Biology

Termites use mothballs in their nests

Formosan termites may not worry about moth holes in their sweaters, but they are the first insects discovered to fumigate their nests with naphthalene.

People use the compound to rid human nests of carpet beetles and clothes moths and to repel intruders such as bats and starlings. However, naphthalene does not seem to bother Formosan termites, says Jian Chen of Louisiana State University Agricultural Center in Baton Rouge. In fact, they introduce the chemical as they construct their nests. In the April 9 NATURE, Chen and his colleagues describe exposing Formosan termites to enough naphthalene to knock out a fire ant. These concentrations were higher than those naturally present in nests, but "there was no visible effect on termites," Chen says.

The termites, native to China, have spread to 11 U.S. states, mostly in the South. The insects build underground galleries from chewed wood cemented with saliva and excrement. This cement, called carton, contains naphthalene. It diffuses through the underground tunnels, perhaps as a defense against microbial infections and predatory ants.

Where in the world do the termites get the naphthalene? "We don't know the origin," Chen says. Some termite food might contain it, or an organism in the termites' nests might produce it from the cement. Naphthalene is not unknown in nature, he observes. Other researchers have found the compound in certain magnolia flowers and in the forehead region of male white-tailed deer. —*S.M.*

Hunting for killer bees' fury genes

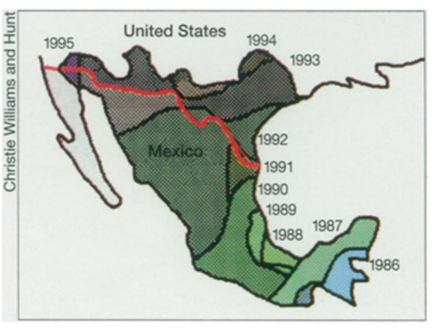
Bee geneticists speculate that a relatively small number of genes drives Africanized honeybees to their stinging frenzy.

One area of a bee chromosome, perhaps just one gene, accounts for some 13 percent of the variance in stinging behavior, report Greg J. Hunt of Purdue University in West Lafayette, Ind., and his colleagues in the March GENETICS. The group describes a genetic analysis of 162 colonies of hybrid honeybees. Besides the one genetic hot spot, four other regions seemed "suggestive."

Hunt and his colleagues bred an Africanized male with a mild-mannered European honeybee queen. The researchers tested the ferocity of colonies of the bees' descendants by counting stingers left in a black suede patch waved near the bees. The feistiest colonies pumped more than 100 stings into the patch, sometimes 150, in just 60 seconds. By tracing genetic markers from both the mild bees and the killers, researchers linked high stinging fury to particular genetic regions.

Coauthor Robert E. Page Jr. of the University of California, Davis notes precedents for finding genes that control an insect's behavior. For example, two or three genes determine whether honeybees forage for nectar or for pollen.

Hunt points out that understanding stinging genetics might someday lead to gentler bees. However, he finds the research interesting for its exploration of genetic control of a behavior, particularly one that results in a bee's death. "It's very altruistic for a worker bee to go out and sting somebody," he says. —*S.M.*



Since escaping from a Brazilian research facility in 1956, Africanized honeybees have spread as far north as Southern California.