

**Permit 2025-001**

Name:

Carlos C Martinez Rivera

Department or Organization:

Akron Zoo

Email Address:

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Web Address where the public can learn more about this proposed activity (optional):

<https://motus.org/>

Are you requesting renewal of a previously approved permit application?

No

Type of activities at The University of Akron Field Station and Bath Nature Preserve  
Research

Title of project or class name and course number:

Monitoring North American Songbirds via Motus tower

Date/Dates requested:

02/26/25

Number of people in group:

4

I am requesting permission to use a Research Area.

Yes

I am requesting permission to use a Sensitive Area.

Yes

I am requesting permission to use areas outside of the designated Research or Sensitive Areas.

Yes

I would like to use the Martin Center for Field Studies and Environmental Education for this prop...

No

Will the activity involve destructive sampling/collecting?

No

Which Research Areas?

Grandview Alley

Which Sensitive Areas?

Tamarack Bog / Wetland

Which areas outside of the designated Research or Sensitive Areas?

Public Access areas of Bath Nature Preserve

Steiner's Woods

Provide a brief description of (1) your proposed activities, (2) goals, and (3) impacts of your u...

We propose installing a Motus tower beginning summer 2025 or spring 2026 as a permanent monitoring station. Our goal is to monitor North American songbirds and gather data on these birds as they fly and stop over Nature Bath Preserve. We also plan to monitor local species of birds, such as bobolinks, that nest in the area during spring and summer. This initiative is part of a larger monitoring program within the Cuyahoga Valley area (see below). The impacts on the Field Station and Bath Nature Preserve will be minimal. We are proposing installing the tower, which can be a relatively small structure (12' tall metal post with an array of up to eight 4' long antennas), that can also be used to engage the public in telling the fascinating story of the journeys and perils migratory birds go through year after year.

Please read below for a more detailed explanation of the project and what it entails.

#### 1. What is a MOTUS tower?

The Motus Wildlife Tracking System (Motus) is an international collaborative network that uses automated radio telemetry to facilitate research and education on the ecology and conservation of migratory animals. Conservationists attach small radio transmitters to birds, bats, and even migratory insects like monarch butterflies and dragonflies. Then towers located throughout the landscape pick up signals over a 10km radius as these

animals fly on their migration routes (or during their regular flying activity). The towers automatically download and store the data in a cloud managed by the Motus program so scientists who attached the transmitters can retrieve and analyze it, and use it to learn about the ecology and conservation needs of these species and to create conservation policies.

What will this enable us to do? We are formalizing partnerships with several local conservation such as Cuyahoga Valley National Park (CVNP), Summit Metro Parks (SMP) and with this permit the Bath Nature Preserve) to help us achieve our Strategic Conservation goals of our Flagship Program called Helping North American Songbirds. The Motus towers will play a key role on this conservation mission. Other zoo partners, like AZA North American Songbird SAFE program and the Ohio Bird Conservation Initiative, consider creating a network of towers a priority to help track migratory birds and other species as they fly over during migration and as they forage and use local habitat during their selected breeding season in the spring and summer. The CVNP plans to install up to six Motus towers throughout the valley. Summit Metro Park plans to install two. We plan to install our own tower within zoo property and are considering installing a second one, which would be Bath Nature Preserve due to its strategic location in the valley and the fact that it is home to a strong population of bobolinks, a bird that is protected by the state of Ohio. More generally, the Cuyahoga Valley is considered a data gap; the closest tower is a single one in Canton to the south and several around Lake Erie to the North. There are additional towers further south between Columbus and Athens, OH and hundreds more around the US, Canada, Central and South America. The entire network provides a more complete picture of where our migrating animals go and what actions we need to take to save them here in their breeding grounds and also south on their wintering grounds.

## 2. Cost and logistics needed for a MOTUS tower? Where on BNP grounds? Maintenance?

We are not asking for any expenses to come from the reserve. The zoo would fund the installation, operation, monitoring and maintenance of the tower through donors, grants, allocated operational expenses, and possibly through the funds from SMP or CVNP. Motus towers have to sit at the highest location available in the ground, atop a building or other structure, or as part of a larger array of antennas in a regular telecommunications tower. The towers need a source of energy and access to Wi-Fi or cellular data. The Motus Wildlife Tracking System provides all of the materials and instructions needed to install and manage a tower, whether it is connected to an electric grid and internet from an existing building or source, or a standalone remote unit with solar and cellular data. The initial cost is roughly \$7.5k for purchase, installation, and first year maintenance of a “typical” tower. It can vary depending on the configuration of the tower, number of antennas, needs for power, etc. In some cases, the cost can be significantly lower if existing infrastructure is used. After first year, maintenance can be as low as \$500, but is usually less than \$750 a

year assuming there is no structural damage or theft/vandalism. If standalone units are installed, then we need to add \$1000 to \$2000 to secure the equipment from the elements and from human activity.

Individual tags, needed to monitor new birds living in the area or flying through the area, range in price from \$100-\$250 apiece. Not all Motus projects require tagging new birds, but it may be desirable considering the number of tagged birds in an area and life expectancy of tagged birds and the tags themselves. Currently, CVNP is planning to do all the tagging of birds inside and outside of the park. If we were to tag birds at the reserve, we would ask for a new permit. All tagging would be done by professional ornithologists with banding permits and mist netting equipment.

The Motus tags come in different sizes, but are small and their weight ranges from 0.2 g to 2.6 grams. The ones we would use weigh less than a gram, but the larger ones have other sensors to collect data like temperature, humidity and other variables that are then also shared with the antenna. These are used in larger birds like raptors and waterfowl. In order to tag a bird, it needs to be captured and restrained for about 10-20 minutes while everything is set. Once captured they are identified, weighed, measured, their body condition and breeding status is assessed, and then they are banded and tagged. These steps, minus the tagging, are the usual steps taken on most bird banding and bird monitoring studies.

Tags can be affixed just for a season or for longer periods of time. Seasonal tags have a small one-time use battery and are affixed to the back feathers using surgical glue, which is the same type of glue used on humans and many other animals during surgery, it is also the method most commonly used for bats. When the bird (or bat) molts it will shed the one-time tag. Tags intended for long term monitoring are mounted using a little harness attached to the legs of the bird so that flight maneuverability is not affected. Long term monitoring tags can last for several years and are solar powered. There is extensive data showing that these tags do not impact the bird's quality of life nor make them more vulnerable to predation.

### 3. Additional information on the benefits of a Motus tower.

These towers provide data on the paths used by migratory birds and biodiversity in general to scientists and land managers. It will help us carry out our message of conservation in Akron and the Cuyahoga Valley, providing opportunities to educate and engage the public, and for community based science and collaborations with CVNP and other local partners (Summit Metro Parks, local and regional schools, universities). Since all Motus towers share data, we can collaborate with others north and south of us or install more towers elsewhere (from Canada to Argentina), to show the complete journey of our migratory birds

and tell their stories to the public. We can use these stories to show how our individual actions (shade-grown coffee, palm oil, avocados) can affect our local biodiversity and vice versa.

For more information visit <https://motus.org/get-involved/>

By checking this box, I agree to the above terms and state that all of the above information is c...

I agree