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One Gifford Pinchot Drive • Madison, WI 53726-2398 • www.fpl.fs.fed.us

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Contact: Rebecca M. Wallace, (608) 231-9275

E-mail: rwallace@fs.fed.us

RURAL COMMUNITY ENDEAVORS TO ELIMINATE TERMITE PROBLEM WITH HELP FROM USDA FOREST PRODUCTS LABORATORY

Rachel Arango knows her bugs. As an entomologist for the USDA Forest Service Forest Products Laboratory (FPL) in Madison, Wis., Arango worked with FPL's Dr. Rick Green to help purge one small Wisconsin town's large termite population, saving its citizens tens of thousands of dollars while purchasing peace of mind.

Using a novel community-wide approach — a unique combination of environmentally sensitive treatments and applications over several years — Arango and Green collaborated with private businesses, local citizens, and state agencies to combat this tenacious pest. Because of this work, the number of reported termites dropped very quickly after the first year and no termite activity has been detected since fall 2009.

"It was a really big problem," says former Endeavor village clerk June Schumacher, who coordinated with Arango and Green in 2006 when the project started. "Rachel and Dr. Green were very committed. They really went above and beyond," says Schumacher. "Anywhere we thought there might have been termites, they put bait traps. They've done a great job."

Endeavor is a struggling but determined village of about 450 people in central Wisconsin. Citizens first noticed termite activity in the mid-1980s; initial infestation was likely due to stowaway insects on railroad ties or some other imported timber. Though particular districts in large metropolitan areas, such as the French Quarter in New Orleans, have been the focus of extensive ongoing termite bait programs, the project in Endeavor is an otherwise unique case of the community-wide eradication approach in the United States.

"Community-wide termite treatment is not at all common," says Arango. "This project really needed to be approached differently than traditional termite treatment."

The relatively isolated location and confined nature of the five distinct colonies, tens of thousands of termites, in and around the village center made Endeavor an ideal candidate for community-wide eradication efforts.

Drawing on a history of termite research established by retired FPL scientist Glenn Esenther; Green and Arango developed a three-stage eradication program in coordination with Randy Kalk and Dan Keohane of Alternative Pest Solutions in Madison, Wis., and Phil Pellitteri of the University of Wisconsin-Madison's entomology department.

"Without Dan this project never would have gotten off the ground," says Green. "The folks at Alternative Pest Solutions are big supporters of the community-wide approach." The research team, Green says, coordinated to "employ the most ecologically friendly methods for detection and treatment of termites, using the least amount of toxic chemicals possible." Eradication, it is hoped, will improve property values and provide other long-term benefits for residents in this economically depressed rural community.

The financial savings per household for citizens of Endeavor is "very difficult" to estimate with such a community-wide approach, says Kalk of Alternative Pest Solutions. Homeowners in Endeavor who would have otherwise needed to contract with extermination services individually,

says Kalk, have likely saved “tens of thousands of dollars in repair costs” by participating in this project.

Damage and subsequent repair costs due to termite infestation nationwide is estimated to be about \$11 billion annually. According to Kalk, termite treatment for the average homeowner costs about \$1000 to \$2000 per property for initial treatment. Necessary ongoing treatments cost an additional \$300 to \$500 per year and can go on indefinitely. Expenses vary depending on the size of the treated structure. Repair costs to address prior damage can be thousands more.

For this project, Green and Arango acquired bait stations through FPL, which were initially placed only on city property. Eventually, all Endeavor homeowners were eligible to participate. Those who elected to receive treatment were covered by an arrangement through the village administration, which paid a total of \$3493 annually between 2006 and 2009 for treatment and monitoring services throughout the village.

The town’s location of about 43.7°N latitude, 100 miles north of where termites might typically be found, affords a unique combination of climatic, geologic, and hydrologic conditions for these destructive insects to thrive. Impending changes in global climate patterns, however, may eventually allow for natural migration of colonies further north, making eradication research at the community level all the more important. Traditional chemical-intensive management methods were avoided due to the potential for contamination of the town’s shallow water supply and adjoining river basin.

Community education efforts throughout the project involved newsletter supplements describing what termite activity looks like and how to distinguish termites from ants. Continuing bait station observation and reporting by Kalk in 2010 and 2011 have been voluntary and will continue indefinitely. Though this project has been ongoing for five years, the underground nature of most termite activity makes it difficult to say that the problem is completely “solved.”

Just like the people of Endeavor, termites are known to be resolute. Or, as Arango says, these persistent pests “are much more clever than we initially thought!” Thanks to the collaborative efforts of local citizens, private business, state agencies, and federal researchers, the termite may well have met its match.

The Forest Products Laboratory was established in 1910 to conserve and extend the country's wood resources. FPL's work with academia, industry, and other government agencies has led to myriad ground-breaking discoveries with great benefit to the public it serves. Additional information on FPL's research is available at www.fpl.fs.fed.us.

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