- JE Moss and Fall Hamilton	Metro Public Schools	4 Bird Feeders planted (for Project feeder watch), 24 binoculars purchased, 104 students participating	January-March 2019 (will continue spring of 2023)	Nashville Wildlife Conservation
Goal 3	Educate and engage youth and young adults	Regular offer programming, blogs, field trips, exhibits and informal outdoor experiences focusing on birds, bird observation and conservation	Public and private school students, urban nature program participants, summer camps	Friends of Warner Parks, Metro Parks Community centers, local schools	15,000 people served annually	Year round (ongoing)	Warner Park Nature Center
Goal 3	Ensure access to nature to diverse and under-resourced communities	Learning about resident and migratory bird species at guided hikes and workshops at Mill Ridge Park, including the use of binoculars and field guides, and construction of feeders.	Youth and adults from the Southeast Nashville community and visitors from surrounding cities engaged in birding activities.	Local businesses and foundations fund the supplies, personnel, and promotion for birding activities. We partner with a local ecologist and wildlife biologist.	70 people attended birding walks and workshops. Hundreds of people were exposed to the use of binoculars and field guides.	January 2020-October 2022 (ongoing)	Friends of Mill Ridge Park

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 3	Educate and engage youth and young adults	Two book clubs with books related to bird topics (Vesper Flights and Nature's Best Hope).	Youth and adults from the Southeast Nashville community and visitors from surrounding cities engaged in these activities.	Local businesses and foundations fund the supplies, personnel, and promotion of activities.	5 people engaged in the two book clubs to discuss Vesper Flights and Nature's Best Hope.	February 2021 and May 2021 (ongoing)	Friends of Mill Ridge Park
Goal 3	Increase awareness of birds and their habitats in your community	Engaged with online community to share birding features over the course of 8 weeks.	Youth and adults from the Southeast Nashville community and visitors from surrounding cities engaged in birding activities.	Local businesses and foundations fund the supplies, personnel, and promotion of activities.	Hundreds of people participating in this activity.	April and May 2020	Friends of Mill Ridge Park
Goal 3	Ensure access to nature to diverse and under-resourced communities	provide nature activities for all ages and diverse groups	k-12, inner city youth, special needs	Nashville Chapter Tennessee Ornithological Society	300 people	(ongoing)	Bells Bend Park
Goal 3	Increase awareness of birds and their habitats in your community	Public education	All ages	TWRA, Southeast Avian Research	Birds	25+ years	Nashville Zoo at Grassmere
Goal 3	Increase awareness of birds and their habitats in your community	I help administer the TN Birding Facebook group which daily interacts with and educates observers from all over the state with questions about bird identification, behaviors, conservation, etc.	Tennessee birders and newcomers to birding	n/a	4700 members of group	ongoing	Graham Gerdeman
Goal 3	Involve the community in conservation and stewardship	I produce a calendar every year of "Birds of Tennessee" with proceeds directly benefitting the BIRD research program at Warner Park Nature Center. With the calendar, I attempt not only to financially support local research, but to raise awareness of it,	hundreds of consumers over the past 6 years.	Warner Parks BIRD research program	Several hundred calendars sold, and several thousand dollars donated over the past 6 years.	6 years and counting	Graham Gerdeman

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 3	Promote community science, monitoring, and research (eBird, CBC, iNaturalist, etc.)	Regional reviewer for eBird, regularly (daily) engage eBird observers to clarify or correct unusual sightings and to inform and educate on best practices in documenting bird species.	eBird users	Cornell University (eBird)	n/a	ongoing and daily	Graham Gerdeman
Goal 3	Promote community science, monitoring, and research (eBird, CBC, iNaturalist, etc.)	Regional reports editor for TN and KY for "North American Birds," the journal of the American Birding Association (ABA). These reports give information on notable bird sightings and trends every season	ABA members and anyone interested in sightings and trends in status and distribution.	American Birding Association (ABA)	n/a	Starting 2023	Graham Gerdeman
Goal 3	Increase awareness of birds and their habitats in your community	All Metro Parks Nature Centers offer a large variety of public programming, literature, exhibits, public bird banding stations, and social media messaging about birds and their local (and wider) habitats	Nashville public/park users, Metro Parks Nature Centers' social media subscribers	N/A	Tens of thousands of people are impacted through direct experience at the Nature Centers or through social media, learning about birds and their habitat.	1975-present (programs, exhibits, and literature) 1985-present (bird banding) 2009-present (social media)	Metro Parks Nature Centers
Goal 3	Educate and engage youth and young adults, including diverse underserved communities	Metro Parks Nature Centers conduct bird-related programming for youth at each center through targeted youth-aged public reservation programs; public, private, and home school field trips; club and specialty group field trips (e.g., Boy Scouts, Oasis Center); and outreach programming at Metro Parks Community Recreation Centers, which are often situated in underserved communities and serve diverse communities	Nashville public/park users, students, youth groups	N/A	Every year, 1000s of youth, including those from diverse underserved communities, are engaged in outdoor nature experiences and educated about the biology, natural history, habitat requirements, and conservation status of birds in Metro Parks Nature Centers	1975-present	Metro Parks Nature Centers, Metro Parks Community Centers

GOAL	OBJECTIVE	DESCRIPTION	AUDIENCE	PARTNERS	OUTCOMES	TIME FRAME	ORG NAME
Goal 3	Involve the community in conservation and stewardship	All Metro Parks Nature Centers engage the public through programming and volunteerism to remove invasive plants; plant trees; create and maintain pollinator gardens, rain gardens, native wildflower and no-mow zones; and other land and water conservation and stewardship projects	Nashville public/ park users	N/A	Dozens of acres of habitat created and/ or improved every year; educating dozens to hundreds of volunteers; tens of thousands of public park users through educational signage related to conservation/ stewardship projects	1980-present	Friends of Warner Park, Friends of Shelby Park, Friends of Beaman Park, Friends of Bells Bend Park, Cumberland River Compact
	Promote community science, monitoring, and research	All Metro Parks Nature Centers participate in community science projects including Spring, Fall, and Christmas bird counts, North American Breeding Bird Survey, eBird, iNaturalist, Project Feeder Watch, Great Backyard Bird Counts, and bio-blitzes, as well as, at select Nature Centers: bird banding, MartinWatch, NestWatch, Celebrate Urban Birds, Louisiana Waterthrush surveys, and tracking research with thrushes using Motus	Nashville public/park users	N/A	Large data sets are created benefiting researchers who use these data as well as Metro Parks so that it may inform land management decisions. Dozens of volunteers are educated annually by participating in these projects	1985-present	Metro Parks Nature Centers, Nashville Chapter of TN Ornithological Society, local academia

# APPENDIX C: MONITORING, ASSESSMENT & REPORTING METRICS

Habitat Conservation	Number	Description
Acres of habitat restored/enhanced/created		
Acres of habitat conserved/acquired		
Miles of habitat along river/stream/other water body restored/enhanced (can also be reported as acres)		
Number of native trees, shrubs, forbs planted		
Acres of invasive/exotic species removed/controlled		
Acres under improved management (i.e., ongoing management to promote bird or other wildlife or other benefits)		
Number of habitat sites monitored		
Number of nest/roost sites constructed/installed		
Number of nest/roost sites monitored		
Other		
Hazard Reduction Metrics	Number	Description
Number of buildings participating in Lights Out Program		
Number of buildings monitored for bird collisions		
Number of buildings retrofitted to be bird safe		
Number of buildings built/designed to be bird safe		
Pounds of trash collected		
Other		
Community Education and Engagement Metrics	Number	Description
Number of people (adults and K-12 youth) engaged in conservation and science/monitoring activities		
# of Adults engaged in conservation and science/monitoring activities		
# of K-12 youth engaged in conservation and science/monitoring activities		
Number of volunteers engaged in conservation and science/monitoring activities		
Number of people (adults and K-12 youth) participating in recreation activities, education programs, festivals, and/or other public events		
# of adults participating in recreation activities, education programs, festivals, and/or other public events		
# of K-12 youth participating in recreation activities, education programs, festivals, and/or other public events		
Number of teachers participating in training events		
Number of people reached through communications and outreach		
Number of jobs created		
Other		