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If There's a Weed There's a Way At the Beetle Factory

**New Jersey Lab Has a Bug
That's Made to Order;
A Penchant for Purple**

By **BARRY NEWMAN**

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EWING, N.J. -- It's crunch time at the beetle factory.

All summer long, Dan Palmer has seen this moment coming. He's production chief at the Phillip Alampi Beneficial Insect Rearing Laboratory, a New Jersey state institution. The lab's big moneymaker is a beetle that eats purple loosestrife, an alien weed on the loose and causing strife in swamps and bogs across North America.

Purple loosestrife chokes out cattails and takes up space where ducks nest and turtles bask. Nothing native will eat purple loosestrife. This beetle, brought in from Europe 14 years ago, won't eat anything else. As word of the bug's appetite has spread throughout the weed world, Mr. Palmer's lab has become the continent's foremost beetle hatchery, mass-producing baby beetles for sale and distribution wherever loosestrife strikes.

As demand has risen, his beetles have always risen to meet it -- until this summer. For reasons Mr. Palmer hasn't pinned down, orders have suddenly taken flight. His beetles can barely keep up.

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Invasive.org

A Galerucella beetle

"I'm getting more requests than ever, and they're very large requests," he said on a Tuesday morning, standing in a small, windowless room off the lab's main corridor. Up to this day, he had just about met all his commitments. Now, late in the season, the beetle-buying public -- landowners to local governments -- wanted more.

"We're squeezing out every last beetle we can get for today's order," Mr. Palmer said as Sandra Elsner, a lab worker, opened a screened cage. Inside, newly emerged from the soil, a few brownish babies, smaller than ladybugs, lolled on the lip of a flowerpot.

"There were 700 in here yesterday," she said.

"We need 10,000," said Mr. Palmer. "Will we make it?" Ms. Elsner shrugged; she had accumulated 8,000 so far. "Keep at it," he told her. "FedEx will be here at 2 o'clock." Stepping out into the hallway, Mr. Palmer said: "An awful lot of this really depends on the beetles."

They would have it easier if purple loosestrife weren't purple. Its seeds washed up in ballast 200 years ago, sprouted in Northeastern marshes and wafted west, taking over hundreds of thousands of acres. But its meanest side is the late-summer flowering of those purple wands. Seduced by beauty, gardeners have promoted the plant's advance, which now extends to 48 states and Canada.

Ecologists who woke up to the purple plague in the 1980s tried yanking, flooding, spraying, hacking and burning, but with no luck. Then, in 1992, German ecologist Bernd Blossey took a job at Cornell University in Ithaca, N.Y., and brought along some beetles (formal name: Galerucella) with a bad case of the loosestrife munchies.

After letting them multiply in captivity, Prof. Blossey unleashed his beetles into loosestrife-strangled swamps of central New York, where they mated like mad. Soon, he entered the beetle trade, wading with his students into the swamps and swooping up beetles in nets. "We collect on demand," Prof. Blossey says.



Photo Researchers

Purple Loosestrife. Walkill River

His idea was to disperse starter beetles to a new national corps of barefoot beetle farmers. Supplied with Prof. Blossey's manuals and videos, states from Oregon to Maine have schooled scouts, campers and 4-H clubbers -- even prisoners -- in the details of insect reproduction. In Connecticut, 525 novice beetle farmers have enlisted since 2003. Joan MacSweeney, who teaches at Shepaug Valley Middle School in Washington, Conn., signed up last spring.

By then, some of the professor's starter beetles had colonized stands of the state's rampant loosestrife. Students were sent to catch a few beetles as breeding stock.

They had just one chance: in the last week of May. "That's when they mate," says Ms. MacSweeney. "It's how you're sure to get males and females -- catch them in the act. You should've seen the PowerPoint demonstration."

National Wildlife Refuge, New Jersey

When the resulting eggs hatched in July, Ms. MacSweeney released the babies into a loosestrife patch on school grounds. Then her season was over, exposing amateur beetle farming's big flaw: It produces just one brood a year.

A million beetles have been farmed in Connecticut, not nearly enough to eat all its loosestrife. "You're always limited by beetles," says Donna Ellis, the state's beetle-farm organizer. To supplement farmed-beetle yields, many loosestrife fighters must keep buying from professional suppliers, but their budgets tend to be microscopic.

That's where the beetle business gets competitive. As Prof. Blossey's breeder beetles chomp deeper into the wilds of New York, his stalking costs have gone up. He once charged 10 cents a beetle; now he charges 50 cents. His only serious rival with national reach is New Jersey's beetle factory. Its per-beetle price is 11 cents.

Hearing that, Prof. Blossey scoffs, "They're weak, like chickens in cages. It's maximum numbers, not maximum quality." In New Jersey, Mr. Palmer counterclaims: "Our beetles perform excellently on release. Our business is mass production."

The one-story insect lab sits in a crickety cornfield. Since the state built the place in 1985, Mr. Palmer, 61 years old, has bred bugs there. His line includes a Mexican-bean-beetle-eating wasp and a mile-a-minute-weed-eating weevil. Loosestrife beetles reported for duty 10 years ago. Now, in the land's one high-volume facility with a loosestrife-eating product, Mr. Palmer has the insects working overtime.

Toying with light and warmth, he has learned to make them think it's mating season year-round; a new generation appears once a month. In real-time winter, babies are cooled for storage in Hefty bags so they can be awakened to get munching by May. In 1996, 40 females here had 500 babies a week; today, 40 females produce 4,000.

"There's an art to this," said Mr. Palmer as he waited in the shipping room for Ms. Elsner. In front of him was a foam crate packed with eight, 1,000-beetle cardboard soup containers. The day's order, from a pest-control station in Pennsylvania, needed 2,000 more. "We're just 12 people," Mr. Palmer said anxiously, "and we're putting out huge numbers of insects."

So many, in fact, that New Jersey's own loosestrife crisis may soon be over. The beetles released over the decade have the problem nearly under control. As much as he likes the out-of-state income -- \$40,000 a year -- Mr. Palmer worries that a state bug lab might not be allowed to go on selling bugs that the state itself doesn't need. Yet non-Jersey beetle demand keeps surpassing all-time highs.

Maybe greater national loosestrife awareness explains it. Or perhaps, as some scientists speculate, the weed has mutated into something wilder. Mr. Palmer doesn't know. Right now, all Mr. Palmer knows is that his beetles are tired.

It was almost 2 p.m. Back among the flowerpots, Ms. Elsner had been vacuuming stray babies into a rubber tube, tallying them up with a thumb-operated hand counter. Finally, she rushed into the shipping room with one last thousand-beetle soup container.

"This is all I got," she said. Mr. Palmer's face fell. The crunch had come. "If that's all there is," he said, "that's where we'll stop." The order went out on time -- 1,000 beetles short.

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