

INTEGRATED PEST MANAGEMENT

# Insights



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**Signature Programs**



## 2018 Partnership Grants to Protect Honey Bees in New England, Control Mice in Multi-Family Housing, and Improve Turfgrass

In 2018, the Northeastern IPM Center awarded more than \$300,000 for research and outreach through its IPM Partnership Grants, a competitive funding program.

The Northeastern IPM Center began funding projects through the IPM Partnership Grants Program in 2004. Applications have come from public and private institutions or organizations, businesses, commodity groups, and private individuals.

This year, the projects include efforts to mobilize existing monitoring infrastructure to obtain baseline tick prevalence data. Other researchers will test ground barriers for swede midge on small-scale brassica farms. In another project, investigators will improve strawberry transplants. A fourth team will conduct outreach about varroa mite among New England beekeepers. In three additional projects, scientists aim to improve turfgrass in urban environments, assess infestation and effective control methods of mice in multi-family housing, and develop tools for prioritizing, listing and visualizing invasive plant range shifts in connection with climate change.

Through the 2018 IPM Partnership Grants, the Center has funded working groups, studies on issues, and communications projects. The projects advance the Center’s signature programs in Climate Change and Pests and Rural and Urban IPM.

“Our regional partners have put forward a diverse range of potential solutions to pest problems in the Northeast and beyond,” noted Mike Hoffmann, interim director of the Northeastern IPM Center. “From dealing with range shifts in connection to climate change, to protecting honey bees, this year’s awards reflect the innovation and ability of the project directors to tackle vexing environmental, health, and economic problems. It was a competitive year. We honor several

outstanding individuals and institutions with these awards.”

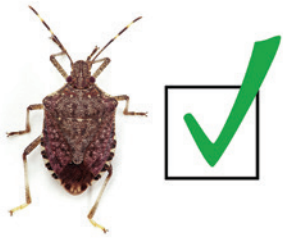


**The Projects**

Through the 2018 Partnership Grants Program, the Center funded three Communications grants totaling \$59,959 and five Issues grants totaling \$259,832.

- Mobilizing existing infrastructure to obtain baseline tick surveillance data**, Dina Fonseca, Rutgers, The State University of New Jersey.
- Testing ground barriers for swede midge IPM on at-risk small-scale brassica farms**, Yolanda Chen, University of Vermont.
- Improving strawberry transplant vigor with bio-rational treatments for managing black root rot complex**, Mahfuz Rahman, West Virginia University.
- A varroa mite IPM program for New England honey beekeepers**, Kim Skyrn, Massachusetts Department of Agricultural Resources.
- Exploring methods to enhance biocontrol of turfgrass diseases in the urban landscape**, John Inguagiato, University of Connecticut.
- Assessing and controlling house mouse infestations in multi-family dwellings**, Changlu Wang, Rutgers, The State University of New Jersey.
- Invasion Watch: tools for listing and visualizing invasive plant range shifts with climate change**, Jeff Garnas, University of New Hampshire.
- Prioritizing the impacts of range-shifting invasive plants for prevention, monitoring, and management**, Bethany Bradley, University of Massachusetts.

The Northeastern IPM Center covers twelve states from Maine to West Virginia and the District of Columbia. It is one of four regional IPM centers in the nation. Collectively the four centers will award just over a million dollars in 2018.



## Brown Marmorated Stink Bug Management Survey for Commercial Producers

A nation-wide survey is currently underway to gather information from farmers and growers on the economic impact of the brown marmorated stink bug (BMSB) on agriculture. The results of the survey will be used by Extension programs across the United States to help prioritize research and outreach activities, and to fine-tune management advice for BMSB.

If you are a commercial producer, you can help researchers by participating in the survey. Researchers want to learn about when BMSB became a problem for you, where you currently get information on how to control it, how much damage you have suffered, your use of and interest in various management practices, and your feelings about biological control methods and their potential for your operation.

The survey takes about 20–25 minutes to complete. Individual survey responses are confidential and the data collected will only be reported in summaries.

To participate, use the following link or scan the code below:

<http://stopbmsb.org/go/BfxA>



# Ideas for Your Nuisance Deer Conservation Program

Imagine that you could hire a consultant to help you deal with the ecological damage caused by having too many deer in your municipality.

Deer spread Lyme disease, and all tick-borne diseases.<sup>1</sup> They collide with cars, threatening human lives.<sup>2</sup> Destroy gardens, disrupting human leisure and recreation.<sup>3</sup> Put songbirds at risk.<sup>4,5,6</sup> Demolish forest understories, hurting biodiversity, with effects that can last at least twenty years after deer pressure has been removed.<sup>7,8,9</sup>

It may seem like a local problem to your municipality, but the abundance of deer is regional: basically everywhere in the Northeast deciduous forests of the United States. Unfortunately, few places will have the resources to hire a consultant to help the community understand the local deer problem. Furthermore, no consultant acting alone will be able to fix the problem. He or she may make recommendations, but it will be up to others to provide tools and implement solutions. At the very least, this article will give you some ideas to get your own program started.

## Get Organized

In New York State, if there is too much damage from deer, you could organize a nuisance deer removal program. This option is not available in all states. Fencing is another option. An eight-foot fence will keep out most deer from an area. Obviously, it is impractical to fence off a town.

There's a popular myth that humans are invading deer territory. Wrong! The invention of the suburb created the perfect habitat for deer. Ecologists call deer an "edge" species, meaning they thrive in exactly the same kind of suburban landscapes people enjoy: lush gardens, wide open grass lawns, a diversity of

flowering and fruiting plants and shrubs.<sup>10</sup>

Methods exist to securely and safely remove nuisance deer without risk to humans or other animals.<sup>11,12</sup>

## Politics

The primary drawback is that organizing a nuisance deer removal program will usually generate negative publicity organized by people opposed to killing deer, or by people who wish to keep deer numbers high so they are plentiful for hunting.

Some researchers have attempted to sterilize deer instead of removing them. Unfortunately, it costs too much and doesn't work.<sup>13</sup> Meanwhile, moving deer to another location is illegal in every state in the United States. Relocated deer suffer enormous mortality as they try to return or establish territory in already filled places.<sup>14</sup> It would merely move the problem to a new location.<sup>15</sup>

Most locales try to control deer numbers through hunting. However, many experts believe there aren't enough people interested in hunting to effectively reduce the great numbers of suburban deer in the northeastern US and their ecological and human health impacts.<sup>16</sup>

"Even if there were enough hunters," said Bernd Blossey, an ecologist in the Department of Natural Resources at Cornell University, "hunting has never proven to be able to reduce populations to ecologically



Deer can destroy gardens and land the deer tick. Photo: <http://mrg.bz>

## References

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- 9 Nuttle, T., Yerger, E.H., Stoleson, S.H., Ristau, T.E., 2011. Legacy of top-down herbivore pressure ricochets back



discarded areas on public and private property—and may transmit pathogens via /lorSxM

acceptable levels, or affect Lyme disease for that matter.”

## Outcomes of Culling

Meat from culled deer is often donated to a regional food pantry.<sup>17</sup> It is illegal in every state to hunt wildlife with the intention to sell meat. Incidentally, New Zealand keeps their deer population under control through commercial hunting, and, ironically, some of the venison is imported into the US.<sup>18</sup>

“In most places with nuisance programs, hunters decide what to do with venison, or municipalities can decide,” said Blossey. “All of the meat can be put into the human food chain.”

Blossey and his fellow researchers point out that it takes strong agency leadership and community support to sustain a deer management program. Managers will need to collect data about human health and ecological impacts of deer as evidence the program is working.<sup>19</sup>

up multiple trophic levels in forest canopies over 30 years.

Ecosphere 2:art 4, doi:10.1890/ES1810-00108.00101.

10 Sterba, J., 2012.

11 *ibid.*

12 Boulanger, J.R., Curtis, P.D., Blossey, B., 2014. An integrated approach for managing white-tailed deer in suburban environments: the Cornell University study. Cornell University, Dept. of Natural Resources, Ithaca, NY. 32 pp; <https://deeradvisor.dnr.cornell.edu/sites/default/files/resources/IntegratedApproachForManagingWTDeerInSuburbanEnvironments-28ax086.pdf>.

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18 Boulanger, Curtis, & Blossey, 2014.

19 *ibid.*

## Q. What free, online databases are there about pest management?

### A. These are six big ones:

#### 1 National Integrated Pest Management (IPM) Database

On this university-run and USDA-funded site, you can search commodities by state; pests; and active ingredients of pesticides.

▶ <https://ipmdata.ipmcenters.org/>

#### 2 U.S. Environmental Protection Agency's Registered Pesticides

The EPA's list of all registered pesticide products.

▶ <http://neipmc.org/go/eYYL>

#### 3 National Pesticide Information Center (NPIC)

On this EPA-funded site, search pesticide product labels and safety data sheets.

▶ <http://neipmc.org/go/jJEY>

#### 4 Pesticide Risk Tool

Run by a not-for-profit organization, the IPM Institute's site gathers and assesses information on pesticide safety. Register to get a ten-day free trial.

▶ <https://pesticiderisk.org/>

#### 5 University of California IPM

California's statewide IPM program covers invasive species, as well as pests found in homes and gardens, agriculture, and natural settings.

▶ <http://ipm.ucanr.edu/>

#### 6 California Pesticide Information Portal

Access detailed information about pesticide use, collected in the Golden State.

▶ <http://neipmc.org/go/XBTG>



## A Guide to Minimum Risk Pesticides

Whether in an agricultural or structural setting, assessing risk is a key step in choosing the right method for controlling pests. Careful adherence to pesticide labels is essential, but what about “all natural” ingredients and other alternatives to regulated pesticides? Where can one find reliable data on low-risk ingredients to help assess human health and environmental risks, while also learning about their efficacy for different target pests?

The New York State IPM Program is providing answers with a new online resource covering minimum risk pesticides. It lists 31 ingredients determined by the EPA to pose little to no risk to human health or the environment. Each ingredient links to a detailed profile containing available data on its physical and chemical properties, human health assessment, environmental assessment, product performance, and standards and regulations that apply to its use.

The ingredient profiles will help officials, practitioners, and the public better understand the risks and benefits of minimum risk pesticides.

To access the resource, visit the following link or scan the code below:

<http://neipmc.org/go/nctc>



# Update: Biopesticide for Bed Bugs

In April of 2014, we published a small notice on our website about a newly developed biopesticide that effectively kills bed bugs. The Northeastern IPM Center had funded a Regional IPM grant, *Toward Implementation of a Novel Fungal Biopesticide for IPM of Bed Bugs*, led by Nina Jenkins of Penn State. The fungal biopesticide spray is effective against immature and adult bed bugs that walk across as little as one inch of dry treated surface.

Fast forward four years, to June of 2018, and a lot has happened. The patent-pending product has received EPA registration. Jenkins and her team have formed a company, ConidioTec, to manufacture and market the product, now called Aprehend.

This success story has several interesting details: USDA-funded research, student training, product development, and private-sector investment.

Aprehend started as a dissertation chapter in entomologist Alexis Barbarin's doctoral thesis and research. Jenkins and her crew did much hard work of product development, testing, registration, and company formation.

"This really has been quite a journey," Jenkins said in a Penn State News article by Lisa Duchene. "I have learned so much over the past five



The ConidioTec team, from left: CEO Don McCandless, COO Giovanni Bellicanta, CTO Nina Jenkins, and co-inventor and Professor of Entomology Matt Thomas. Photo by Jim Harding, Penn State College of Agricultural Sciences, CC BY-NC-ND 2.0.

years and have benefited from the help of so many people."

Aprehend is now being used by professional pest management companies.

Bed Bug Central tested the product in one house and got positive results. In addition, the product has been tested on mice for potential allergic reactions.

So, it looks like a promising up-and-coming technology, and something to watch.

#### Aprehend Product Website:

<http://www.aprehend.com>

#### Aprehend Field Trial:

<http://sensionline.com/aprehend-field-study/>

#### Credits

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