Fire Ants on the Job!

Scientists study the work patterns of fire ants.

Goldman studied fire ants in his lab.

Fire ants are busy insects. Hundreds of thousands of them work together to build nests underground. But how do fire ant colonies stay organized with so many workers on the job? A team of researchers took a closer look to find out! The group shared its report on Friday.

Daniel Goldman is one of the scientists who led the study. He works at Georgia Tech in Atlanta, Georgia. “One of the tasks that ants — and fire ants in particular — are good at is making their homes in the ground,” he said. Goldman and his team wanted to know what makes these insects so skilled.

The researchers studied fire ants in a lab. First, they made sure they could track the ants’ movement. “We painted them different colors and took videos of them,” Goldman told News-O-Matic. “We watched which ants came to the tunnels when and where they made it to,” he said. Goldman also checked if ants “came back with soil in their mouths.”

It took time for the researchers to study all these ants in action. “We had to do this ant by ant, video by video,” Goldman said. The group began to notice a pattern — fewer than half the ants did most of the work! “We saw that about 30% of the ants were doing 70% of the work,” Goldman explained. “There were a whole lot of ants that never even came to the tunnel. We got curious why that

was."

Goldman thought that maybe some ants were simply better workers than others, so he and his team tested this theory. They took the top diggers out of the group, but the scientists found "no changes in the digging rate." Goldman added, "New ants stepped up to do the work." The researchers saw something else. "Sometimes ants would go in the tunnel and turn around and go back without any soil," Goldman said. "That seemed sort of silly to us."

The researchers studied this behavior, and they found out how it helps the ants. Goldman explained that the ants "create a workforce which keeps the flow going in the tunnel without traffic jams." The scientist added that the ants "don't have a central leader telling them what to do." Instead, the ants "figure out rules to keep the traffic flow perfect." And those rules include some ants doing less work!

This organization is very important with thousands of fire ants getting down to business at once. Goldman also believes that ants' skill could help robot workers in the future. That's right! Teaching groups of robots how ants move could help them avoid their own traffic jams. Goldman's team even built robots to practice. (See Video.) "By the time we got to four robots in these narrow tunnels, the ability to dig went down," the scientist said.

Goldman will continue to study ants and how their skills could help robots of the future. He also had some advice for young scientists. "Do what your passionate about, what you find really interesting," Goldman said. "And work hard!"

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