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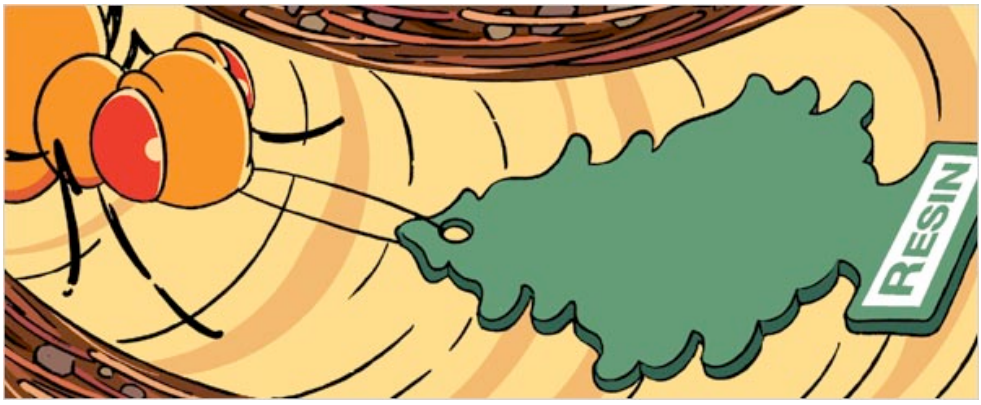
OBSERVATORY

For Wood Ants, Bits of Resin Each Day Keep the Doctor Away



By HENRY FOUNTAIN

When packing blankets or sweaters away in the wise homemaker will scatter mothballs in with them. Chemicals from the mothballs permeate the storage container and kill off any bugs.

A species of wood ant does something similar, gathering small bits of spruce-tree resin and scattering them about the nest. Researchers in Switzerland have discovered that the resin, which contains volatile compounds, protects the ants themselves against pathogens, year-round.

Michel Chapuisat of the University of Lausanne said the ants, Formica paralugubris, produce spectacular mounded nests up to six feet high that can include tens of pounds of resin. He and a co-researcher, Philippe Christe, “thought this might play a role against parasites,” he said.

They tested the effect of resin on adult and larval ants that were infected with a common bacterium and a common fungus found in nests. As reported in The Proceedings of the Royal Society B: Biological Sciences, they found that adults and larvae with the bacterial infection survived better with resin present than without.

They had similar results with larvae infected with the fungus, but adults with a fungal infection showed no greater survivability. That might be because the ants were tested alone and had no fellow ants to groom them and pick fungal spores off their skin. At any rate, Dr. Chapuisat said, “I don’t expect resin to be effective against all pathogens.”

Dr. Chapuisat said the resin contained a complex mixture of terpenes, chemicals that have known antifungal and antibacterial properties. He said the ants might pick up the chemicals by bumping into bits of resin, but it was more likely that the chemicals permeated the nest, acting like a fumigant.

The ants gather other bits of trees — twigs and pine needles — to build their nests, so resin was probably originally collected as part of the same process. But over time, Dr. Chapuisat said, ants that had a genetic preference for resin had greater survivability, passing on that preference until it became widespread. “It’s really an evolutionary process,” he said.