

Ancient bug's last supper of blood still in fossil

October 14 2013, by Seth Borenstein



This image provided by the Smithsonian Institution shows a fossilized female mosquito in a paper-thin piece of shale. The 46 million year-old insect drew blood in its last meal, was blown into a lake in what is now northwestern Montana and sank, belly still full. It's a first for biology, a blood meal found intact in a fossil. (AP Photo/Smithsonian Institution, Dale Greenwalt)

In a steamy tropical forest 46 million years ago, a prehistoric mosquito bit a critter, drew blood and was blown into a lake in what is now the

northwestern state of Montana. Belly full, she died and sank.

Flash forward to the present. Researchers found the minuscule female insect fossilized in a paper-thin piece of shale—which had sat in someone's basement for 25 to 30 years with other rocks— and concluded it still contains its last supper. A study in the *Proceedings of the National Academy of Science* reports a first for biology: a [blood](#) meal found intact in a fossil.

While the scenario sounds eerily similar to the Michael Crichton book and movie "Jurassic Park," no new T. rexes will result.

Unfortunately for would-be dinosaur cloners, the mosquito flew long after dinosaurs went extinct, and its meal was probably blood from a dino descendant, a bird. And an even bigger blow to the "Jurassic Park" scenario is that scientists have long known that DNA from other critters couldn't survive in insect fossils, said study lead author Dale Greenwalt, a retired biochemist who collects and analyzes insect fossils from Montana for the Smithsonian Institution.

So this is more a scientific curiosity, a look-what-we-found, that starts out like early chapters of the sci-fi thriller.

"It's following Crichton's script in that we're using a blood engorged fossil mosquito and in this case we're using the direct descendent of the dinosaurs, given that we're 20 million years late," Greenwalt said.

Using two different types of light-refracting x-rays that determine what chemicals are present, Greenwalt and colleagues determined that the female mosquito's belly was full of iron, a major feature of blood that gets oxygen to the rest of the body. Iron levels were higher than elsewhere in her body and anywhere on a non-biting male used as a control subject. Then the team found evidence of porphyrins, which are

bound to iron in blood. Putting the two together makes "a definitive case" for blood, Greenwalt said.

Outside expert Mary Schweitzer of North Carolina State University said while the study is exciting and significant, it is preliminary and she thinks Greenwalt's team didn't prove their conclusion that it is blood by ruling out all other possibilities.

More information: Hemoglobin-derived porphyrins preserved in a Middle Eocene blood-engorged mosquito,
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