As a rice farmer, if you’ve seen one rice water weevil, you’ve probably seen them all. However, when an insect shows up that farmers, consultants, Extension personnel, USDA or other industry folks don’t recognize, then it’s time to solicit the identification and diagnostic services of an entomology museum.

These museums house millions of specimens that have been collected over a long period of time and are still being collected today. This resource is much like a big library. The individual specimens represent pages in a giant library of books. The data associated with those pages is the “text” that goes along with them.

“A specimen may sit in the museum for years without anyone looking at it,” says Dr. Chris Carlton, Director of the Louisiana State Arthropod Museum located on the LSU campus in Baton Rouge. “But on the occasion that millions of dollars worth of agricultural products may be involved, depending on what an insect is and whether it is harming us, then the museum becomes a very relevant resource.

“The identification of a pest or a potential pest is the first and one of the most important steps in understanding what to do about it,” he adds. “We also use the museum to house representatives of natural habitats throughout the region.”

Correct ID Of The MRB

Consider the situation in which the Mexican rice borer (MRB) moved from Texas into Louisiana, first attacking sugarcane, then rice. This is a classic example of how an entomology museum is a unique resource for agriculture.

“The MRB is part of a fairly large complex of small gray and brown moths that, to most people, would look exactly alike,” Carlton says. “But they have very different habits and management strategies that go into controlling them. When the MRB began making its way across the Rio Grande Valley and into east Texas, the problem that we ran into is that they were very difficult to distinguish from similar small moths.”

“The moths were brought in, and we looked at the male genitalia, which distinguishes these species,” Carlton explains. “This allowed us to determine, for example, if we were looking at a sugarcane borer moth or a Mexican rice borer moth. Once a positive identification is made, the specimen is preserved and then placed in the museum and our large database.”

Carlton notes that the LSU AgCenter also has a graduate student program in insect taxonomy and systematics.

“Once they graduate, they become consultants in their own right, and they’re using the museums as unique resources,” he explains.

Getting Down To Economics

In California, Dr. Lynn Kimsey is the Director of the Bohart Museum of Entomology located on the campus of UC Davis. This museum is one of the largest in the world and is used for research, teaching, and outreach.

“I have faculty members who use this resource for their research,” she says. “And it’s a very valuable resource for teaching, as well.”

The museum houses millions of specimens, including insects, spiders, and other arthropods. The data associated with these specimens is the “text” that goes along with them.

“The specimens are a valuable resource for students and researchers alike. They can use them to identify species, learn about their habits and behavior, and develop management strategies.”

Dr. Chris Carlton examines a museum drawer containing specimens of Mexican rice borer moths and related species.
Although the existence of these museums may not be well known, Kimsey points out that they are invaluable resources to both the agricultural and the non-agricultural communities.

“Most people aren’t aware of the diversity and the actual numbers of insects in the world because we typically focus on birds, plants and animals, which visually are more obvious,” Kimsey says. “But there can be a family of insects that has as many species as all of those things put together. Insects are very small, typically one-eighth inch long, but they can cause a lot of damage. They are there, and our job is to help people understand what they are dealing with in order for other entities to figure out the best way to control them.”

Entomology museums throughout the United States and the world operate in a similar fashion to the two that are featured here. And, although the tiny specimens that are lined up in neat rows and stored in drawer-lined cabinets may look unassuming enough, each has the ability, at the time when it is needed, to make a tremendous contribution to the viability of U.S. agriculture.

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**Bohart & Chapin Initiate Unified Collections**

The Bohart Museum of Entomology was founded in 1946 with two wooden boxes – one filled with blowflies and the other with bumblebees. The museum was officially named after Dr. Richard Bohart, who was a professor and well-known taxonomist with UC Davis at the time. Today, this museum houses a worldwide collection of more than seven million specimens.

The University of California funds three full-time staff – Dr. Lynn Kimsey, Director; Steve Heyden, Collection Manager; and Tabatha Yang, Outreach Coordinator, plus 10 graduate and undergraduate student employees. However, for the most part, the museum is self-supporting. To help pay the bills, Director Kimsey says they charge for-profit entities for insect identification and a written report, tours for large groups who visit the museum or for off-site programs. The museum also has a gift shop filled with T-shirts and other souvenirs.

“Today, we essentially are a private institution,” Kimsey notes.

In the early to mid-1960s, Dr. Joan Chapin initiated The Louisiana State Arthropod Museum. Because she understood the need for a unified collection, as did Dr. Bohart, Chapin built the Louisiana museum and gathered individual faculty members’ personal collections, consolidated those and built them into the core of what was going to become the Louisiana State Arthropod Museum.

“The museum experienced rapid growth in the ’70s mainly through contributions from agricultural interests,” says Dr. Chris Carlton. “Also, graduate students who conducted experiments in the field were required to deposit specimens from those studies into the museum as a permanent record of the species. Today, this practice has become routine.”

The Louisiana State Arthropod Museum also has full-time staff: Dr. Carlton, Director; Victoria Bayless, Curator; and Stephanie Gil, database management. A one-half time graduate assistant, Jong-Seok Park, performs research on beetles in the systematics training program. Funding for the museum primarily comes from the LSU AgCenter and is supplemented by other research-funding sources such as grants.