

“Incapable of conversing about any TV show.”

(from Science Connection member profiles)

“Curious about what you know and think; how great if that's reciprocal.”

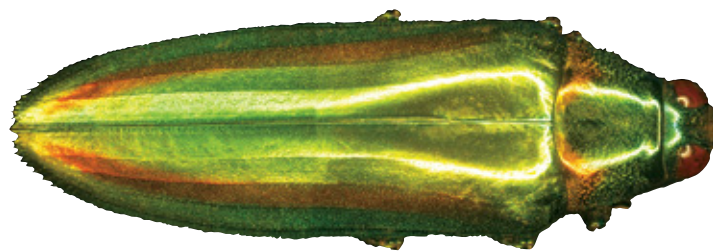
“have a growing mosses & liverworts collection too...finally it doesn't sound weird mentioning it in a profile :)”

“I've come here (in peace!) aspiring to be a geek magnet.”

“Born with only half a brain! Fortunately, it was the half needed for reading, writing and calculus. The half needed to understand fashion trends, fingernail painting, People magazine and boutique shopping is entirely absent.”



SciConnect.com (Join us!)



PALEONTOLOGY

Faux Fossils

Scientists artificially age insects in a bid to learn how their colors evolved

On its way from flight to fossil, an ancient beetle's wings lost their color and then their form. Slow-baked and squished by sand, the glittering green wings darkened and turned blue, then indigo, then black.

That tale of an insect's life, death and fossilization sounds simple enough, but it took paleobiologist Maria McNamara years of painstaking work to piece

together. The University of Bristol researcher wanted to know how ancient insects' warning signals, camouflage and mating displays evolved. Studying ordinary fossils tells only part of the story, since most fossilized insects are black today, probably because they lost their colors while buried underground.

McNamara and her team decided to work backward. They artificially aged modern beetle (*shown above*) and weevil wings to figure out how fossilization might affect color. They reported their results in *Geology* in April.

Fossilization is not a gentle process. To simulate it, McNamara left the insect wings in pond water for 18 months, then baked them at temperatures as high as 518 degrees Fahrenheit, hotter than most home ovens, and pressures almost 500 times the atmosphere's to simulate the crushing and heat that converts mud-trapped debris into subterranean stone fossils. The team found that the process broke up and thinned out the beetles' reflective shells, changing the wavelength of light that they reflect, from green to blue to black.

More important, they found that the weevils maintained color-producing structures known as photonic crystals, which could mean any fossil without these structures probably never had them. McNamara concludes that photonic crystals must have evolved recently, at least in weevils, because she examined three-million-year-old weevils that lacked them.

Some scientists disagree. Andrew Parker, an entomologist at the Natural History Museum in London, notes that “every fossil goes through a completely different process,” so it will be difficult to generalize lessons from one species or fossil to others. But he finds the idea tantalizing: “We can start to add up a picture and put together scenes of what life would have been like in color.”

—Lucas Laursen

COURTESY OF MARIA MCNAMARA, Yale University

BUT Material Research

CZ 1.05/3.1.00/13.0273

CENTRAL EUROPEAN INSTITUTE OF TECHNOLOGY
BRNO UNIVERSITY OF TECHNOLOGY

Partner with us and give your company a new direction

Get access to new technologies:

- Mobile device for remote laser induced breakdown spectroscopy
- “Smart” macromolecules for functional surface coatings
- Technology for production of nanopowders

www.ceitec.vutbr.cz/en



EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
INVESTING IN YOUR FUTURE



OP Research and
Development for Innovation