



*“For if one link in nature’s chain might be lost,
another might be lost, until the whole of things
will vanish by piecemeal.”*

Thomas Jefferson

A Wilderness Within

BY LEE ANN WALLING

An almost forgotten tract of woods behind the Stockley Center in Millsboro is yielding a teeming trove of rare plant and animal species – including a butterfly with only one other documented location in the world.

Ironically, the naturalists who hunt for and catalogue rare and endangered species for DNREC might never have surveyed the Doe Bridge Nature Preserve if Delaware Department of Transportation (DelDOT) had not zeroed in on the site as an alignment for the planned Millsboro bypass

“It was on nobody’s radar screen,” said Christopher “Kitt” Heckscher, a zoologist with DNREC’s Natural Heritage Program. His scientific detective work led to the discovery of the globally rare Chermock’s Mullberry Wing butterfly along with many species of imperiled



The rare carnivorous pitcher plant (*Sarracenia purpurea*) feeds on insects in the Twig Rush Peat Mat bog at the Doe Bridge Nature Preserve.

sprites, dragonflies and moths.

His Natural Heritage colleague, botanist William A. McAvoy, has located 33 species of rare plants at Doe Bridge, including a stunning diversity of sphagnum mosses and a carnivorous pitcher plant bog.

They did not even spend a full summer season surveying, so they expect this coming spring and summer to turn up even more rare plants and animals.

The Doe Bridge Nature Preserve,

which shelters the headwaters of Indian River, includes about 315 acres northwest of Millsboro. It is one of 23 such preserves in the state. Delaware’s nature preserves, encompassing more than 4,000 acres, are the most protected lands in the state. Only the combined intervention of the Governor, the Natural Areas Advisory Council and the General Assembly can reverse that level of

protection. Such a reversal has never been attempted in the 30-year history of the preserve system.

Biodiversity sustained by a wide buffer

The Doe Bridge Nature Preserve is accessed through the grounds of the Stockley Center at the end of a dirt road. It consists of “several different unique natural communities” that awed McAvoy



LEE ANN WALLING

Lillies in “Butterfly Bog,” in the Doe Bridge Nature Preserve.

and his colleagues from DNREC.

“What I found to be really impressive is the quality of the site,” said McAvoy, a 19-year veteran of the department. “The plant species diversity is really, really high there.”

What guards and sustains that diversity is the broad woodland buffer around the site. Throughout Delaware, biodiversity is lost because trees are felled right to the edge of wetlands – letting in too much light and opening the door to invasive species. That “edge effect” changes the ecology and degrades the habitat, McAvoy explained, along with soil erosion from encroaching development.

Old-growth floodplain in the Cow Bridge Branch. Loblolly with flared buttress is in the right foreground. Such a buttress is common in bald cypress, but is present in these loblollies to help them cope with their waterlogged environment.

One of Doe Bridge’s distinctive communities is a broad, old-growth floodplain that has a primeval quality, although McAvoy estimates the mature trees are probably about 80 years old. Walking underneath the tall canopy of loblolly, red maple, green ash and swamp white oak trees, visitors almost expect to encounter the elves of Lothlorien from the “Lord of the Rings” trilogy.

Many of the loblollies measure 40 inches in diameter and rise 100 feet above the floodplain. McAvoy points out that these trees have flared-out buttresses at their bases, in order to cope with and stay rooted in their waterlogged surroundings.

“You don’t normally see loblolly pine with a buttressed base like that,” he enthused about the feature that is common in bald cypress. He described the floodplain as an “intact, high-quality functioning ecosystem – something that is very hard to find these days.”

Heckscher, who juggled his schedule to survey the Doe Bridge site, was also

impressed by the floodplain. “The first thing I noticed was the big trees,” he recalled. “You could really tell that it was a very old forest.”

Another unique community is an expansive Atlantic White Cedar swamp, dark and humid and characterized by hummocks and hollows. Such swamps are “a really unique and important wetland resource in this state,” McAvoy said.

Still other distinct communities documented by the Natural Heritage Program within Doe Bridge are a Southern Red Oak/Heath Forest, a Pond Pine Woodland, an Alluvial Alder Swamp, and a Twig Rush Peat Mat. It was on this sunny bog-like peat mat, where carnivorous pitcher plants munched on flies and other insects, that Heckscher made the find of his career.

Detective work leads to globally rare butterfly

Here’s how he made the discovery.

McAvoy made it to Doe Bridge first and told his colleague, Heckscher, about the





WILLIAM MCAVOY



LEE ANN WALLING

diverse natural communities and plants he was finding there. He discovered an abundance of rare plants, “and it wasn’t just one or two. It was thousands.”

He mentioned the peat bog and his identification of Tussock Sedge. “I got excited about that,” Heckscher recalled.

Tussock Sedge is a host plant for Chermock’s Mulberry Wing (*Poanes massasoit chermocki*), the globally rare butterfly. “It was something I had been looking for for a very long time,” Heckscher said. “I thought that if there’s any chance this butterfly is still in Delaware, it had to be at Doe Bridge.”

The only documented site in the world is in Dorchester County, Md. The butterfly had been collected outside of Bethel, Del. into the 1980s, but bridge work altered the wetland area. Phragmites and other invasive species apparently had wiped out the butterfly’s habitat.

The search was urgent because the butterfly only lives from 10 days to three weeks, depositing its eggs before it dies. The larvae hatch and feed on the sedge. Heckscher went to Doe Bridge on a

A red maple and green ash floodplain forest.

“perfect, sunny day” and searched by himself for about five hours.

“I was going to check one last spot” before leaving, Heckscher recalled. “And I found it.”

While he is primarily an ornithologist, on that day Heckscher was an entomologist by default. “If you consider my 15 years here, that’s probably the best thing I’ve found,” he said. He informed his colleagues in the region, and “I have this world of mentors out there that I keep in touch with.”

Heckscher also found an array of rare insects in the same area, including the tiny blue elfin skimmer (*Nannothemis bella*), considered globally uncommon; the seepage dancer (*Argia bipunctilata*), a critically imperiled damselfly; and the sphagnum sprite (*Nehalennia gracilis*), another damselfly that thrives in peat bogs.

“The habitat they depend on is so uncommon that they are by default uncommon,” he said.



LEE ANN WALLING

Specimens of the globally rare butterfly Chermock's Mulberry Wing discovered in Doe Bridge and collected by Christopher "Kitt" Heckscher.

Indicator species

The Chermock's Mulberry Wing is small and brown, with a glint of blue-green in its wings if held just right in the light. As butterflies go, it is not a spectacular looker. But its presence at Doe Bridge says a great deal about the extremely high degree of biodiversity there and the robustness of the habitat.

"The butterfly is an indicator species," Heckscher pointed out. "It says something about the environment." Because its larvae feed on a wetland plant, "something is wrong with the wetland if it is not there."

Both he and McAvoy are passionate about a place such as Doe Bridge. "That is why I do this job. I am interested in conservation and species distribution,"

Heckscher said. The butterfly is the product of millions of years of evolution, and "to think that we can wipe it out with a highway or a housing development is really disconcerting to me."

He also notes that many pharmaceuticals are derived from insects and plants. "It's not that the Mulberry Wing at Doe Bridge is going to find a cure for cancer, but you'll never know what you're missing if it's gone."

Perhaps only a botanist can truly appreciate the fact that 10 species of



LEE ANN WALLING

Heckscher looks over his specimens at the Natural Heritage Program headquarters near Woodland Beach



sphagnum moss have been found at Doe Bridge, including one never before located in Delaware, but it's "all a reflection of the uniqueness and the high quality and the undisturbed and unspoiled nature of the system," McAvoy said. "We go out of our way to preserve the cultural

This Atlantic White Cedar swamp, among the distinct communities documented by DNREC's Natural Heritage Program within Doe Bridge.



WILLIAM MCAVOY



WILLIAM MCAVOY

history of our state. I believe it's equally important to preserve the natural history as well."

The other significant sighting Heckscher made in the Doe Bridge area was a Delmarva Fox Squirrel, which has been on the federal endangered species list since the list was first created in 1963. The squirrel's presence at Doe Bridge has not yet been confirmed.

"We tried to verify the sighting with

Tussock Sedge (*Carex stricta*) growing at Cow Bridge Branch attracts the globally rare butterfly, Chermock's Mulberry Wing.

cameras. It was a pretty extensive effort," said Holly Neiderriter, a non-game wildlife biologist with the Natural Heritage Program. "If there are (Delmarva Fox) squirrels there, there aren't very many of them."

She said Doe Bridge has a perfect habitat for the fox squirrel, a ground

dweller that doesn't jump from tree to tree. The squirrel likes a closed canopy of older-growth trees and an open understory (lack of ground cover), and Doe Bridge abounds in mature oaks, hickories and pines.

At this point, Neiderriter stressed, there is no regulatory impact because of



JIM WHITE

The Elfin skimmer is the smallest dragonfly in North America. It is globally uncommon and critically imperiled in this region. Doe Bridge is one of three known sites where the skimmer is found in Delaware.

the sighting. “We’re going to do a good bit of work this spring,” she said.

Doe Bridge not quite out of the woods

The discovery of the abundant rare plant and animal species has prompted DelDOT to reconsider its bypass alignment choice in the area.

“In the Millsboro–South Area, we are coordinating with DNREC on the Rare, Threatened and Endangered Species work that is ongoing and will resume in the spring,” said Darrel T. Cole, director of public relations for DelDOT. “Once the environmental work is (done) and final determination (made) on any potential federally listed species, we will announce our Recommended Preferred Alternative for this area.

“We are evaluating a few alternatives in this area, some of which avoid the nature preserve altogether. DNREC staff has been actively participating with this coordinated effort with the other resource and regulatory agencies,” Cole continued.

Eileen Butler runs the Office of Nature Preserves within DNREC’s Division of Parks and Recreation. It was she who dispatched naturalists from the Natural Heritage Program, under the Division of Fish and Wildlife, to check out Doe Bridge.

“We have high-quality, really fantastic experts who can go into a place and comprehensively survey a property (for rare and endangered species),” she



LEE ANN WALLING

Naturalists Matt Bailey (L) and Kitt Heckscher walk down a remote trail at Doe Bridge.

said. “Delaware is fortunate and rich in knowledge with this handful of folks.”

The expectation is that DNREC’s team of experts will discover more rare flora and fauna not just this spring and summer, but long into the future. Because the Doe Bridge Nature Preserve is afforded the highest level of land use protection available, it will remain as close to pristine as nature – and we – can keep it. **OD**

LEE ANN WALLING IS A POLICY ADVISOR IN DNREC’S OFFICE OF THE SECRETARY.



The Doe Bridge Nature Preserve is not a state park. Due to the sensitivity of its ecosystems and the security needs of Delaware Health & Social Service’s Stockley Center, public access is restricted.

For more information about Doe Bridge and the state’s 22 other nature preserves, contact Eileen Butler in DNREC’s Office of Nature Preserves at 302-739-9235.

Delaware's Nature Preserves

DOE BRIDGE IS ONE OF 23 NATURAL AREAS in Delaware accorded the highest level of protection as a designated "nature preserve." The preserves total 4,078 acres and are located in all three of Delaware's counties.

Formally dedicating an area as a nature preserve is described under Title 7, Chapter 73 of the Delaware Code, the Natural Areas Preservation System Act passed in 1978. That Act also created the Office of Nature Preserves within DNREC's Division of Parks and Recreation. Eileen Butler is the Natural Areas Program Manager who runs that office.

"It provides the highest level of land-use protection," Butler said. DNREC and other government agencies sign Articles of Dedication establishing an area as a nature preserve. Nonprofit organizations and private landowners provide a permanent easement to the state. Most of Doe Bridge's 315 acres are owned by the Department of Health and Social Services, as the Stockley Center is located nearby.

These agreements with DNREC are binding and enforceable. "The only way to change it is by an act of the Governor making a request to the General Assembly," Butler said. If that were to happen, the law requires a "cooling-off" period of at least six months before the legislature acts to reverse the status of a nature preserve.

"No nature preserves have ever lost their protections, and no protections have ever been amended," Butler said, noting that the law makes such a reversal "not politically palatable."

The most recent addition to the system is the Milford Mill Ponds area, 313 acres surrounding Abbotts Mill, Blairs Pond and Griffiths Pond west of Milford. It has not yet been formally dedicated, she said.

State law spells out the purposes of nature preserves, including:

- For scientific research and teaching;
- As habitats for plant and animal species and communities;
- For their preservation and protection against encroachment from "occupation, development or other use which would destroy their natural or esthetic conditions;"
- As "living illustrations of our natural heritage;" and
- As places of natural interest and beauty.



LEE ANN WALLING

DNREC's Sarah Cooksey explores "Butterfly Bog," in the Doe Bridge Nature Preserve.



Butler's supervisor, Charles R. "Ron" Vickers, was instrumental in adding Doe Bridge to the system in 1991. A native of Millsboro, "as I kid I camped there with the Scouts," said Vickers, who has been with DNREC for 23 years and manages the Office of Land Preservation.

"He knew the richness of the floodplains and the impact of the area in its entirety as an ecosystem," Butler added. "He knew it was a special place."

While Doe Bridge became a nature preserve in 1991, "only more recently have we come to realize how really special it is from an ecological perspective," Vickers said, referring to the recent discoveries by DNREC naturalists. "In hindsight, we had a lot of foresight."

The Doe Bridge Nature Preserve is not a state park. Due to the sensitivity of its ecosystems and the security needs of Delaware Health & Social Service's Stockley Center, public access is restricted.

For more information about Doe Bridge and the state's 22 other nature preserves, contact Eileen Butler in DNREC's office of Nature Preserves at 302-739-9235. **OD**