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## Radio Flyers

Specialists at Emiquon Preserve monitor migration patterns of mallard ducks

BY DIANE IVEY



Just a foot or so off State Road 97, nature is taking back what was once lost. Drivers can't miss the sprawling wetlands, sunken floodplain and "narrow shoulder" signs, as the road winds across empty lands.

The Emiquon Preserve, about an hour and a half northwest of Springfield, stretches 7,100 acres along the Illinois River. The preserve, on land owned by The Nature Conservancy, was once one of the most ecologically and economically important river systems in North America.

After almost 80 years of abuse – levees, draining and conversion to farmland – the Conservancy in 2007 began to transform Emiquon back to a floodplain. The project is the second largest in the country, after the Everglades in Florida.

As the restoration continues, the preserve is again a popular stopover for waterfowl during migration.

Wading into murky water, digging several feet below frozen ground and carefully searching through grassy prairies are wildlife technicians Danielle DeVito and Curt Kleist.

They're in search of mallard ducks, but you won't find any rifles or ammunition among their belongings.

While some might have mistaken them for hunters last October, as they set out on foot, boats and four-wheelers, DeVito and Kleist had another mission entirely.

Using nets, decoys and traps, DeVito and Kleist captured the mallards, fit them with radio transmitting devices (called "backpacks" because they fit between the ducks' wings) and sent them back into the preserve.

The technicians could now track the ducks, as they moved from the river's marshes and wetlands to nearby fields and towns.

Both technicians are part of the Illinois Natural History Survey of the Forbes Biological Station in Havana, Ill. Their mallard research, based at the Therkildsen Field Station (a teaching and research facility owned by the University of Illinois at Springfield), is part of a larger effort to transform Emiquon from farmlands to floodplain.

DeVito and Kleist are part of a team that has spent the last four months studying how mallards use the Illinois River Valley during fall migration.

Dr. Joshua Stafford, director of the Forbes Biological Station, said he hopes his team's research will provide information about the mallards' movements on the preserve. The purpose of the study is to track duck migration, so researchers and conservationists will know how the mallards use their habitats at Emiquon.

"One of the big questions is: how do ducks allocate their time?" Stafford says. "What types of wetlands do they use? Where do they go? A lot of people think they spend most of their time on the crop fields. A lot of people think they only sit on the refuge. It's going to take a while to look at all the numbers and see what patterns emerge."



During their study, the team captured 71 mallards, fitting the "backpack" transmitters to each one.

From mid-October until mid-January, DeVito and Kleist would leave the field station in search of mallards. They used radio antennas – which can be held by hand or attached to trucks or airplanes, receiver boxes and electronic compasses to locate the "tracer" ducks – those already wearing the backpacks.

Most of the time, the team worked out of the truck, which is fitted with ecological software that helps locate the mallards. When not searching for new ducks to tag, DeVito and Kleist listen to a receiver box that tells them if a tracer duck is nearby. When the team is close enough to a mallard, they will hear a beep every 30 seconds,

"We listen to a fabulous static all day long," DeVito jokes. "When we're doing this, and these are each emitting the signal, we'll

hear a beep. That gives us the idea that we need to stop and figure out where the bird is."

The team used hand-held tracking when investigating a mortality, she says. If a duck has not moved for more than eight hours, its tracking device will emit an urgent "mortality" beep at twice the original speed.

"A lot of the time, it's not as simple as it sounds," DeVito says.

She recalls a recent tracking experience where she and her team could not seem to find the transmitter after receiving the mortality signal. After listening more closely, she thought it seemed to be coming from underground.

"It makes you feel like you're losing your mind for a little bit," she says.

As DeVito started to dig beneath the frozen ground, she came to a den, likely belonging to an otter or mink, she says. Finally, her team found the remains of two wings.



"It was pretty cool," she says. "After we recovered the transmitter, we found there was a big chomp mark in it."

Some of the mallards have been discovered far out of the transmitter's range. Of the 71 ducks, 20 died during the study. Three were mortalities (meaning they died from natural predators, such as the one found underground) and 17 were shot by hunters.

Two ducks were shot by a man in northern Tennessee, DeVito says. Each backpack comes with the field station's telephone number on it, so hunters can call to return the transmitter.

The backpacks are about \$200 each, Stafford says. The batteries are designed to run out in about 200 days, at which time researchers will have completed their observation.

Observing the mallards is like a full-time job, Kleist says. Both he and DeVito are originally from Minnesota, and have worked on numerous waterfowl projects for universities and conservation groups.

"I definitely enjoy it," he says. "We're out from sunrise to sunset, catching ducks and tracking them."

He adds that the backpack transmitters are much easier than other kinds, which can involve surgical implants.

"I just did a project out in Louisiana where we had to do surgeries on 10-15 ducks a night," he says. "We'd go to 1-2 a.m."

The team would like to return to the project this spring, Stafford says. He'd like to see satellite tracking employed, but the technology is not affordable for large-scale projects like his.

Stafford hopes the project will teach the preserve how to make the most of its resources by showing the mallards' locations and flight patterns.

"Those are the types of questions that we have to answer, because that drives the allocation of conservation dollars to put habitats in the right places," he says. "And that's driven by food. If we don't know how long they stay, we don't know how many ducks we've got to feed, and for how long."

He adds that this year's ducks stayed an unusually long time because of flooding, especially along the Sangamon River, and unusually warm weather.

"This year was really goofy," he says.



Funding comes from a grant by the Illinois Department of Natural Resources. Some money comes through the Federal Aid in Wildlife Restoration Act, a 10 percent excise tax hunters pay on items like ammunition.

The research (funded jointly with a study on ducks, geese and swans) also received \$206,523 in federal aid, according to the U.S. Fish and Wildlife Service. The state must match those funds by 25 percent before receiving federal money, Stafford says.

Though her project will soon be over, DeVito won't be giving up her interest in ducks any time soon.

"From the first time I caught and tagged a mallard, I was hooked," she says.

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