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FIYS 112: Wild Chicago
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Citizen Science Project
Discover Urban Wildness using Public Transportation

Most major cities throughout the United States, including Chicago, provide public transit such as railway and buses. With 1,800 buses serving 10,000 bus stops and 1,500 rail cars serving 150 stations, over 1.6 million rides are given to tourists and commuters in the Chicago metropolitan area each day (Chicago Transit Authority 2017). If a portion of riders participates in a citizen science project, the data will be massive and useful. I have designed a citizen science project for wildlife enthusiast to discover wildlife while in a public transit vehicle; this project is also designed to bring awareness of urban wildlife's existence to the society. The amount of wildlife appearing among bus routes and train lines is more than just a few; with this data, we can be more precise with the number and type of wildlife around our city. People who are interested in urban wildlife can identify hundreds of different wildlife during their ride.

Wildlife are important to the urban system; however, people don't know enough about urban wildlife's existence. There are so much more in urban wildlife that society are unaware of. Furthermore, it has become difficult for people to gain knowledge on this topic because people in society have become more and more busy in life. We tend to ignore or lose the ability to stop and take a break to discover the wildness around ourselves.

If I ask a group of random people, "where do you find wildness," the question may seem too broad to have an absolutely correct answer. Their answers will vary based on the participants' own definition of wildness. Some will give you an example by telling you a crazy event that happened to them, some may tell you a creative invention that just came out, some may make you a cup of hot tea, and have you sit and listen to a personal experience they had in the primitive forest… My definition of wildness is a place where you find the existence of wildlife. Hence, if I modify the question of where would you find the existence of wildlife, many people will respond with names of national parks or the countryside. While those places are wild, most people do not realize wildness can be around us in the city. The reality is that the existence of wildlife is massive in an urban area.

The majority of young Americans discover the existence of wildlife near their suburb home because their backyard is usually where they spent most of their outdoor times growing up. A backyard is a place where they initially interact with the most wildlife and learn the most about the natural world (Kleinhenz 2018). That is an evidence of wildlife's existence near a city; however, people traveling in a city are so busy seeing other artificial human creations, or on their way to and back from work—no one stop and look for the urban wildness around them. Thus, our citizen science project is designed for people who travel on a commuter train or a bus and have nothing to do. Travelers could look for and identify wildlife while traveling on board. To upload data on their new findings, they will need a platform to do so.

A mobile app will be the gateway to this project's big database. Our project team came up with an app called "UrbanWildlife." The UrbanWildlife app functions as a pathway to encourage people to spend time in the city and discover urban wildness. By using this app, anyone could collect urban wildlife data from their public transit rides at any time. Not only you could upload data, if you're interested to see urban wildlife around you, you could also view our database on wildlife's existence on the transit map section on our app to plan your next explore in the city.

Under the partnership with developers from iNaturalist and CityMapper, our app can function as a multi-purpose tool. "iNaturalist is an online social network of people sharing biodiversity information to help each other learn about nature" (iNaturalist 2014). They helped us developed our blog section of the app. When you see a bird, mammal, reptile, insect, or plant, simply use the app to record your observation or upload your photos. You will also be asked to pin the location of this new find, which will be automatically added to the CityMapper Public Transit Map section in our app. CityMapper provides information on this city's public transportation: from schedules update to and route planning. This section allows people to find new wildlife easily while knowing how to get there via public transit. It will also allow others to comment below your posts to start a discussion. While you're using the app, you may find it interesting to see what others have observed on site. Those data will gain society's attention on urban wildness, and also help Urban Ecologist to utilize this data in their works. With updated wildlife data in the city, wildlife lovers are exposed to a great resource for them to share their transit journey.

Since our project developing team are full of wildlife lovers just like you, we will help add more information to fragment posts, answer any questions, approve and verify changes. All of our team members are passionate about traveling and discover new urban wildness. Each month, we send one of our volunteers away for a wildlife searching trip. They will

write a travel journal article based on their trip and get it published professionally on our app. The article will also be featuring one train/bus line and one wildlife, which acts as an urban wildness travel guide for newbies to follow. If you're unsure about where to discover urban wildness this month but would like to get outdoor, the monthly published travel guide is a good starting place.

Generally, wildlife in Chicago are mammals, birds, reptiles, and amphibians (Friends of the Chicago River n.d.). You'll be asked to label your new findings in one of the categories above. Harold Washington Park in Hyde Park neighborhood, for example, is a great place to start your new urban wildness hunt. Tropical monk parakeets thrive in Harold Washington Park (Lyons 2015). "Several articles have been writing about their inhabitation of the South Side and there are even a few urban legends concerning how they came to live in the city" (Lyons 2015). Being popular and liked by their neighbors, this is definitely a place where you could start out. There are also other birds that live in their nests year round who have adapted to fit in Chicago's four-season and recourses. They constructed their nests on everything from hollowed out trees to utility poles (Lyons 2015). Although Harold Washington Park is the best place to view Tropical monk parakeets in Chicago, you may also find other wildlife on your short train ride going and coming back to the Loop. Don't let the opportunity of discovering new wildlife slip away. Our team strongly encourage "UrbanWildlife Discoverist" like you to travel through the city via public transit and upload your new unique findings on our app. Our app will also help you with directions to help you get on your way effortlessly.

The map section of our app will tell you to take the ME train from Millennium Park Station in Chicago's Loop to Kensington Station in the Hyde Park neighborhood. You can get to Harold Washington Park in 15 minutes that way (CityMapper). Conveniently using our app to direct you to Harold Washington Park, you could accomplish that by either typing in the location's name or the wildlife you're looking for, and pick the park from the list. Then, a few route options along with different schedules will pop up for you to choose. Pins will lay out on your predicted travel route while in route overview and while in transit. Those pins are wildlife information that others have discovered and uploaded along the way. We are looking forward to expanding the map/direction section on our app, also to include more wildlife pins on different routes so our users can have better design their journey when out on their wildlife discover trip in the city.

With the two helpful partnerships we have with CityMapper and iNaturalist, our free app is intriguing for many users to try out. Anyone is welcomed to become an "UrbanWildlife Discoverist" by simply downloading our app and explore urban wildness in your part of the city. Both the map

and the blog section on our app share the same database. That's why the app's search bar on the top will allow you to type in either the wildlife you're looking for or the location's name to get both lists of wildlife posts and directions. This app's map section will give users public transit and walking directions, while also giving live status on public transit's schedules and travel fares (on-peak, off-peak, weekend rate, etc.). The blog section is where people could post their new findings, thoughts, share articles and much more. New monthly articles published by our team volunteer members about their own wildlife finding journey will be categorized separately in the blog section. If you're simply searching for a list of wildlife, there are a few filters to apply. You could filter them by "mammals, birds, reptiles and amphibians," by the date of upload, or by different public transit lines and stations. At the end of the year, our team will generate a report for our city, publishing data on the number of users, number of trips taken on which type and route of public transportation, number of posts, and popular new findings. Examples of titles are: "Which bus/train route was taken the most," "what animals were discovered the most," "which area has the most diverse wildlife," "which area has the highest density of wildlife," and so on. The massive amount of information collected will not be analyzed properly without our amazing team volunteer members.

Our volunteer team currently have ten people. This group is full of passionate wildlife lovers, they came in with knowledge of either urban ecology and/or mobile app development. They are responsible for verifying posts, contacting people about their trips, answer questions, update our app, and publish their wildlife finding trip articles. Two "volunteers of the month" will be in charge of the team in the following month to make sure they are getting their tasks done. As we regularly update our app, the massive amount of data we expect to receive allow us to tailor small functions in our app based on how our users use the app and the information they upload. Gathering this data can help improve the user interface of our app in a more humane approach (Clarke 2018). To keep the project running, we have amazing sponsors who donate to our citizen science project. They have taken care of the fund for app development, technology devices, and our volunteer's city trip budget. We are very thankful for what they have done to make this citizen science project possible in Chicago.

Users are welcomed to submit data from any public transit including bus, railway, or ferries; this app is currently available exclusively in Chicago. We are confident that our partnership with two giant resources will help our app expand to other major cities throughout the country. Our vision for 2025 is to expand our service to the first city abroad from the United States. Cities who are more likely to be first added to our "service available list" are preferably cities with more than two types of above-ground public

transportation. Chicago provides a very solid public transportation system for our team to start the project.

Our UrbanWildlife app is the first platform for public transit-orientated wildlife lovers all to communicate on a metropolis scale. This citizen science project allows people in each metropolitan area share their new discoveries, ideas, and thoughts all in one app. With the expanding services throughout major cities, even tourists are encouraged to try out this app while on their commute between different sights in a city. Some popular sights in the city are good places to discover urban wildness. In Chicago, for example, Millennium Park is a good place to find urban wildness, then the tourist can travel to Harold Washington Park, as previously mentioned, to find more wildlife such as birds in the area. Tourists may simply snap a photo of interesting wildlife, and they do not need to identify during a random train ride. By uploading photos to the app have allows a discussion with the localists about your journey in their city; they can help you identify the wildlife. Our goal for the blog section of this app is for it to turn out as an urban wildness version of TripAdvisor. In order to become an "UrbanWildlife Discoverist," our app users need to sign a consent form, agree to make their posts and public transit routes planned in the app available on the public database online. Any "Discoverist" have access to this database. An ecologist may use the data as a reference for their new articles, a tourist may use the data to add in some urban wildness discovering trip to their next journey in another city.

Another goal for our citizen science project is to raise society's awareness and knowledge of urban wildlife. Society should obtain some knowledge about urban wildlife because wildlife surround us daily. We study urban wildlife in order to preserve biodiversity, maintain ecosystem function in the city, and encourage positivity on human's attitude toward urban wildlife (Burt-Nicholas 2016). I hope this citizen science project will be an interesting introduction to attract more people in looking at and understanding the wildlife around them. Take a break while taking public transportation, and look out the window, you may find interesting urban wildness right beside you.

You may want to try out this project just because you want to find a reason to be back on a public transportation line. For many of us who reside in the suburbs, we find ourselves spending most of our time traveling in our cars. If you are not a regular commuter train rider, I encourage you to get to the outdoor today, take the train into the city, and start your wildlife discover journey. If you reside in the city or use public transit often, then conveniently look around you and help our "discoverists" by placing wildlife pins on our app's city transit map by starting with your nearest train or bus stop. Not only you're contributing to our citizen science project, but you are

also helping the Chicago Transit Authority by bringing awareness of the benefit and fun of using public transportation in the city.

Furthermore, citizens can do more for citizen science project than just uploading data. By being involved in the project over time, participants educate themselves in the research process and they gain knowledge on what gets researched, how research is conducted, and how results should be used (Burt-Nicholas 2016). Doing a project over time and grow with the development of the project pushes the bounds of citizen science in contentious ways (Burt-Nicholas 2016).

I look forward to attracting and encouraging more people to discover urban wildness around them using public transportation. Doing so will also encourage people to get to the outdoors and to enjoy themselves in the city. I will be thrilled to see our service expand to other cities over time. Although we are all involved in the same citizen science project, each of us has our own role to play. We design our own route in the lookout for urban wildness, we do research on what wildlife interests us more, and we share our data with others for a discussion on our own findings. Doing this is helpful for people to have experience in collecting and analyzing data in a meaningful way.

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