REVIVING THE RIVER

As Dayton, OH Branch 182 member **Bryan Burton** and a friend kayaked down the local Miami River in September 2017, they ran into a logjam—and not a small one at that. For those who haven't seen one, a logjam is a pileup of logs and other debris that causes a blockage and also is an environmental concern.

"It was 20 feet high, close to two and a half football fields long," the carrier said. "We got out of our kayaks and explored it."

They stepped out into three feet of mud and muck and realized that they had discovered the oxbow—the place where a river changes course. It is normally very obvious, but this one was blocked and hidden.

"We realized that's where the river rerouted," Burton said. The water did trickle through, but anything that wasn't water stopped, creating the jam.

It piqued his interest for several reasons, the carrier said. "A river that stops isn't good [by] any means. It's toxic waste. And it's a problem for the community."

Burton, who has an associate's degree in mapmaking from Hocking College in Ohio and who has extensive knowledge of geographic information systems (GIS)—which uses computers to collect, analyze and display mapping data with GPS coordinates attached to it—was determined to look into the situation further.

The carrier, who owns a drone, turned to fellow drone enthusiasts—an engineer and a researcher at a local university—to fly their drones over the river to collect images and data about the logjam to demonstrate how it affected the health of the waterway.

Burton and his friends were able to use the data they had collected to map the river. From there, they shared at a drone convention at Ohio University in November 2017 the 3-D model they had created.

It drew interest from Hope Taft, a former First Lady of Ohio and a founder of the Little Miami Watershed Network. The group networks with governmental, civic and nonprofit organizations that focus on conservation, stewardship and educational outreach in the Little Miami Watershed. That network currently includes 29 nonprofits. Taft knew about the logjam and wanted to bring Burton into the fold.

"I started meeting up with her and the Little Miami Watershed Network and working with them," Burton said. By February 2018, he had created his own nonprofit, called Rivers Revival. Burton, an Army veteran who has been delivering mail for three and a half years, spends as much time as he can thinking of ways to revive the river.

The carrier hopes that all the groups involved with the network will be able to merge their data into a centralized location for the benefit of all.

He's constantly talking to those who can help, including land trust groups that try to preserve land to make parks and that provide other community benefits. One of these land trust group received a grant for more than $3 million to study best land practices of the Miami River and other smaller watersheds.

Burton said the Dayton area also is

Drone footage Burton captured above the Miami River

The carrier directs his drone by the banks of the Miami River

fortunate to have the help of local water technology company Xylem, which has provided water sensors to help map the river.

The carrier explained that it is important to get frequent water samples from the Miami to know how the river is doing and to try to prevent environmental hazards like logjams.

He said that new building development in the Dayton and Cincinnati areas of Ohio is putting a major strain on the river, leading to more pollution and more use of impervious surfaces such as concretes and gravels that have no natural drainage. "It makes the Miami work harder and harder to flush out pollution to make our lives better," he said.

"We all want clean drinking water," he continued. "Clean water is the ultimate goal. It's becoming more scarce."

Burton added that water also has an effect on produce. "There's been a steady increase in food production locally," he said. "I want to be a part of that. To figure out good usage and practices, I talk to farmers a lot. If we understand the dynamics of the system, we can assess the system."

Burton said that the U.S. Environmental Protection Agency (EPA) examines the river's quality only about every 10 years, and only with limited water samples.

"To me, the data they use is outdated and not adequate," he said.

That's why Burton has been doing his part to find out what really happens in the watershed at certain times. "I try to get out [there] as much as possible," he says. Burton continually maps the Miami using his drone, and also collects water samples.

Burton sees this as a community effort. "People are more than willing to help out," he said. "They don't know how. I'm just trying to educate [them]."

Through Rivers Revival, he is working on the creation of an app to help improve the Miami River through the use of what he calls "citizen mappers."

Citizen mappers can "grab a water sample at [their] favorite spot," and then can input a GPS tag, time stamp and a photo of the sample into the app. "It just requires training," Burton says. "People want that feeling that they're helping."

He especially wants to target younger adults. "If I can implement a younger force and bring them together, that would be the ultimate dream," he said.

Getting all of the data collected about the body of water into one place will help immensely, he said.

This month, Burton will take part in a "river collect" at the Miami River, led by Xylem. It will involve splitting the river into eight sections and then having eight groups row through in canoes with Xylem's water sensors attached. "It shows a solid snapshot of the Miami that day," Burton said.

It was last done in September 2018 and they may do one again this September. Burton said that the more frequently they can do it the better, because it provides data quality checks. They also can map the progression of the water quality, effects after storms, and more.

"Any and all of this data that's collected is really valuable to people who care about the river," the carrier said.

Burton says he "absolutely" plans to help with other rivers moving forward.

Meanwhile, he notes that Rivers Revival already has started expanding by looking into more and more of the Miami River's watershed. "From there, we can create an even bigger model," he said. "[It's] bringing like-minded and smart people together to create a good thing." **PR**

For more information, check out riversrevival.com.