

IT'S TELEMETRY

New gear boosts observatory's ability to track flying migrants



RICK STEELHAMMER | Gazette-Mail

Recently installed radio telemetry antennas rise above Hanging Rock Raptor Observatory, which clings to a sandstone outcrop atop Peters Mountain in Monroe County. The new gear can automatically identify specially tagged birds by species and record their arrival times and dates.

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WAITEVILLE — A new radio telemetry system is augmenting the work of volunteers who keep track of migrating birds flying past Hanging Rock Raptor Observatory, housed in a former U.S. Forest Service fire tower atop Peters Mountain in Monroe County.

The north-south orientation of the 52-mile-long mountain and the thermal uplifts produced along its ridges and valleys make it a popular flyway segment for birds making long-haul flights.

Hanging Rock's abundance of migrating birds, along with the unobstructed, 360-degree views available from its 3,812-foot-high perch atop an outcrop of slanted sandstone boulders at the mountain's crest, began drawing hawk-watchers here in the early 1950s.

Later, an ad hoc group of volunteer observers took shape, began

focusing on 12 species of raptors or birds of prey known to migrate through the region and kept the tower staffed with spotters during the fall migration season and beyond.

"For more than 50 years, the people at Hanging Rock have been keeping track of raptors," said Mack Frantz, a zoologist at the West Virginia Division of Natural Resources, who oversaw the recent installation of a new radio telemetry tracking system at the observatory. "Now, they'll be able to help track a wide variety of banded birds and other animals passing the observatory."

The new telemetry station is one of more than 1,200 now operating in the Motus Wildlife Tracking System with locations in 14 nations on four continents. Motus is the world's largest collaborative automated radio telemetry system, now keeping track of the

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movements of 278 species of birds, bats — even migrating insects such as monarch butterflies — that researchers have equipped with tiny pulse-emitting tags.

The automated telemetry receiver operates on a 24-7 basis and can detect and record the movements of radio-tagged animals flying as far as 10 miles from the observatory.

"Most songbirds migrate at night, when they can't be seen, so this will help keep track of them," said Brian Hirt, a long-time volunteer at Hanging Rock.

During the spring migration, when the observatory is lightly staffed, hawks heading north past Hanging Rock are more scattered and spread out, Hirt said. Northbound raptors not spotted by Hanging Rock volunteers should be detected by the new Motus gear, if the birds have been tagged by collaborating researchers.

"The more stations like this that go up, the more people will learn about where the migrators are going," said Jeff Hajenga, a biologist with the DNR's Natural Heritage Program and among those recently helping with a final session of installation work at Hanging Rock.

The system's receiver, housed in a plastic tote secured to a platform in the observatory's rafters, operates on power produced by a rooftop solar strip and stored in a pair of marine batteries. Antennae resembling a pre-cable television aerial array are attached to the side of the fire tower cab to detect radio signals emitted by tags attached to passing birds or other animals being studied by Motus collaborators.

Tags used by Motus researchers emit signals from a single dedicated frequency, but those signals pulsate at microsecond intervals unique to the individual tags attached to the animals being studied.

Data from the tags identify the time, date and location of the observation, the species involved and the name of the

organization conducting the research. That information is posted on the Motus website shortly after it is received and is available at motus.org.

Data received at network telemetry stations, uploaded to Motus for a more detailed analysis, can tell researchers the elevations and speeds at which tagged birds are flying and to-the-second departure times following rest stops.

Until this year, West Virginia was one of only two states east of the Mississippi lacking a single Motus receiving station. Earlier this year, a Motus station was installed at the Ohio River Islands National Wildlife Refuge near St. Marys. Frantz said work is expected to begin soon on a third West Virginia site — the Fox Forest Wildlife Management Area, which borders the DNR's district office complex at Elkins.

More Motus stations are expected to be added at other West Virginia sites in coming years, Frantz said, in an effort to learn more about the locations of habitats within the state sought by threatened wildlife species. Once identified, those sites could be tar-

geted for conservation.

So far, the DNR has begun no research projects of its own involving the tagging and tracking of animals using the Motus system.

"This year, we're focusing on getting our stations up and running," Frantz said. "But next year, we may get started on a research project that involves tagging tree bats to see where they're going in the forest."

Other possible projects involve bird species that have raised conservation concerns in the state and monarch butterflies, placed on a waiting list in December for consideration for Endangered Species Act protection following an 80% decline in population since 1980.

Installation work for the telemetry station at Hanging Rock took place over a series of work days that began in June and extended through the end of August. Since a mile-long hike into the Jefferson National Forest along the Allegheny Trail is needed to reach the tower, all equipment, tools and construction items had to be packed in.

"We couldn't have done this without the help of volunteers from Hanging Rock and the West Virginia Scenic Trails Association," Frantz said on the final work day of the project.

As Frantz went over the process of maintaining and downloading data from the receiver with Hanging Rock volunteer Charlie Kahle, Hajenga, Hirt and fellow volunteer Rodney Davis installed a newly built pull-down ladder providing access to the receiver. Later, the entire work party screened off the rafters with thick wire mesh.

The work crew met a goal of having the station operational in time for the peak fall migration period, which generally begins in mid- to late September.

Despite COVID, the tower's remote, hike-in location and absence of self-promotion, thousands of visitors flock to Hanging Rock annually to marvel at the sight of birds of prey migrating south, often in large numbers.

"We had 6,000 visitors from across the U.S. and 14 foreign countries visiting here last year," said Hirt.

Last year, a total of 6,438 raptors representing 12 species were observed soaring past the tower, with most sightings occurring from mid-September through October. That tally included an observatory record of 4,818 broad-winged hawks seen in a single day.

A recent check with the Motus website indicated that by the end of August, the receiver at Hanging Rock had detected a common night hawk that had been tagged and released in May 2020 by researchers at the University of Guelph in Ontario, Canada.

The receiver also identified a pair of short-billed dowitchers that reached the Monroe County fire tower about three months after they were tagged and released from the south shore of Hudson Bay as part of a Canadian government study on shore bird migration and stopover patterns.

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