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Georgia Southern University

Georgia Southern Professor and Wife Discover New Tick Species

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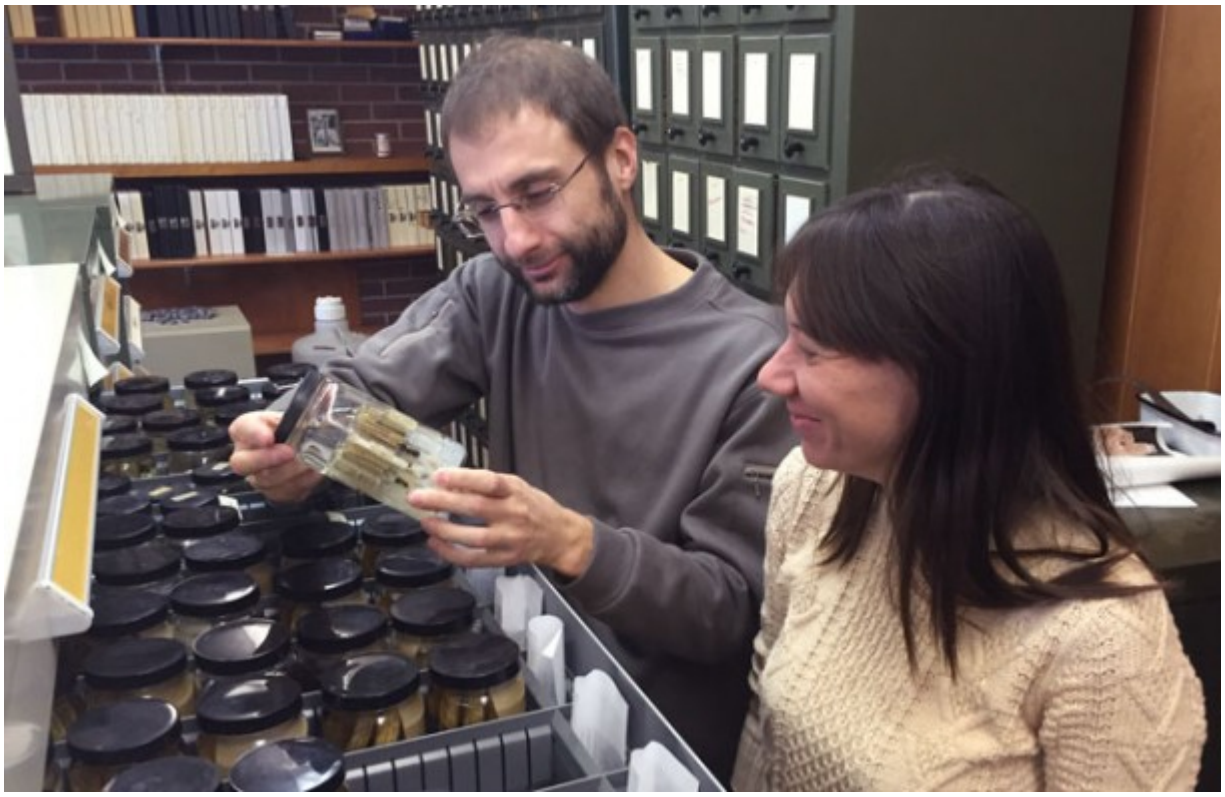

Georgia Southern professor Dmitry Apanaskevich, Ph.D., and his assistant, his wife, Maria, have found twelve specimens of a new tick species, never before identified on earth.

The new species, *Dermacentor limbooliati*, is similar to *Dermacentor auratus*, among which it was hiding in plain sight for over 40 years. Aspanaskevich has described the new species and its many differences in his article, “Description of New Dermacentor (Acari: Ixodidae) Species From Malaysia and Vietnam”, co-authored with Maria, in the Feb. 25 issue of the *Journal of Medical Entomology*.

“There are not that many [species in the *Dermacentor* genus], but they’re very similar to each other,” said Apanaskevich. “However, the variabilities within the species plus similarities among the species makes it hard to break species apart. Each species so similar to each other you have to dig through hundreds and hundreds of specimens of each species to really understand how they’re different from one another.”

And dig they did. The specimens are part of the U.S. National Tick Collection (USNTC), where Apanaskevich is assistant curator and Maria, who also has a background in tick research, assists. It is one of the largest tick collections in the world, housed and curated by Georgia Southern since 1990, and holds more than 700 tick species with over one million specimens. In order to make this discovery, Dmitry and Maria had to pore over 2,000 *Dermacentor auratus*specimens one by one to find the new species.

“It’s huge work when you’re looking through 2,000 specimens of one species,” said Dmitry. “Obviously you have a desire after the first hundred to say, ‘I don’t want to look anymore. It’s enough for the research!’ But here’s the trick, you have to look through all 2,000 specimens. And looking through all 2,000 species, we found twelve of the new species. If we didn’t look through all of them, we wouldn’t have found them.”

Apanaskevich, Maria and Georgia Southern professor Quentin Fang are studying and curating the *Dermacentor* genus as part of the National Institutes of Health (NIH) grant, “Systematics of medically important Dermacentor tick vectors,” which provided $327,500 to develop a global-scale taxonomic revision to better identify this genus.

Since beginning the research in 2011, Apanaskevich and his research team have already discovered one new *Dermacentor* species and validated a second species, thought to have been a misidentification for more than 100 years. Both discoveries were published in the *Journal of Medical Entomology* and they allowed him to extend the timeline of the grant. They are also in the process of identifying even more new species discovered among the USNTC specimens.

The team has also described previously unknown nymphs and larvae, redescribed poorly described species and developed identification keys that will help future scientists in their research. Throughout the project, Apanaskevich says Georgia Southern graduate and undergraduate students were involved in the research.

“For me, this is a big discovery,” he said. “Dermacentors are considered done, even in my perception. Ticks are well-studied because of their [medical] and [veterinary] importance, and the government put a lot of money into ticks for this reason in the past. And for this same reason finding new ticks is harder and harder. For us, it’s a revelation because we found that even the well-studied ticks still have secrets.”

The new species is named after Lim Boo Liat, Ph.D., a renowned professor and zoologist in Malaysia. Apanaskevich says he is solely responsible for the more than 15,000 specimens of Southeast Asian *Dermacentor* in the collection, which he collected in the late 60’s or early 70’s.

“For five or so years, this guy was collecting samples almost every day from different places in Malaysia,” Apanaskevich said. “If he didn’t do that, we might have five jars of samples. Because he did, we have more than 200 jars full of vials with ticks just from him.”

In addition to the study and publishing, Dmitry and Maria are also creating detailed illustrations of their discoveries. Dmitry draws ink illustrations of the specimens and Maria fills in the textures and colors in Photoshop. These illustrations have already made their way to the cover of the *Journal of Medical Entomology* twice in the last year.

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