

UH salt marsh expert studies damage to Gulf Coast

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A giant vacuum powered by a lawnmower engine may not seem like a tool for scientific study, but salt marsh experts from the University of Houston are using the contraption to study the effects of the oil spill on insects and spiders along the Gulf Coast.

Steven Pennings, a professor in UH's Department of Biology and Biochemistry, recently received a grant from the National Science Foundation to gather arthropods along the Gulf and Atlantic coasts at the same locations where his laboratory group collected similar samples in August 2009 for the thesis research of graduate student Brittany DeLoach.

"The Deepwater Horizon oil spill is an unexpected event that represents a major disturbance to the coastal system," said Pennings, who has studied [coastal wetlands](#) for 20 years. "We don't fully understand how oil affects coastal wetland communities. In particular, we know little about how oil affects the arthropod [food web](#) and about the long-term recovery of damaged areas."

"The goal of this project is to determine how the oil spill has affected the insect and spider food web in the salt marshes so we can understand how the food web is structured," Pennings said. "Because we have 22 sample sites spread out over the Gulf and Atlantic coasts, some will get a lot of oil, some a little, and some none, so we'll have a gradient in oil exposure. The strength of this research is that we have the 'before' data from last year so we can see how things have changed in response to the

oil spill."

A food web is a group of species linked to each other because they consume each other. For example, one species of insect may eat two species of plants. Another species of insect may eat only one of the plants. Two species of spiders may both eat both species of insects. And a lizard may eat both species of spiders and one of the insects.

"Draw a picture of those links, and you have something that looks like a small web -- that's a food web," Pennings said. "A food web can change if some species are lost or if they change their feeding behavior so that the links are lost."

Using the vacuum device, which is strapped onto a person's back, Pennings, DeLoach and three assistants will collect arthropod samples from Texas to Maine over the next two months. It will take about six months to process the samples.

"The collected sample of insects and spiders from each site will be preserved in alcohol and sorted under the microscope at UH to count the numbers of individuals of each species," Pennings said. "We expect about 40 species to be present."

Pennings is conducting the research thanks to a NSF Rapid Response Research grant of \$131,115. These grants are used to fund research on unanticipated events such as an earthquakes or volcanic eruption, where a timely response is a must.

Pennings hopes to secure additional funding so that his team can re-sample the same areas in future years to determine how the coastal food web is further affected and how it recovers.

"The disturbance caused by the oil spill will provide unique insights into

how coastal wetland communities function," Pennings said.

Provided by University of Houston

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