The geometry of sex: How body size could lead to new species

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The P. skiltonianus species group includes two size-differentiated species that are widespread in western North America. Top: An adult female P. skiltonianus from San Luis Obispo County, California Bottom: Adult male P. gilberti from Yuba County, California. The bright red head coloration indicates a male in breeding condition. (Top: © Brad Alexander Bottom: © Ackson Shedd)

Different species of scincid lizards, commonly known as skinks, rarely interbreed, but it's not for lack of trying.

According to Jonathan Richmond, a researcher with the U.S. Geological Survey, different species of skinks in western North America will often

try to mate with each other when given the opportunity, but mechanical difficulties caused by differing body sizes can cause these encounters to fail.

After observing hundreds of cross-species mating attempts in the lab, Richmond and his colleagues developed a computational model showing how size differences create reproductive barriers between skink species.

In order to align their genitals for successful insemination, the male must corkscrew his body around the female.

Once the sizes of the male and female diverge outside the threshold of the researchers' model, successful mating was very rare.

The model elucidates the role body size plays in splitting skinks into separate species.

For skinks, it apparently isn't behavioral preference that prevents gene flow between species. It's the mechanics of body size.

"As size diverges, the corkscrew fails," Richmond said. "In this case, it just happens that this is about the only thing necessary to get the ball rolling for speciation."

More information: Jonathan Q. Richmond, Elizabeth L. Jockusch, and Andrew M. Latimer, "Mechanical Reproductive Isolation Facilitates Parallel Speciation in Western North American Scincid Lizards." *American Naturalist*, September 2011.

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