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## Mosquito trappers prowl lake lowlands

08/11/03

### FOSTER CHURCH

VANCOUVER -- In the Vancouver Lake lowlands, the mosquito rules, and Philipp Kirsch is in heaven.

Kirsch's company, IPM Tech, designs mosquito traps and other insect-control products, often under contract with the U.S. Army. His excitement mounts the deeper he strides into the brushy, forested lowlands as mosquitoes descend greedily on his bare feet.

"If you stop breathing, they won't find you," he says. He laughs heartily.

Building the perfect mosquito trap has become a lucrative and engrossing project for Kirsch's Portland-based firm.

The Army needs dependable, portable mosquito traps that can be deployed around the world. The trapped mosquitoes can be tested to determine whether they carry diseases.

An efficient trap would be useful in combating West Nile virus, which is spreading in the United States.

The problem, according to Kirsch, is that the standard mosquito trap now in use is impractical.

Mosquitoes locate their food sources by smell. Animals, including

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humans, expel carbon dioxide in their breath. Mosquitoes home in on the smell of carbon dioxide to guide them to a place where they will find a drink of warm blood.

Kirsch, 6-foot-3 and 260 pounds, no doubt produces a lot of carbon dioxide. There seems little doubt that by the end of the day, he will be covered with mosquito bites.

Although he watches as the mosquitoes alight on his bare flesh, he treats them gently.

Insect repellent? Never.

"Insect repellent would interfere terribly with the work we are doing," he says. "And while some people believe in it, garlic doesn't seem to have much effect."

The standard mosquito trap, Kirsch says, has been in use about 30 years. Usually, carbon dioxide is supplied by dry ice or through a compressed gas cylinder.

But dry ice is not always available, and transporting compressed gas cylinders around the world can be difficult and risky.

The trap Kirsch's firm invented generates carbon dioxide by combining gases in a 5-gallon plastic container.

Another limitation of the conventional mosquito trap is that it relies on a suction fan that pulls the mosquito into a sack when it approaches the carbon dioxide source. But the suction fan interferes with release of carbon dioxide by sucking it in along with the mosquito.

Kirsch's trap relies on a battery-powered 2,500-volt, low-amperage grid. Mosquito approaches carbon dioxide; mosquito gets zapped; mosquito drops into plastic container.

At least that's the way it should work.

The trap has been under development for six months, and Kirsch estimates it will take 18 months longer to work all the bugs out of it. No pun intended.

"We need to fine-tune the delivery of carbon dioxide, how much is the optimum amount," he says. "We also need to fine-tune the electronics in the zapping part."

Traps for mosquitoes and other pests can be a magnet for government grants. Between 1998 and 2003, Kirsch's firm has received federal grants exceeding \$3.1 million. These include awards from the U.S. Department of Agriculture, the Army and the National Institutes of Health.

The firm works closely with the chemistry department at State University of New York College of Environmental Science and Forestry at Syracuse in developing its traps. Francis Webster, chemistry professor at the school, has collaborated with Kirsch for the past six years.

"Carbon dioxide is the best attractant that we have to get mosquitoes, and this enables them to be caught in remote areas and very reliably so they can be tested," he says of the trap Kirsch is now testing.

The trap, he says, also attracts ticks, which carry Lyme disease and Rocky Mountain spotted fever.

Kirsch set up the mosquito trap Thursday afternoon and returned that night and Friday morning to check the catch.

Only a few had succumbed to the zapper.

"It rained overnight, and I don't think that helped us," he said. "We had no plans for it to rain last night."

Kirsch now intends to collect mosquitoes with nets and bring them back to the lab, where they can kill themselves in a controlled environment.

But he is deeply impressed with the abundant mosquito population of the Vancouver Lake lowlands. Pest control in the Portland and Vancouver area, he notes, is efficient, and good mosquito breeding areas are hard to find.

"I think the vector control in Portland and Vancouver do a very good job of eliminating mosquitoes," he says. "I'm happy to sit in my front yard and not get eaten up. But you've got to keep a few areas out there where you can find them."

Luckily, vector control appears to have passed over the Vancouver Lake lowlands.

"We will use those wonderful lowlands as the source of limitless numbers of mosquitoes," he says with undisguised satisfaction. "I think we have found where we will get them." Foster Church: 360-896-5720 or 503-294-5900; fosterchurch@news.oregonian.com

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