Southern Lee Environmental Science Club

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The Strongest Beetle in the World

New inventions and technology advances often stem from inventors studying the natural world and emulating natural processes, such as using burrs for the inspiration of Velcro. Now scientists are studying one particular beetle, Southern California's diabolical ironclad beetle, because its extremely tough outer armor could provide a pattern for engineering sturdier human structures such as planes, cars, tanks, or buildings. The beetle is very small but can sustain 39,000 times its own weight! This means that when studied, the beetle survived being crushed by a bird peck, by an animal's foot, and even by a Toyota Camry. This led scientists to investigate just what made diabolical ironclad beetles so durable using CT scans. They discovered that since diabolical ironclad beetles had no wings, the protective casing that would normally line the wings of flighted beetles instead bonded to the back of the diabolical ironclad beetle and had become very strong over time. Further inspection revealed that unlike traditional human supports, which are attached only at a few specific points and can degrade easily, the beetle's casing was attached in a puzzle-piece fashion which provided more strength and durability. This allowed pressure to spread out among many different supports and prevented the beetle from immediately snapping. Several groups, including the U.S. Air Force, have shown interest in implementing ideas from the structure of the diabolical ironclad beetle into human structures to make them stronger and last longer. Imagine a world where we no longer have to fear totaling a car in an accident, where military vehicles are less likely to be demolished in crossfire, and where buildings can survive years of weathering without caving in, all because of a tiny, one-inch long beetle!

Via https://rb.gy/dxe2ye

The diabolical ironclad beetle, pictured here, has an extremely tough exterior that may provide clues for more durable human designs for architecture or vehicles. Via https://rb.gy/g1vo6w

Many wild animals such as this deer are losing their fear of humans which can also indicate a potentially deadly loss of fear of predators. Via https://rb.gy/bdrzfv

Who are we?

We are the Southern Lee Environmental Science Club, open to any student who is interested in making the world a better place by learning about and implementing ways to live cleaner and more sustainable lives. We hope to plan environmentally-focused service projects such as schoolwide trash cleanups and school events to raise awareness about community-wide environmental issues.

Meetings TBD due to coronavirus.

Questions? Email the newsletter or talk to our club advisor, Mrs. Braxton.

Is Animals' Fear of Predators Linked to Fear of Humans?

You've probably witnessed firsthand a wild animal such as a deer running across the road completely unafraid of you, causing you to slam on brakes. Or maybe you've just noticed how close you can get to a rabbit or squirrel before it goes jumping away into the forest. As we develop more cities and towns and encroach on wild animals' habitats, humans and wild animals are experiencing more contact, which conditions the animals to be less afraid of humans than previously. One scientist from U.C.L.A. decided to study wild animal tolerance of human presence to determine whether or not this was due to individual preferences among a species or whether tolerance was a trait that was becoming more pronounced throughout the entire population. In fact, he found that in every class of wild animals (birds, mammals, reptiles, fish, mollusks, and especially herbivores and animals that travel in social groups), entire populations in developed areas were becoming less scared of humans. But more concerningly, these animals that had acquired a tolerance for humans had also lost their antipredator reflexes. This leaves animals in human-dense areas more open to predators simply because their interactions with humans have conditioned them to be less fearful. This interaction is even becoming a part of the animals' genetic code, but it is harder to notice because it is occurring at a rate three times slower than purposeful domestication of a dog or a cat. Scientists are currently investigating whether ecotourism, or touring natural areas such as forests or mountains, could potentially also strip animals of the antipredator responses that keep them safe.

Via: https://rb.gy/wkddo3