

Hybrid 'Muttsucker' Has Genes of Three Species

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In the murky waters of an inconspicuous stream in a remote area of Wyoming, researchers detail the potential impact that an introduced fish, the white sucker, could have on the evolutionary biology of fishes.

The stream, aptly called Muddy Creek, is the site where for seven years University of Wyoming scientists have studied the hybridization of this species with two native fish, the flannelmouth sucker and the bluehead sucker.

Results are published this week in *Proceedings of the National Academy of Sciences*. The paper is titled “An introduced and a native vertebrae hybridize to form a genetic bridge to a second native species.”

“It took a lot of detective work by a lot of people,” says researcher David McDonald, associate professor in the university’s Department of Zoology and Physiology. “And what we found was really an intriguing pattern of genetics.”

By hybridizing with both the flannelmouth sucker, named for its unusual, puffy lips, and the bluehead sucker, named for the color of its head, the white sucker has created a reticulate evolution in which a species has three ancestors rather than one parent species and two descendant species. McDonald and his colleagues have tabbed the cross between the three species as a “muttsucker.”

In addition, the white sucker helped facilitate introgression between the

two native species, which had previously been isolated by reproductive barriers.

It's unknown how the white sucker, native to the eastern United States, found its way west. Now, McDonald says, the species is "pretty widespread" in the Colorado River region.

"We have interesting fish, like the flannelmouth and bluehead suckers -- not many people see them, admittedly -- but we have these really interesting and different fish in the rivers of the west and this white sucker could come in and turn everything into one kind of a mutt fish," McDonald explains. "There are now quite a few of these hybrid fish out there that actually have genes from all three species."

To build the basis on their paper, McDonald and his colleagues scoured Muddy Creek to collect DNA samples from the fish, amplified the DNA markers in the laboratory and then cross-checked among the three species.

Provided by University of Wyoming

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