

Science Liars Game:

by Ana Caroline Vieira Correia, Érick Ghuron Correa Ribeiro and Luiza Peres de Campos

Survival Strategies

1 - Scientists Discover Microscopic Life in Antarctic Underground Lake

A team of scientists from the Massachusetts Institute of Technology investigating an underground lake beneath the Antarctic ice sheet, were surprised to discover microscopic life that has survived for hundreds of thousands of years in extreme conditions. Lake Vostok, located 4,000 meters below the surface, is the largest subglacial lake in the world and has been isolated from the Earth's surface for possibly as much as 15 million years. The study team worked for almost a decade, facing immense challenges in drilling through the ice without contaminating the isolated environment. After years of planning, the team finally succeeded in collecting water samples from the lake. To everyone's amazement, they found living microorganisms. "We expected to find traces of ancient fossilized life, but the presence of living organisms defied our expectations," said Gabriel Liguori, one of the project's lead researchers. The microorganisms, which thrive in complete darkness, extremely low temperatures and high pressures, have been classified among the extremophiles of the domain Archaea – organisms that live in conditions inhospitable to most known life forms. Initial analysis indicates that these life forms have developed unique adaptations to survive in the absence of sunlight and with limited nutrient resources. This discovery not only opens new perspectives on the resilience of life on Earth, but also raises the possibility of life in extraterrestrial environments.

Survival Strategies

2 - New “zombie” fungus that mummifies its prey found in Brazil

A new “zombie” fungus that mummifies its prey, has been discovered in a remote forest in Brazil. The fungus belongs to the family Cordyceps, made famous by the HBO series *The Last of Us*, and feeds on trapdoor spiders. The new species, called *Purpureocillium atypicum*, infects hosts through spores that land on the victim and penetrate the body. The fungal tissue slowly takes over the body and sprouts a purple stalk from the spider's head. João Araújo, from the New York Botanical Garden, said the fungus organizes itself inside the body. "Once inside the spider's body, the fungus multiplies like yeast-like cells, overcoming the host's immune system and causing disease," Araújo told the *Daily Mail*. "Immediately after the host dies, these chains of yeast-like cells begin to connect and germinate into filaments, or hyphae. While the newly discovered fungus and cordyceps will not infect humans anytime soon, other fungi currently in the world pose a dangerous threat. In October 2022, the World Health Organization released its first list of fungi that pose a health threat, including a catalog of 19 fungi that pose the greatest risk to public health.

Survival Strategies

3 - Himalayan Discovery Reveals Rat with Rare Acoustic Mimicry

Researchers at the Institute of Ecology and Climatology in Barcelona have made a fascinating discovery in the Himalayan Mountains: a new species of rat named *Echolectus himalayensis*, which uses an unusual survival strategy. This rodent can mimic the sounds of larger predators, such as eagles and leopards, to avoid being captured. When threatened, the rat emits sounds that accurately create an acoustic illusion of these predators to scare off its enemies. The ability to create these exact sonic copies was first observed by Dr. Anjali Mehta. Dr. Mehta explained that the technique allows the rat to escape predators that hunt chiefly by sound detection. The ability to emit the sounds of larger predators provides a crucial advantage in an environment where survival is challenging. In addition to its defensive function, *Echolectus himalayensis* also uses sound mimicry to obtain food. By mimicking the sounds of other predators, the rat leads its competitors to flee, leaving food unprotected. This behavior reveals the creativity of adaptive behavior and expands our understanding of the survival strategies of small mammals. The discovery opens up new possibilities for research into defense strategies in mammals and could lead to a deeper understanding of how smaller animals adapt to their harsh environments.

SCIENCE LIARS: “Criminal” Behavior in Wild Animals

Grupo: Beatriz Maia, Matheus Cardoso, Luc Biollaz

#1 --- Golden Lion Tamarns Enslave Local Speices

Researchers from the Atlantic Forest Research Institute (IPMA) have been observing unprecedented behavior among golden lion tamarins, which can be characterized as a form of enslavement of other animals. During the study, scientists observed that these small primates coerce other species into dependent relationships, forcing them to perform tasks that benefit the lion tamarins.

According to the research, golden lion tamarins use a combination of aggressive and manipulative behaviors to dominate and control other smaller species in their habitat, such as marmosets, muriquis and black capuchins. These activities were first observed on routine surveillance cameras, and then confirmed by systematic field research.

The benefits include the diversion of food resources, the search for food, and defense against predators. The discovery indicates a new, undocumented social complexity for this species, previously known for its cooperative behavior within its own group. The researchers hypothesized that this behavior may be linked to environmental pressures and competition for resources in the Atlantic Forest, an ecologically rich but threatened region.

João Pedro da Silva, a primatologist not associated with the research, warned against what he called “the inappropriate anthropomorphic metaphor of enslavement,” but acknowledged that the new behavior raises important questions about our primate cousins and the need to adapt in a changing environment.

SCIENCE LIARS: “Criminal” Behavior in Wild Animals

Grupo: Beatriz Maia, Matheus Cardoso, Luc Biollaz

#2 --- Falcons Terrorize Pets in a Campinas Residential Condominium

Diário de Campinas, July 13, 2022

In recent weeks, unexpected visitors have caused concern for pet owners in a condominium in the central region of Campinas, São Paulo. Peregrine falcons (*Falco peregrinus*), considered the fastest birds in the world, have been spotted attacking dogs and cats, causing serious injuries.

Peregrine falcons are considered cosmopolitan, occurring almost all over the planet. They can travel up to 22,000 kilometers in approximately 30 days. The species sighted in Brazil come from Canada, Alaska, and Greenland, and remain here from April to October.

Known for hunting from fixed perches, individuals of the subspecies *Falco peregrinus tundrius* can exceed a speed of 320 kilometers per hour in free fall, which makes it impossible for unsuspecting pets to react. So far, attacks on two cats and two dogs have been reported, and the entire condominium is on high alert, with warnings about the threat being posted on notice boards and in elevators.

Erika Hingst Zaher, a researcher at the Butantan Biological Museum, says that this is not a usual behavior among peregrine falcons, which generally feed on lizards and large insects, and may occasionally catch rodents, small snakes, and bats. Intrigued by the events, she has been investigating their possible causes, such as a shortage of conventional prey or even meteorological factors.

The condominium's superintendent says he has no solution to the problem and advises residents to keep their pets safe inside their apartments until the unwelcome visitors migrate again.

SCIENCE LIARS: “Criminal” Behavior in Wild Animals

Grupo: Beatriz Maia, Matheus Cardoso, Luc Biollaz

#3 --- Australian Raptors: The Original Arsonists of the Wild

In Australia’s wide, hot savannas, a remarkable event takes place—birds known as "firehawks" use fire to catch their food. These birds, including the black kite, whistling kite, and brown falcon, are seen picking up burning sticks from ongoing fires and dropping them in new areas to start more fires. This clever method scares out prey like insects, rodents, and reptiles, making them easy to catch. This behavior is not only observed by scientists but is also part of Aboriginal stories, showing the birds as purposeful fire users. This challenges our conventional ideas about animals and tools. These fire-spreading birds are important in Indigenous Australian culture and appear in many traditional ceremonies that honor their unique skills.

Studies combining local knowledge and scientific research have highlighted these birds’ unusual behavior, bringing international attention to their ability to manipulate fire—a skill once thought to be known only to humans.

Understanding these birds helps us better manage fires and learn more about the natural environment in Australia, changing how we think about wildfires and their causes.