

Alarm for eagles

News + Observations
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AETOKTHONOS HYDRILLICOLA, UBIQUITOUS IN INVASIVE HYDRILLA PLANTS, GOES UP FOOD CHAIN TO SLAY BIRDS OF PREY

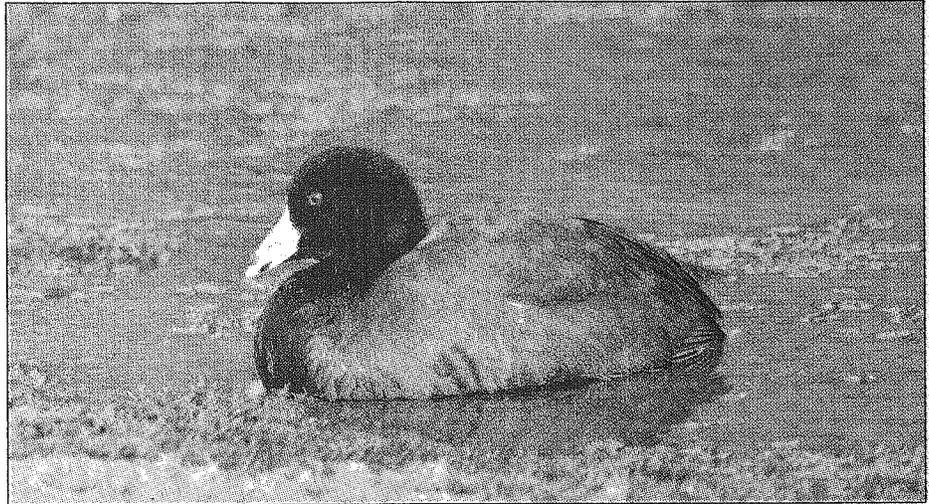
By Darryl Fears
Washington Post

Working late in a tiny Arkansas lab, Susan Wilde found herself alone with a killer.

It startled her. She jumped, let out a yelp, and took off down a hall. Wilde wasn't running for her life; she was amazed by a discovery. She had uncovered a bacterium, one with a powerful toxin that attacked waterfowl, hiding on the underside of an aquatic leaf that grows nearly everywhere in the United States.

After 20 years of testing determined that the bacterium had never before been recorded, and the brain lesions it causes had never before been found before that night in 1994, Wilde recently gave her discovery a name: *Aetokthonos hydrillicola*. The Greek word "aetokthonos" means "eagle killer," and it is named for its ability to quickly kill the birds of prey. It's the latest threat to a raptor that is starting to flourish after being removed from the endangered species list.

Across the South, near reservoirs full of invasive plants from Asia called hydrilla, eagles have been stricken by the bacteria,



This sick coot floats in hydrilla at J. Strom Thurmond Reservoir, an Army Corps of Engineers impoundment on the Savannah River on the South Carolina-Georgia line.

Possible solution?

Stopping the spread of *Aetokthonos hydrillicola* might not be easy, but one idea involves releasing grass-eating carp into affected lakes, a tactic that was successful in Lake Murray in South Carolina, where 64,000 carp ate 3,880 acres of the invasive plant over two years. Unfortunately, this non-native, sterile carp consumes other desirable water plants important for fish and wildlife habitat.

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which go straight to their brains. Eagles prey on American coots, which dine almost exclusively on hydrilla.

Before now, reservoirs that serve up a buffet of this plant were considered beneficial because they helped fuel the annual migration of coots from Canada to Florida and beyond, while also feeding eagles. But now the reservoirs are "death traps," said Wilde, an assistant professor at the University of

Georgia whose study of the topic was recently published in the journal *Phytotaxa*. In Arkansas, Georgia, Florida, South Carolina and North Carolina, coots, shorebirds, ducks and eagles are dying by the dozens from the incurable lesions.

"We're attracting them to places where they're going to die, and that's not a good thing," Wilde said.

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Wilde

A bald eagle in Georgia: Eagles prey on American coots, which dine almost exclusively on hydrilla, an invasive aquatic plant. Bacteria that can grow on the underside of hydrilla leaves contain a powerful toxin that infects waterfowl - including coots.



EAGLES

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Before joining the faculty at Georgia, Wilde worked for S.C. Department of Natural Resources and was a research assistant professor at the University of South Carolina.

From coots to eagles

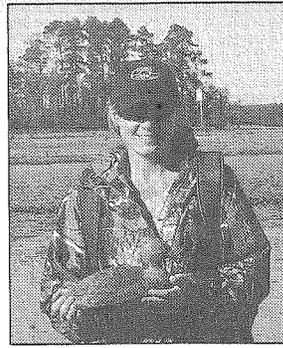
Eagles get top billing in the study because they're the national symbol, arguably the most-recognized animal in America. But the bacteria and its toxin hit coots harder. The migration of coots is a spectacle that bird watchers flock to man-made reservoirs to see. Five thousand can descend at once on a single lake, noisy, splashing, feeding.

The only way to save the animals is to spend millions to eradicate a plant that was introduced to the United States in Florida about 60 years ago. It now grows in virtually every body of fresh water, from the Southeast to the Pacific Northwest.

Wilde said eagles don't mess around when they dine on coots - a dark, plump, duck-like bird with a bright orange dot for an eye. Even the head is fair game. They leave nothing but the feet, Wilde said. She theorized that the bacteria enter eagles while they're munching on the coots' guts. "The only way we can tell a bird has it is they have a characteristic in the brain, a lesion," she said. "There's no damage to any other part of the body."

The eagle killer might hide on the underside of leaves because it prefers shade, but Wilde and her fellow researchers haven't figured out why. The bacteria radiate outward in a circle with strange edges and, she said, spikes. "It looks like it would kill eagles," she said.

Bald eagles were removed from the federal endangered species list only seven years ago. They nearly went extinct when their habitat was clear-cut in the past century, their prey (such as ducks) was over-hunted and a pesticide caused them to lay eggs with shells so thin their chicks couldn't survive. In 1978, they were listed as endangered in every



COURTESY OF BRIGETTE HARAM

Brigette Haram, holding a coot decoy she found on the shore, has tracked the killer bacteria as far north as North Carolina.

state on the U.S. mainland but five, where they were listed as threatened.

Wilde and Brigette Haram, a doctoral student at the Warnell School of Forestry and Natural Resources where Wilde teaches, conducted lab trials on chickens and mallard ducks to better understand the toxin, and studied other birds that were brought in acting disoriented and sick. "We haven't seen a species that's immune," Wilde said.

A hopeful observation is that many coots and eagles fly into reservoirs and lakes in the six affected states and fly away unharmed. Seemingly, that is. They could easily fly off and die elsewhere. "We don't know why some birds, within a week of arriving, die. But others come back the next year, conceivably," Wilde said.

Haram isn't a co-author of the study, but she's trying to track the killer wherever it lives. So far, she's only found it as far north as North Carolina. Tests in Virginia and New York were negative. She hasn't tested in the Chesapeake Bay area, but it's on her to-do list.

Wilde was working in South Carolina when she first came across the bacteria in 1994. The bacteria were a master of disguise, taking on the same hue as the slim hydrilla leaf. She had been searching for the bacteria for days until she decided to shine light on the subject.

"The pigment shows up. It looks pretty. It just looks kind of scary and bright and red," she said.