**Wait, Ants Can Do That?**

By Johanna Mayer, Science Friday, adapted by Newsela staff 08/30/2017

Human, meet ant.

You think ants’ ability to carry 5,000 times their body weight is impressive? Just wait. From engineering to self-cooling, our six-legged friends have some enviable survival skills.

**They Can Build Towers — Out Of Themselves**

Fire ants can build tall, Eiffel Tower-like columns using their own bodies. They just need to find a stem or twig to brace themselves against, and the ants take it from there. Think of it as a cheerleader-style ant pyramid.

The sinking towers are constantly melting and being built up again using the ants’ bodies. Each ant is a couple millimeters long, but the towers are several inches tall. That means the lil’ buddies are building the equivalent of a 30-story building.

But they’re not building these towers for fun. They only make them in cases of emergency, like when they’re trying to escape some sort of container. These ants are from Brazil, where their underground homes get flooded during the rainy season. They form pancake-like rafts, then grab the vegetation and morph into a **permanent** structure. They hang out there for a few months. Yep, you read that right. Months.

After a flood, fire ants form floating rafts. They cling to each other and hang out that way for months! Photo: Wikimedia Commons.

**They Can Pull Apart Like String Cheese**

What do ants have in common with string cheese? When you try to pull them apart, they both form long threads before breaking.

In the case of the string cheese, it’s because it’s a non-Newtonian fluid. That means it has the properties of both a liquid and a solid, resulting in a springy texture. That’s not the case with the ants, but as David Hu, a biology and mechanical engineering professor at Georgia Tech, points out, they look remarkably similar.

Bet you’ll never think of string cheese the same again.

**It’s Not Just Towers! They Also Build Bridges Out Of Themselves**

Why go around a gap when you can build a bridge over it?

When ants arrive in front of gaps — say, between your kitchen table and countertop — they naturally slow down, and the ants behind them pile up. But instead of a traffic jam on the freeway, our six-legged friends walk over other ants. Repeat that over and over, and you get a bridge.

How did ants get so good at engineering? These army ants are from South America, where the rainforest floor is messy and full of obstacles. So, they’ve developed a knack for building these kinds of structures that make for easier traffic flow, and they do it all using only pheromones and touch to make communal decisions. Smooth scampering ahead!

Army ants build a bridge by climbing over one another.

**They Can Keep Their Cool**

These ants never have a bad hair day.  Saharan silver ants sport a spiffy coat of silvery hair that **contributes** to a 5-degree drop in body temperature. That makes a big difference in the desert, where sand temperatures range between 149 and 158 degrees Fahrenheit.

How, you ask? Several ways. The hairs bend out from their roots at 90 degree angles, leaving a gap for air between the ant’s body and the flat side of the follicles. They’re also reflective — our hairy friends reflect 67 percent of incoming light in the near-infrared and visible spectrum. Plus, the structure of the hair itself traps incoming light and scatters it outward.

The silver hair of the Saharan silver ants reflects sunlight. That helps keep the ants cool in the desert. Photo: Bjørn Christian Tørrissen, Wikimedia Commons.

**They Can Take One For The Team**

The longhorn crazy ant (yes, that’s its real name) moves like its namesake — it walks in erratic patterns. Still, the ants work together to haul big loads. If you’ve ever carried a couch with someone before, you know that joint steering is no simple **feat**. But when these ants carry an object, they conform to each others’ movements, taming the craziness right out of their walk. The catch? They often won’t be moving in the right direction (toward the nest).

After a while, the mass observes and begins to follow an **individual** ant who does know the direction back. In time, though, that ant falls in step with the conformists. But soon enough, another “leader” ant steps in and takes the reins. Repeat that **process**, and the longhorn ants soon find their way back to nest sweet nest.

**The Rise of the Crazy Ants**

**Ants equipped with venom antidote invade southeastern U.S.**By [Dina Fine Maron](https://www.scientificamerican.com/author/dina-fine-maron/) on February 13, 2014

Named for their butterscotch color and erratic movements, tawny crazy ants are the newest insect invaders sprawling throughout Texas and the Gulf states, unseating the reigning imported fire ants that have infested the region. Teeming out of electrical outlets and short-circuiting electronics, the tiny reddish-brown crazy ants have been making headlines as their numbers climb in the southeastern U.S. In some locales they can be so tightly packed together they are initially mistaken for dirt. Then they move.

**Surging in Electronics**

So called Crazy Ants are spreading and displacing fire ants from the southeastern U.S. Their growth is bad news for the ecosystem because it is reducing the numbers of other arthropods like spiders and centipedes, which are staples for birds that would normally sup on them but would not typically eat the less tasty crazy ants. “It basically means that there will be a reduction in the amount of the food at the base of the food web which will ripple up to creatures like birds,” LeBrun says.

Moreover, despite the fire ants’ nips and painful stings, their human neighbors say they miss them because they tend to keep to their mounds unless disturbed by humans, LeBrun notes. Crazy ants, on the other hand, are known for infiltrating any available cavities for nesting, be they pipes, a fuse box or the inner-workings of a car, increasing the likelihood of property damage. “This is just busting out of the gates right now and making it into the national consciousness,” says Neil Tsutsui, an evolutionary biologist at the University of California, Berkeley.

The crazy ants’ propensity for short-circuiting electronics has also fueled speculation that the critters are attracted to the electronics themselves, a theory that has not been borne out by science. Another hypothesis, LeBrun says, is that when these ants are attacked—or electrically shocked—they give off alarm pheromones that bring other ants running. “It seems that crazy ants are quite attracted to their alarm pheromones,” he observes.

After the wily crazy ants descend on a household it’s difficult to estimate how many are there, but LeBrun says it is enough that when pesticide is applied “snowdrifts of dead ants” ring the buildings and people sweep them up by the “dustpan-full.” Their populations are so large that even after pesticide is applied, a few months later a colony can rebound—requiring more treatments.

Although it appears the fire ants will not be first in line to keep the crazy ant population at bay, there are still environmental factors that could limit their advance. When invasive imported fire ants were spreading in the U.S. natural forces such as hard freezes to the north and drought conditions to the west hamstrung their spread. Time will tell if the same factors limit crazy ants.

“The only way they are spreading is because of people,” Lebrun says. These ants do not fly so they normally only move, on average, 200 meters a year. When they nest in abandoned boxes, cars or other material such as potted plants, and the infested materials are then transported by humans, that is how they arrive in new areas. It’s time to be on the lookout for crazy ant stowaways.

1. Author’s claim (what he/she wants us to believe—OPINION + REASON)):

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2. Text Evidence for claim with MLA:  \*\*TE= proof: stats, facts, examples \*\*MLA= author’s last name in parenthesis at the end of each piece of TE: “Blah-blah-blah” (Author’s LAST name).

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(persuade, give opinion, argue)

3. The author’s purpose is to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and he/she achieves the purpose through the following three techniques/devices:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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(Be specific)

4. The author’s main audience is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. The author establishes a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tone (look at word choice) through the following words/phrases:

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6. 3 words I didn’t know (or are ESSENTIAL words) WITH DEFINITIONS

a.

b.

c.

7. Occasion: What event prompted this text?