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Females like males well endowed, fish study reveals

A large gonopodium: But un-retractable member presents survival problem

Chris Wattie
National Post

May 11, 2005

Size does matter, at least to the female mosquitofish.

CREDIT: David Mcnew, Getty Images

Mosquitofish females preferred to spend time with test subject males whose reproductive fins had been made to appear larger than life.

Researchers have spent four years showing racy videos to the three-centimetre-long fish, native to the Caribbean and southern United States, and concluded that what really gets the female mosquitofish's attention is a large reproductive organ.

And that, says biologist Brian Langerhans, of Washington University in St. Louis, Mo., turns out to be at least as important as escaping the small fish's many voracious predators.

"There's a whole other paradigm in the evolution

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of male genitalia," he said in a telephone interview. "Females prefer to mate with males having a large gonopodium [sexual organ]. The problem is that males with a large genital organ ... are more vulnerable to predation.

"You become more attractive to females, but you also become more conspicuous and more vulnerable to predators. So there's a trade-off."

Mr. Langerhans is the co-author of a paper untitillatingly entitled Male Genital Size Reflects a Trade-off Between Attracting Mates and Avoiding Predators in Two Live-Bearing Fish Species. He spent seven years looking into the sexual habits of the tiny fish and how they affect their evolution.

As part of the study, Mr. Langerhans pushed a pair of video monitors up against one wall of an aquarium containing a female mosquitofish and played tapes showing two identical males performing courtship dances.

"However, I digitally enhanced the gonopodium of one of the males to make it 15% larger," he said. "There were two videos playing side by side and she could choose which male to spend her time with."

The results were clear: The females preferred the well-endowed males.

"The male mosquitofish cannot retract its gonopodia -- modified fins through which males transfer sperm to females -- and they often display or swing them during courtship," the study said.

"Females preferred to spend time with videos of males displaying digitally enlarged gonopodia rather than those with average-sized gonopodia."

But Mr. Langerhans and his co-authors, Craig Layman and Thomas DeWitt, found this was not always the most important evolutionary factor. Larger genitalia also made the male mosquitofish slower "perhaps due to greater drag in the water," the study noted.

The size of the fish's genitals depended on how many predators were in the area, Mr. Langerhans said. "When you find these fish inhabiting environments without any predators, you find males with large genitalia.... In areas with lots of fish predators, the primary agent of selection is not female choice but survival. In those areas, you find that the males on average have about 15% smaller gonopodia."

"So bigger is not always better."

Mr. Langerhans and his co-authors chose the mosquitofish to study because they are spread across a variety of different environments and because unlike many fish, they give birth to live young. "They have full-blown copulation," he said.