

Endangered list sought for firefly with double-green flash

August 2 2019, by Randall Chase

Peering through the darkness under the faint light of a peach-colored moon, wildlife biologist Jason Davis spots a telltale green flash in the bushes.

Quick as a flash himself, Davis arcs a long-handled mesh net through the humid coastal air, ensnaring his tiny target.

Ignoring the mosquitoes, Davis heads to the open bed of his pickup truck, opens up a notebook-size metal testing kit and begins examining his find. Two minutes later, he makes his pronouncement.

"That is what I am calling bethaniensis," he declares.

"*Photuris bethaniensis*," aka the Bethany Beach Firefly, was first identified in the 1950s and has been found only in a sliver of southern Delaware coastland. Now environmental groups are shining a beacon on the luminescent beetle, whose unique habitat is threatened by coastal development, sea level rise, invasive plants and insecticides.

The Center for Biological Diversity and the Xerces Society for Invertebrate Conservation, both based in Oregon, are pushing for the federal Endangered Species list to include its first firefly.

Their petition to the Department of Interior says the Bethany Beach Firefly "is at immediate risk of extinction" from the "imminent destruction" of much of its habitat, noting plans to build expensive beach

homes in one of the largest of the rare freshwater swales where the firefly has been found. The swales are shallow depressions tucked among sand dunes and fed by underground aquifers and rain water.

The Bethany Beach Firefly is already on Delaware's endangered species list, but that only makes it illegal to transport, possess or sell them. The state has been unable to intervene in the development project because, unlike other states, Delaware doesn't regulate most freshwater wetlands, which account for about 75% of all wetlands in Delaware. State environmental secretary Shawn Garvin suggests that should change.

"This is just an example of why the state would like to have some ability to engage in these types of projects in nontidal wetlands," Garvin said.

Meanwhile, to avoid having to obtain a federal permit from the Army Corps of Engineers to dredge or fill in the wetland, the developer of the Breakwater Beach project has built an elaborate elevated wooden cul-de-sac on pilings in anticipation of building the homes, also perched on pilings.

"That firefly was at the top of my list to do a petition for fireflies," said Tara Cornelisse, a scientist with the Center for Biological Diversity. "But when we were certain about the development going on in one of its habitats, that's when we elevated it to an emergency listing."

Immediate federal protection is unlikely, and the developer is moving forward with construction. A petitioner can request an emergency listing, but federal law does not provide for a separate emergency process. Guidelines call for a decision within 90 days on whether a yearlong review is merited to determine whether action is warranted. Actually getting listed can take much longer still: "I think the average is 12 years," Cornelisse said.

The petition says the Breakwater Beach development is destroying one of only seven freshwater swales where the firefly was previously found.

"They were superabundant in that one spot," said Christopher Heckscher, an environmental scientist at Delaware State University who "rediscovered" the Bethany Beach Firefly in the late 1990s.

A lawyer for the developer questioned the petition's timing and said it relies on limited data from two decades ago.

"Breakcap LLC has no reason to believe that any fireflies live in or along the interdunal swale within Breakwater Beach, let alone that Breakwater Beach is critical habitat for any species," attorney Francis X. Gorman wrote in an email.

"It is curious that they are now—only after Breakcap LLC has obtained all required legal approvals to construct Breakwater Beach—seeking to have the Bethany Beach firefly listed as a federally-endangered species, notwithstanding the admitted decades-long understanding of the firefly's alleged limited range," Gorman added.

Davis, a biologist with Delaware's environmental department, began a survey in late June. He said his team caught and released about a dozen Bethany Beach fireflies at four of the first 20-odd sites they checked.

"I'm optimistic that we'll hopefully find some more," said Davis, who hopes to survey at least 40 freshwater swales. He's been limited to state coastal parks, because no private property owner has given him permission to survey their land.

"Photuris bethaniensis" wasn't considered a separate species until Frank Alexander McDermott, a DuPont chemist with a lifelong fascination with fireflies, published his findings in the Smithsonian Institution's

"Proceedings of the United States National Museum" in 1953. He described a beetle with a distinct "double greenish flash" he first spotted at the north end of Bethany Beach in 1949. It took him several more years to capture enough specimens to make a scientific determination. Few paid much attention to the firefly thereafter, until Heckscher began a three-year survey in 1998.

"No one knew if it was still around or how common it was at all, pretty much because no one had been looking for it," said Heckscher, who found the firefly at seven of 18 swales he visited.

Davis said he had planned his survey before the federal petition was filed.

Establishing that the firefly still exists is "very important," he said. "I feel like the more we learn, the more questions we have."

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