## Beyond Birding Basics: Citizen Science in 10 U.S. National Parks, Tracking Species Populations, and Becoming a Bird Bander

Species Populations, and Becoming a Bird Bander Newman Exploration Travel Fund Application Jayde Homer, PhD Arts & Sciences Washington University in St. Louis February 2025 Nothing stops me faster in my tracks than the hint of a bird nearby. I might see a dash of bright blue in a field of tall grasses in Forest Park, and I am lucky if I can snap a photo of the flittery Indigo Bunting. While taking a walk around Danforth campus on my lunch break, I might hear the notorious laughter of a Northern Flicker and look up to see its black polka dots and red cap bouncing along the bark of a big oak tree.

My careful attention to birds began as a meditative escape while I was in the trenches of writing <u>my dissertation</u> here at WashU in 2021. That escape has transformed into a personal passion that involves excitedly journaling about my home bird feeder observations, constantly researching and learning about birds, meticulously logging data in my Merlin Bird app, and regularly volunteering at <u>Wild Bird Rehabilitation (WBR)</u> – the only native songbird hospital in Missouri. Between my observations, research, and volunteering, I am astutely aware of the positive and direct effects that citizen education and conservation efforts can have on battling the negative effects of policies and climate change on avian populations.

I am applying to the Newman Exploration Travel Fund (NEXT) because I want to take the passion beyond the Greater St. Louis area—to the vast landscapes of our national parks, where shifting climates are reshaping avian populations in real-time. Through this experience, I hope to not only witness these changes firsthand but also to contribute meaningful data to the scientific community and deepen my expertise in avian conservation. My proposed trip to observe and log birds of the northwest and intermountain national parks would allow me to expand my conservation knowledge, learn about the national parks' citizen science education efforts, and conclude with a tangible, formal, unique learning experience at a bird banding workshop to increase the impacts I can have back home in St. Louis.

Last year I experienced the joy of combining my professional and personal passions, which is a major inspiration for my National Park Avian Exploration. I traveled to Denver, Colorado to <u>present my research</u> from my time as a graduate research fellow with the Center for Teaching and Learning. At the national conference, I shared my findings on the impact of annotation software in WashU's classrooms with other teaching and learning professionals. After my conference presentation, I switched my heels for hiking boots and I made my way to Rocky Mountain National Park. My first ever national park experience will be one I never forget. When I stopped after a few hours for my peanut butter sandwich at the frozen Emerald Lake, I watched the skiers coming down the slopes above me



Figure 1 Stellar's Jay perched in tree with his crest relaxed as he prepares to swoop in for my peanut butter sandwich (Rocky Mountain National Park, April 2024)

and took in the quiet peace of nature surrounding me during this respite. The stillness allowed me to notice the busyness of the birds. Soon, a Stellar's Jay and a Clark's Nutcracker were being brave and looking to steal my snacks. Fortunately, I know the negative impacts that feeding wildlife can have on the ecosystem and kept my snacks to myself, but their interest allowed me to capture some beautiful photos and observe their behaviors while I rested my legs. While at the visitor center, I purchased a national parks passport and vowed to fill it up in my lifetime. The visitor center offered impactful educational opportunities which included exhibits showcasing the native plant and animal species of the area,



Figure 2 Alexandrine Parakeet friend made while visiting Bird World in Kuranda Rainforest, Australia, July 2023

as well as offering historical, ethical, and cultural takeaways regarding the original inhabitants and caregivers of the land, its significance as a national park, and its impact on conservation. Here I was able to learn more about the ecosystems I just traversed through and about both the species I was able to see and those I was not able to see due to seasonal migration, superior hiding skills, or their sleeping patterns. The purpose of national parks is to preserve the natural environment to ensure that natural and cultural resources remain intact for future generations. My hope is that everyone gets to experience the level of joy that I felt while watching the silly Stellar's Jay hop around my feet in Rocky Mountain.

My experiences on this trip will directly prepare me for the long, continuous battle against climate change and government changes which vastly reduce the likelihood of future generations being able to experience our national parks and witness many species of birds. As a consequence of ecological changes and changes in temperature and rainfall, some species of birds may be forced to leave an area they historically populated and disappear from that area entirely, a process known as extirpation. On the other hand, species of birds may move into new areas where they can find food, safety, and mates, a process called colonization. Extirpation and colonization of the national parks is actively being tracked carefully by researchers and conservationists at Audubon



Figure 3 Eurasian Magpie beautifully loitering in a park in Copenhagen, Denmark, July 2024

and they predict that by 2050, roughly 25% of bird species found at any given national park will be different than today. This means that future generations may see completely different species than previous generations. My goal for this summer is to visit 10 U.S. national parks and log the birds I see, contributing to the tracking their stability, colonization, and extirpation.

For two weeks, beginning the first week of June 2025, I will exploring the national parks that span six states: Washington

(Mount Rainier, North Cascades, and Olympic), Montana (Glacier), Wyoming (Yellowstone, Grand Teton), South Dakota (Badlands and Wind Cave), Minnesota (Voyageurs), and Michigan (Isle Royale). As I road trip back east, my journey will wrap up in northern Minnesota, at the <u>Wolf Ridge Environmental Learning Center</u> where I will attend their Summer Beginning Bird Banding workshop from June 19 to June 26. Upon completion of the workshop, I can work towards becoming a licensed bird bander and participate in research and monitoring programs here in St. Louis.

Using data I obtained from the Audubon's website, I produced the graph below. Of the 1,067 species-park observations I could see on this summer trip, only an average of 65% are considered stable populations, 12% have potential to colonize and be new permanent residents, and 22% have the potential to extirpate and never be seen again at that park. This means that if I ever get the chance to return to these parks, for every four bird species I see or hear, it's possible that I'll never see or hear one of them there again.





Figure 4 Selected National Parks bird species population descriptions. Created February 2025 with data from audubon.org/climate/national-parks

As a volunteer for WBR, I'm responsible for feeding orphaned baby birds, providing clean and enriching habitats for recovering injured or sick birds, and contributing the education and fundraising efforts of WBR. Feeding orphaned baby birds for the first time last summer was a lifechanging experience and one I look forward to continuing this spring as the chicks start hatching (so soon!). WBR relies on the St. Louis community to protect orphaned, sick, and injured birds they see by calling, returning fallen nests or babies, or bringing birds to the facility. Improving my bird identification ability, handling skills, and knowledge of anatomy and biology will help me contribute in a much greater

capacity at WBR to support more sick and injured birds, which is limited to only the volunteers who have these advanced skills.

As someone with a PhD in psychology and a day job as a data analyst, advanced bird care skills are not part of my formal education. The Institute for Bird Populations (IBP) and other collaborators maintain the MAPS program, a standardized form of monitoring bird populations and tracking data. One critical piece to MAPS is bird banding, an advanced skill that requires formal training and licensing to perform. IBP provides banding courses to teach the skills necessary to participate in monitoring and research programs. The banding workshop would allow me to learn, practice, and bring home so many invaluable advanced skills that I can use to support WBR, as well as contributing to the monitoring of bird populations in Missouri.

I look forward to sharing photos and stories of my observations, as well as a rundown of all of the skills learned at my presentation in Spring 2026. I also intend to share stories and photos of my adventures on this trip to my personal blog, in a presentation at WBR, and anyone who ever gets me started talking about birds.



Figure 5. Hatchling and fledgling woodpecker roommates that I handfed while volunteering at WBR, June 2024)

As a first-generation, low-income student, this trip is something I would have considered a wild fantasy dream many years ago. The university setting has opened many doors that I never imagined having access to. In graduate school I got the chance to present my research in Australia and Europe (and made time to familiarize myself with some local birds seen in Figures 2 and 3!). My family, who has mostly never left their small town in upstate New York, cherishes living vicariously through my adventures. And now as staff, I am excited to apply for the chance to expand my horizons a little bit closer to home, in my own country. While many of the NEXT proposals are likely to faraway lands, I value the chance to explore more proximal areas that I have never had the opportunity to see. I've got 118 species logged on my life list, how many more can I add this summer? I don't want to let this opportunity fly away from me!