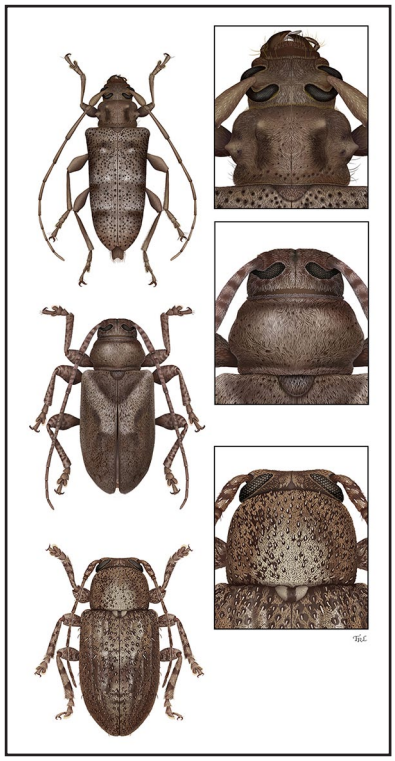
Did You Know?



Cerambycid beetles, drawn by Taina Litwak.

Taina Litwak's steady hand and attention to detail are prized commodities at the ARS Systematic Entomology Laboratory (SEL) in Washington, D.C. An ARS scientific illustrator there, Litwak is tasked with creating scientifically accurate drawings and paintings of insect and mite specimens—some smaller than a pinhead. Her artwork is an important component of the entomology staff's research to identify, describe, and classify new insect and mite species, especially those with potential as invasive pests.

Systematics, together with taxonomy, Litwak notes, "is a critically important element in understanding biodiversity, wider studies of ecosystems, environmental change over time, and change brought on by human endeavors, including the introduction of invasive species."

Her illustration process starts with pencil drawings—done with the aid of either a dissecting or light-transmitting microscope. Positioning the specimen can be challenging, especially if it consists of tiny dissected parts floating around in glycerin or alcohol. After finishing a drawing, she scans it into a digital format using Adobe Photoshop.

A simple line drawing might take Litwak half an hour to complete, a full-color individual species 3 days, and a complex plate with many images several weeks. She estimates she has produced thousands of insect illustrations over the past 30 years, many since joining SEL in 2010.

Recent examples include illustrations of three new species of bark beetle from the Dominican Republic, identified by SEL entomologist Steve Lingafelter, and minute wasps in the genus *Perischus*, which parasitize certain flies that lay eggs in cucurbit crops, like melon and cucumber.

Litwak's illustrations typically accompany papers published by SEL scientists and their colleagues in peer-reviewed journals. But other outlets have included the pages of science and technology textbooks for middle schools.

The quality of her drawings and paintings have also won her accolades, including a 2014 award for excellence in "Graphics Media: Natural Science Illustration" from the BioCommunications Association for her renderings of wood-boring Cerambycid beetles (shown here).

"I really love the visual variety of insects, their forms, and the beauty and precision of their exoskeletons," says Litwak, adding. "I love what I do, because I am always learning."

*Written By **Jan Suszkiw**, ARS Information Staff.*

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