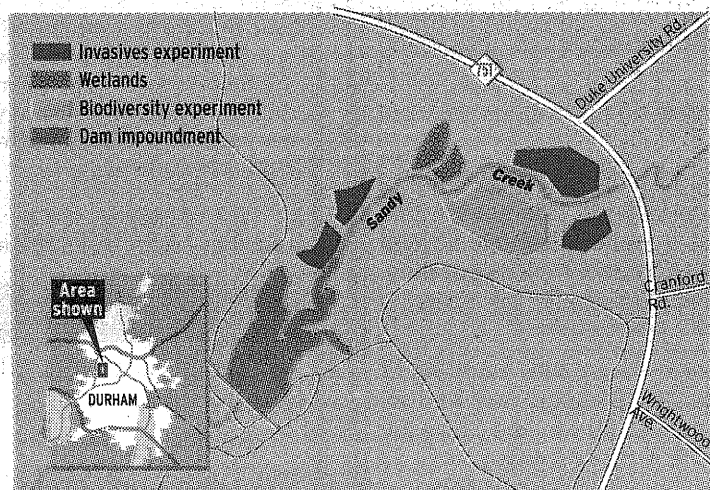


# Duke scholars work to restore wetlands - on campus

## THE WETLANDS PROJECT

Duke University's Sandy Creek project has several factors: a wetlands area, invasive and biodiversity experiments, and a dam.



The News & Observer

By SARAH NELL DAVIDSON  
STAFF WRITER

**DURHAM** - Curtis Richardson didn't have to look far to find the latest project for the Duke Wetlands Center.

It was on Duke's very campus. "We've been working on wetland projects around the world — in Iraq, Florida and other places — and decided it was time to do something at home," said Richardson, founder and director of the Wetlands Center.

The proposal sounded simple enough: Restore the area of Sandy Creek that flows through Duke Forest back to its natural condition and build a wetlands area that will remove pollutants before they hit Jordan Lake.

But the idea, which Richard-

son first proposed in 1999, took money and an exhausting number of permits to get under way.

Even though the project is meant to undo the effects of years

## ON CAMPUS

### FOOTNOTES:

The dean of NCSU's engineering school will step down. ▶ 3B

the plan will raise the water table to re-establish a flood plain.

Then there's the high cost — about \$2 million.

The project is taking place in

three phases. The first, now completed, involved restructuring the stream.

James Pahl, a postdoctoral research associate working with Richardson, said the old Sandy Creek may have looked fine. But from a functional standpoint it was dead. Its route, combined with the amount of concrete and other impervious sources nearby, caused problems.

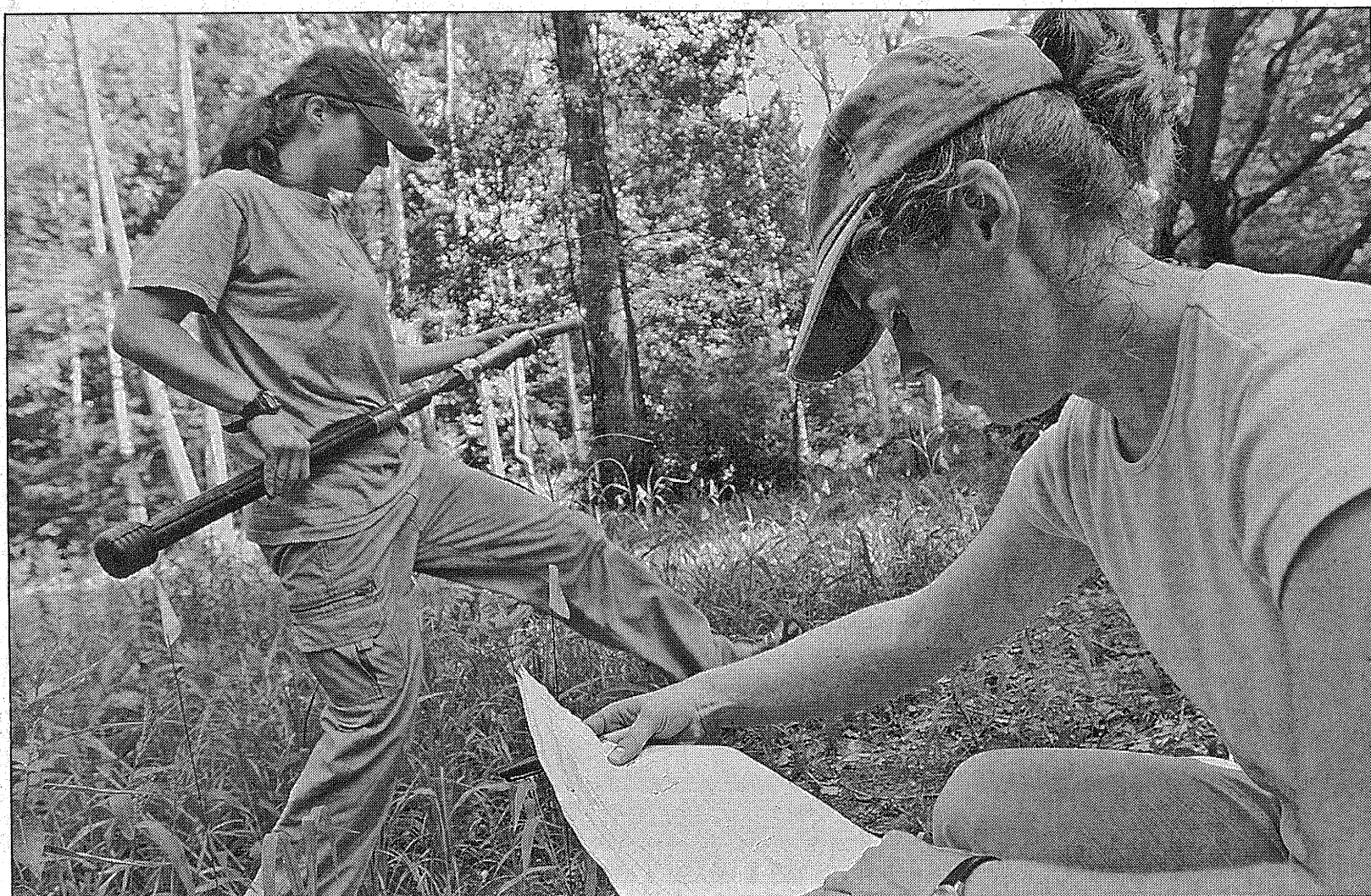
"With that sort of increase in concrete, you start losing function in the streams, and you lose species diversity and habitat," Pahl said.

A team of experts, from Duke and from an outside engineering firm, rerouted the stream using original meander channels

SEE **CAMPUS**, PAGE 3B

*'The project has educational, teaching and research benefits, but most importantly, it is going to treat 1,200 acres of stormwater runoff for the city of Durham and Duke.'*

CURTIS RICHARDSON, FOUNDER AND DIRECTOR OF THE WETLANDS CENTER AT DUKE UNIVERSITY



Duke researcher Ariana Sutton-Grier, right, checks her notes while Aileen Molloy steps over a plot of native plants after taking a soil sample. Scholars at Duke's Wetlands Center hope to determine which native plants are best to help restore or repair damaged wetlands.

STAFF PHOTO BY HARRY LYNCH

## CAMPUS

CONTINUED FROM PAGE 1B

and ecologically friendly approaches.

Now, Sandy Creek is redirected and connected to the flood plain. And research is happening along its banks.

Ariana Sutton-Grier, a graduate student in Duke's Nicholas School of Environment and Earth Sciences, is conducting experiments to try to figure out which types of plants soak up pollutants best.

She is looking at plants that are able to take out nitrogen waste — the stuff that is abundant in agricultural and lawn-care chemicals and that has caused algal blooms in Jordan Lake.

"My question is, how can we modify what we are planting to achieve functional wetlands, using plants that are native to this area?" Sutton-Grier

said. "In the future, people planning projects like this can look at my results and find out which combinations of plants removed nitrogen well."

### A changing habitat

Other students are looking at whether mosquitoes will become a problem and whether natural solutions such as introducing mosquito fish are working. Pahl is examining water quality before and after the project to see how effective it is.

With the stream restructured and ecological experiments under way, the team moved on to phase two last spring. That involved building a large dam and creating a four-acre lake.

The dam allows researchers to control water levels in the stream, so they can study things such as the relationship between surface flow and

groundwater flow in wetland systems. The dam also traps otherwise erosive sediments, Richardson said.

The dam is not a subtle structure, and users of the nearby Al Buehler jogging trail were on the phones to complain when construction started.

"Unfortunately, it looked like a bomb went off in the forest when we had to log that site," Pahl said. "We had to cut trees down. Otherwise, root systems would get weak from the water, and trees would start coming down, posing a threat to joggers."

Those joggers will be happy to hear that once the project is complete, the trail will go over the dam — offering them a full view of the restored habitat upstream.

The third phase of the project, beginning this fall, is to engineer and build a treatment wetland.

"During storms, the treatment wet-

land will catch the overflow and work to remove some of the nitrogen and phosphorous pollutants in the water before it heads downstream," Pahl said.

### Local benefits

The benefits for Triangle residents are integral to some of the grants that Richardson and his team have received.

"The project has educational, teaching and research benefits, but most importantly, it is going to treat 1,200 acres of stormwater runoff for the city of Durham and Duke," Richardson said.

He added that he hopes students and scientists from other area universities will use the site for research. There also are teaching manuals being developed for local schools.

"It's really for the Triangle," Richardson said.