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### **DDT Is Still Killing Birds in Michigan**

## DDT was banned in the United States more than 40 years ago, but it's still killing birds in a town in Michigan

By Douglas Main smithsonian.com July 29, 2014

In Michigan, the town of St. Louis neighbors three Superfund sites that were once occupied by plants that produced the pesticide DDT. And so while, in most towns, a few dead birds might not be cause for alarm, in St. Louis, residents worried. And, Environmental Health News reports, when scientists collected the bodies of 22 American robins, six European starlings and one bluebirds, they found incredibly high levels of the pesticide that created Rachel Carson's "Silent Spring."

"I've never seen anything like it," Matt Zwiernik, a Michigan State University assistant professor of environmental toxicology who led the testing, told the news site. "When people told me about it I didn't believe it. And then we ran these tests. These are some of the highest-ever recorded levels in wild birds."

DDT has been banned in the United States for more than 40 years, and hadn't been produced at that plant in more than half a century. But, as EHN reported:

The birds' brains contained concentrations of DDE, a breakdown product of DDT, from 155 to 1,043 parts per million, with an average of 552. "Thirty in the brain is the threshold for acute death," Zwiernik said. "All the birds exceeded that by at least two- or three-fold, and many by much more than that." Twelve of the 29 birds had brain lesions or liver abnormalities.

The culprit is a toxic mess left behind by Velsicol Chemical Corp., formerly Michigan Chemical, which manufactured pesticides until 1963, a year after Rachel Carson's book *Silent Spring* exposed the hazards of DDT, especially for birds. Populations of bald eagles and other birds crashed when DDT thinned their eggs, killing their embryos. The pesticide, known for accumulating in food webs and persisting for decades in soil and river sediment, was banned in the United States in 1972.

Why the sudden spike in bird deaths? In reality, it may not be a spike at all; birds have been steadily dying, but it took a while for scientists to collect enough samples for a meaningful study.

Researchers speculate the birds were poisoned by eating contaminated earthworms on one of the Superfund sites. Much of the money allocated toward cleaning up the sites went toward removing DDT-laden sediment in the nearby Pine River, for which the EPA issued a no-consumption advisory. The level of the pesticide in fish downstream of sites has declined, but clearly the contamination hasn't been fully cleaned up.

About Douglas Main

Douglas Main is a freelance science journalist who lives in New York City.

## BANGOR DAILY NEWS

# How Maine towns can prepare for West Nile, eastern equine encephalitis



Seth Koenig | BDN

In this August 2013 file photo, Brendan Emanuel from the University of New England looks in on the nest built inside of a birdhouse placed on the perimeter of a school soccer field. Emanuel was part of a team seeking to inventory and control mosquito populations at the Biddeford campus.

Posted July 30, 2014, at 10:25 a.m.

With mosquitoes out and about during the summer, it's important for towns to be ready for what sometimes comes with them: infectious diseases.

Here are two viruses to know about and information about how towns can ready themselves. They may never have an outbreak, but it never hurts to be prepared if they do.

#### West Nile

The virus transmitted by the bite of an infected mosquito can infect both humans and animals such as birds and horses. Most infections don't cause symptoms, but some can cause fever, headache,

body aches, skin rashes and swollen lymph glands. In a small number of cases, the virus also can cause neck stiffness, stupor, disorientation, coma, tremors, convulsions, paralysis and death. There is no specific treatment, and mild cases tend to go away on their own.

Maine confirmed its first human case of West Nile in Cumberland County in 2012.

#### Eastern equine encephalitis

This virus is considered one of the most serious mosquito-borne illnesses because of its high mortality rate. Like West Nile, it has no treatment. Most people infected have no symptoms. In those who do, their symptoms may range from headache, high fever, chills and vomiting, to inflammation of the brain, coma and death.

Eastern equine encephalitis has caused the death of animals in seven counties and was present in blood samples taken from deer and moose in all Maine counties. No one in Maine has died from the virus, but in 2008, a Massachusetts man acquired eastern equine encephalitis, potentially while vacationing in Cumberland County, and he later died.

#### Action steps

There are steps Maine officials can take to prepare for the event of an outbreak, as David Struble, state entomologist at the Maine Department of Agriculture, Conservation and Forestry, wrote recently for the Maine Townsman, the magazine of the Maine Municipal Association. So far, only Kittery and York have taken specific steps to monitor for the two major diseases.

1. Read up on the Maine Center for Disease Control's recommendations on prevention, surveillance, reporting and responses at http://bit.ly/mosquitoplan.

2. Spread the word about reducing residents' risk, such as by draining standing water and repairing ripped window screens.

3. Create a response plan that addresses actions such as how to notify residents of an outbreak, how best to reschedule events planned for around dusk, and whether and how to reduce adult populations of mosquitoes during high-risk times of the year.

4. For more planning ideas, towns can consider the following reports on efforts elsewhere: http://bit.ly/bugmanage, http://bit.ly/managebugny, http://bit.ly/kitterybug, http://bit.ly/confrontbug and http://bit.ly/cobug.

http://bangordailynews.com/2014/07/30/opinion/editorials/how-maine-towns-can-prepare-for-west-nile-eastern-equine-encephalitis/ printed on August 1, 2014

Widespread occurrence of neonicotinoid insecticides in streams in a high ...

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## Widespread occurrence of neonicotinoid insecticides in streams in a high corn and soybean producing region, USA

Michelle L. Hladik<sup>a,</sup> , Dana W. Kolpin<sup>b,</sup> , Kathryn M. Kuivila<sup>c,</sup>

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#### Highlights

- · Neonicotinoids prevalent in streams in a corn and soybean region during growing season.
- Observed temporal patterns suggest seed treatment use contributing to stream concentrations.
- Frequency of detection: clothianidin (75%) > thiamethoxam (47%) > imidacloprid (23%).
- Chemical use and precipitation are important driving factors for off-field transport to streams.
- Concentrations may frequently exceed chronic aquatic toxicity values during growing season.

#### Abstract

Neonicotinoid insecticides are of environmental concern, but little is known about their occurrence in surface water. An area of intense corn and soybean production in the Midwestern United States was chosen to study this issue because of the high agricultural use of neonicotinoids via both seed treatments and other forms of application. Water samples were collected from nine stream sites during the 2013 growing season. The results for the 79 water samples documented similar patterns among sites for both frequency of detection and concentration (maximum:median) with clothianidin (75%, 257 ng/L:8.2 ng/L) > thiamethoxam (47%, 185 ng/L:<2 ng/L) > imidacloprid (23%, 42.7 ng/L: <2 ng/L). Neonicotinoids were detected at all nine sites sampled even though the basin areas spanned four orders of magnitude. Temporal patterns in concentrations reveal pulses of neonicotinoids associated with rainfall events during crop planting, suggesting seed treatments as their likely source.

#### Graphical abstract



#### Keywords

Clothianidin; Imidacloprid; Thiamethoxam; Seed treatments; Surface water

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## THE SPOKESMAN-REVIEW August 6, 2014 Wildlife refuges ending GMOs, neonicotinoids

Jeff Barnard Associated Press

GRANTS PASS, Ore. – National wildlife refuges around the country are phasing out genetically modified crops and a class of pesticides related to nicotine in programs meant to provide food for wildlife.

A July 17 letter from James Kurth, chief of the national refuge system, makes no specific mention of any concerns that the pesticides or the crops pose risks to wildlife or pollinators, such as bees and butterflies. It just says they don't fit refuge objectives, such as promoting natural ecosystems.

"We make this decision based on a precautionary approach to our wildlife management practices, and not on agricultural practices," he wrote.

But it comes after a July order to phase out neonicotinoid pesticides on wildlife refuges in the Northwest and Hawaii that mentioned concerns about harm to bees and after a White House memorandum directing federal agencies to promote pollinator health in the face of significant losses in recent decades of insects, bats and birds that pollinate fruits, nuts and vegetables.

Conservation and food safety groups also petitioned for the change.

"Fish and Wildlife by this action is showing tremendous leadership in standing up for wildlife and banning two of the most harmful practices in agriculture," said Lori Ann Burd, endangered species campaign director for the Center for Biological Diversity. "Now is the time to take this ban beyond refuges."

Wildlife refuges commonly allow farmers to grow crops on their land, on the condition they leave some behind to feed wildlife.

Citing a May decision by a leadership team on agricultural practices on refuges, Kurth told refuge managers to phase out GMO crops and neonicotinoids by January 2016. Exceptions can be made, particularly on refuges that include lands mandated by law for agriculture use, such as the Tule Lake and Upper and Lower Klamath refuges in Northern California and southern Oregon.

Seeds for corn and other crops grown on wildlife refuges commonly are coated with neonicotinoid pesticides, which are absorbed into the growing plant and kill pests that attack the leaves and stems. Most of the corn grown in the United States has been genetically modified to resist the herbicide glyphosate, commercially sold as Roundup.

lain Kelly, a risk assessment scientist for neonicotinoid manufacturer Bayer CropScience, said he was disappointed in the Fish and Wildlife Service decision.

"We don't think the science bears out that decision," he said.

Specifically, he said advances have been made that keep the pesticide from making its way into a plant's pollen and nectar at levels high enough to harm bees and other pollinators.

He added a moratorium on neonicotinoids in the European Union just started last winter, and has not run long enough to produce results. And the company is working on techniques to limit the dust produced when neonicotinoid-coated seeds go through farm machinery.

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## Starvation caused bee deaths, expert says

By Eric Mortenson

EO Media Group

Published: August 19, 2014 8:09AM

Last changed: August 19, 2014 4:58PM



An investigation by the Oregon Department of ERIC MORTENSON —EO MEDIA GROUP Agriculture showed pesticides played no part in the deaths of thousands of bees in Clackamas County.

## The latest Oregon bee deaths were a case of "classic starvation," not pesticides.

Although a veteran commercial beekeeper said "classic starvation" induced by inexperienced hobbyists killed thousands of honey bees in Clackamas County this summer, a retired entomology professor who examined the hives said the case isn't that simple.

Dewey Caron, who has 40 years experience working with honey bees, said there's no evidence to blame beginning beekeepers for the deaths, which prompted an intensive investigation and laboratory analysis by the Oregon Department of Agriculture.

"We do not know what happened," Caron said. "It doesn't completely fit starvation and it doesn't completely fit pesticides. We no more know that it was the beekeepers' fault than it was an accident, happenstance or one of the things that happen to living animals."

Caron's remarks countered the view of Harry Vanderpool, a longtime commercial keeper in Salem who Caron consulted during the investigation. Vanderpool concluded the hobbyists didn't know what they were doing and "raised the red flag of

pesticides" when their bees died. Each newly established hive should have been fed a gallon per week of sugar-syrup mix for the first month, he said.

"Don't go throw a (hive) box in the backyard and run to the Pesticide Division when they all die," Vanderpool told the Capital Press earlier this week. "That is beekeeper error, that's what it is, 100 percent."

Caron disagreed, and said the hobbyists tried to give the bees more food when they discovered the deaths. That often helps hives recover, but some of them didn't.

The ag department announced Aug. 11 that it found no sign of pesticides in samples taken in mid-June from five hives belonging to four hobbyist beekeepers. Caron said the department's protocol was sound.

In addition, followup examination at Oregon State University found "average" levels of varroa mites and nosema disease in the dead bees. The findings did not provide any evidence to explain the deaths, according to an ag department news release.

Department spokesman Bruce Pokarney declined to speculate on what killed the bees.

One of the hobbyists, Dena Rash Guzman of Sandy, Ore., acknowledged that starvation could be the answer, but questioned why multiple hives died off in the same area at the same time.

She said fed her new hives a sugar mixture for three weeks until they began foraging.

"If we are responsible for the deaths of these bees, it is not, as Vanderpool states, because we are amateurs who didn't feed the bees," she said.

"I've been told I'm responsible for the death of my hives because I'm inexperienced," Rash Guzman said. "If that's what happened I will have learned a big lesson. But I fed those bees until they stopped taking food."

Rash Guzman, who lives on a 60-acre organic farm, said the ag department investigators were responsive and helpful, and she doesn't question their findings. But she wishes more information was available.

"I'm very disappointed the case is closed," she said. "I'm left with so many questions."

Vanderpool, the commercial keeper, said bees require work and attention, and aspiring hobbyists should consult with the Oregon State Beekeepers Association for guidance. Vanderpool is the organization's North Willamette Valley representative. The association is proposing an agreement with the ag department to do a "triage" evaluation when beginning beekeepers report problems, rather than waste the department's time, Vanderpool said.

He's been a commercial beekeeper for 24 years and has 420 hives. Like many other commercial keepers in the Pacific Northwest, he takes them on the road to pollinate crops, beginning with almonds in California and working his way north through cherries, meadowfoam and other crops.

With colony collapse disorder and pesticide concerns fresh on people's minds, the ag department made the investigation a high priority when the Clackamas County residents reported bee deaths, said Pokarney, the department spokesman.

As part of the investigation, the department developed a screening process for 39 pesticide active ingredients used in Oregon and known to be toxic to pollinators. Creating the customized list of pesticides reduced the testing time, Pokarney said.

"If an average citizen noticed 10 dead bees we might not dispatch an investigator, but this was serious," Pokarney said. "The numbers were high enough and these were (reported by) beekeepers. And it is a priority for us."

Oregon has had notable bee die-offs related to spraying incidents involving neonicotinoid pesticides. In late June, the department prohibited the use of pesticides containing dinotefuran and imidacloprid on linden trees and other Tilia tree species.

Online

http://www.oregon.gov/ODA/PEST/Pages/Pollinator.aspx



### New Cornell Alliance for Science gets \$5.6 million grant

By Stacey Shackford cunews@cornell.edu

A new international effort led by Cornell will seek to add a stronger voice for science and depolarize the charged debate around agricultural biotechnology and genetically modified organisms (GMOs).

Supported by a \$5.6 million grant from the Bill & Melinda Gates Foundation, the <u>Cornell</u> <u>Alliance for Science</u> will help inform decision-makers and consumers through an online information portal and training programs to help researchers and stakeholders effectively communicate the potential impacts of agricultural technology and how such technology works.

The project will involve developing multimedia resources, including videos of farmers from around the world documenting their struggles to deal with pests, diseases, crop failure and the limited resources available in the face of poverty and climate change.

"Proponents and opponents alike speculate whether biotech crops are of benefit to farmers, but rarely are those farmers engaged in the biotech discourse or their voices heard," said Sarah Evanega, senior associate director of International Programs in Cornell's College of Agriculture and Life Sciences (CALS), who will lead the project.

"Our goal is to depolarize the GMO debate and engage with potential partners who may share common values around poverty reduction and sustainable agriculture, but may not be well informed about the potential biotechnology has for solving major agricultural challenges," Evanega said. "For instance, pro-biotech activists share a lot of the same anti-pesticide, lowinput, sustainable-agriculture vision as the organic movement."

Evanega and her team hope to help engage such potential partners and foster more constructive policies about biotechnology as a useful tool to address major agricultural challenges.

The grant will allow the Cornell Alliance for Science to host annual conferences, short courses and semesterlong CALS certificate programs in biotechnology leadership, among other activities.

Evanega said the initial concept was informed by a February 2014 gathering at Cornell of 34 representatives from public sector and not-for-profit organizations in 12 countries that discussed a new vision for biotechnology communications.

"Like elsewhere in the world, African scientists still find it challenging to effectively inform the public about their work and its relevance to society," said Barbara M. Zawedde, coordinator of the Uganda Biosciences Information Center at the National Agricultural Research Organization. "Our effective communication will enable African farmers and citizens to exercise their sovereign right of informed decisions on whether to adopt certain crops and technologies depending on their needs and priorities."

In part because of its land-grant heritage, CALS regularly hosts forums and media events about various agricultural technologies and the role they could play in providing sustainable solutions to major global challenges.

"Biotechnology is a potential game-changer for farmers in less developed countries and an important tool in the toolbox for addressing global challenges, such as persistent poverty, a changing and erratic climate, and the challenge of feeding 9 billion people by 2050," said Kathryn J. Boor, the Ronald P. Lynch Dean of CALS. "Improving agricultural biotechnology communications is a challenge that must be met if innovations developed in public sector institutions like Cornell are ever to reach farmers in their fields."

Stacey Shackford is a writer for the College of Agriculture and Life Sciences.

Find more Cornell news online at news.cornell.edu.

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myChamplainValley.com

## Adult Contracts First NH Human Case of EEE in Conway

<u>1</u> 08/22/2014 05:33 PM 08/22/2014 05:39 PM



(Credit: Centers for Disease Control and Prevention) CONWAY, N.H. - The New Hampshire Division of Public Health Services (NH DPHS) has identified the first human case of EEE in Conway.

A press release says the the adult became ill on August 13, and believed to have acquired EEE in the Conway area. The adult is currently hospitalized in critical condition.

"This positive is at about the same time as the previous EEE patient identified in 2009," said NH Public Health Director Dr. José Montero. "There is no way to know where exactly this individual

was infected, but we do know that both of these diseases are present in New Hampshire so it is important that everyone remember to take steps to prevent mosquito bites to themselves and their loved ones."

According to the NH Department of Health and Human Services, symptoms of EEE disease often appear 4 to 10 days after being bitten. If you or someone you know is experiencing flu-like symptoms, including fever and headache, contact your local medical provider. EEE is a more serious disease than West Nile Virus (WNV) and carries a high mortality rate for those who contract the serious encephalitis form of the illness. Symptoms may include high fever, severe headache, stiff neck, and sore throat. There is no specific treatment for the disease, which can lead to seizures and coma.

#### Ways to Protect Yourself

- Use effective mosquito repellant, wearing long sleeves and pants at dawn and dusk when mosquitoes are most active
- Remove standing water from around your house so mosquitoes do not have a place to breed
- Check doors and windows to ensure screens are in place and in good condition to prevent mosquitoes from entering your home.

For more information about EEE and West Nile Virus visit the <u>Department of Health and Human</u> <u>Services (DHHS) website</u>. For questions contact the DHHS Bureau of Infectious Disease Control at (603)-271-4496.

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Maine Lab Tracks Progress of Dangerous Mosquito-Borne Viruses | Main...

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Mosquito-borne Viruses

5:40 PM TUE AUGUST 26, 2014

#### Maine Lab Tracks Progress of Dangerous Mosquito-Borne Viruses

#### By PATTY WIGHT (/PEOPLE/PATTY-WIGHT)



(http://mediad.publicbroadcasting.net/p/mpbn /files/201408/9673028103\_17506138ed\_0.jpg) A female mosquito.

Credit Joaquim Alves Gaspar / Wikimedia Commons

Listen

SCARBOROUGH, Maine - Lurking in Maine's forests, swamps and even backyards are potentially serious diseases. Deer ticks are a source of at least five diseases in the state. Mosquitoes are the source for two others: West Nile Virus and Eastern Equine Encephalitis, or EEE. Their incidence in humans is rare in Maine, but researchers at Maine Medical Center's Vector-borne Disease Lab know they infect animals around us. As Patty Wight reports in the second part of her two-part series, their job is to find out why, and to detect when the viruses emerge in humans.

4:06

Patty Wight reports on the Vector-borne Disease Laboratory's tracking of mosquito-borne viruses in Maine, in the second part of her two-part series.

Some people collect baseball cards or coins. Vector Ecologist Charles Lubelczyk collects ticks and mosquitoes. From spring to fall, and even sometimes in the winter, he drives to 32 sites stretching from York to Aroostook County looking for the little guys.



(http://mediad.publicbroadcasting.net/p/mpbn

On this day, he's collecting mosquitoes in Lebanon, a geographically typical, lowland area, "where you have a lot of post-agriculture, where now it's coming back to forested areas," he says. "But there's also a lot of individual homes that are coming into these areas, which from a public health perspective, would introduce a lot of people and livestock into areas where you have these viruses naturally cycling."

Viruses like West Nile and Eastern Equine Encephalitis - EEE. "And these viruses probably naturally cycle every year at some low level, going on silently in nature," Lubelczyk says. "And with Eastern and West Nile, the natural mortality occurs mostly in bird /files/201408/14997821091\_5f43edde37\_h.jpg)

Vector Ecologist Chuck Lubelczyk collects mosquitoes in the southern Maine town of Lebanon. *Credit Patty Wight / MPBN* 

Maine has only one reported human case of West Nile, from 2012. But Lubelczyk suspects the incidence is

much higher because West Nile tends to be a milder disease that behaves like the flu, and therefore goes unreported. EEE is much more serious, causing 30 percent of those infected to die, and leaving half of its survivors with permanent neurological damage.

populations."

There have been no confirmed human cases of EEE in Maine, but one was confirmed recently in Conway, New Hampshire. Here in Maine, Lubelczyk says there were two big outbreaks in 2009 and 2013 among horses, llamas, and pheasants.

"You know, we have a lot of questions why Eastern Equine Encephalitis is ramping up region wide," he says. "Twenty years ago it wasn't as much of an issue in the Northeast, and now it is."

He pulls off a busy road just past some houses and walks into a small patch of forested wetland - the preferred location for mosquitoes that carry EEE. A bunch of black plastic cubes are spread on the ground, with one side open. "This actually acts as a natural cavity that a lot of mosquitoes would like to spend their day in," he says - kind of like a hollow log.

To extract the mosquitoes in them, Lubelczyk uses a handheld vacuum he made himself. "This sort of Rube Goldberg-ish kind of contraption that looks like a large PVC pipe with a bit of stovepipe, a large battery, and then we get to use panty hose."

The panty hose are stretched out over the end of the stovepipe to act as a net to catch the mosquitoes. Lubelczyk fires it up, then suctions out each box, tapping each one to make sure all the mosquitoes are captured. After Lubelczyk vacuums out each box, he pulls out the panty hose, which can hold dozens of mosquitoes at a time, then stuffs it into a small plastic container. "This is the only time I can truthfully say I'm getting runs in my nylons," he jokes.

Lubelczyck will bring the mosquitoes back to the Vector-borne Disease Lab for identification. There are 45 species of mosquitoes in Maine, but only seven or eight are vectors, or sources, of EEE. After they're identified, they're sent to the state for analysis.

Lubelczyk says there are more questions than answers when it comes to these viruses, but climate change and heavy rainfall have likely contributed to outbreaks. The lab is also trying to solve another mystery: Why are animals like birds, deer, and moose contracting these diseases at a much higher rate than humans?

"Because mosquitoes don't differentiate between deer, moose, and us - we're all the same to them," he says. "You know, they think of us as big, respiring mammals that have a lot of blood in us and we're all equally attractive. But why are deer and moose being exposed, but people don't seem to be showing as many symptoms?"

With no human treatment available for West Nile and EEE, Lubelczyk is vigilant at all times. "You actually have one on your forehead right now," he points out. "As a public health message, I should warn you to get that mosquito off" - because he knows these viruses are brewing, and he and others at the Vector-borne Disease Lab intend to find them as soon as they strike in Maine.

 TAGS:
 Vector-borne Disease Laboratory (/term/vector-borne-disease-laboratory)
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Tick-Borne Diseases

5:47 PM MON AUGUST 25, 2014

#### Ticked Off: Maine Lab Tracks Growing Impact of Disease-Carrying Pests

#### By PATTY WIGHT (/PEOPLE/PATTY-WIGHT)



(http://mediad.publicbroadcasting.net/p/mpbn /files/201408/9550377306\_f98519592b\_0.jpg) A deer tick Credit File photo / MPBN

years ago, a critter about the size of a poppy seed grabbed the attention of a few researchers at Maine Medical Center. It was the deer tick - a tiny creature that carries a potentially devastating illness: Lyme disease. The researchers formed the Vector-borne Disease Lab to learn more about where deer ticks occur in Maine and about how they spread disease. A quarter of a century later, the lab is as busy as ever. Patty Wight has the first of two stories on the work being done there.

SCARBOROUGH, Maine - Twenty-five

#### Listen

3:47

Patty Wight reports on the work being done at the Vector-borne Disease Laboratory in Scarborough.

If you're at all creeped out by ticks, you need to get over it quickly at Maine Medical Center's Vector-borne Disease Lab. Diagrams of ticks effectively serve as wallpaper. There's a giant inflatable tick on the wall, a furry stuffed one in an office, and vials and vials of the real guys.

"That's probably 1,000 there, and maybe 500 there, and we've got a freezer full of DNA and tick bodies," says Research Assistant Susan Elias, one of five staffers at the lab who handle ticks that come through the door, either from the lab's own work in the field or from other scientists in New England. The job of the Vector-borne Disease Lab is to identify these ticks and check them out for disease. They do this, says Elias, either by dissecting ticks or grinding them up and extracting DNA.

"We did some educational programming for fifth graders awhile back, and I had one little girl raise her hand and say, 'Miss Elias, how did you get such a disgusting job?!' " she says.

But to Elias, the work fascinating. It's about piecing together a story of why deer ticks are in Maine, where to find them, and how best to control them.

At about 50 research papers and counting, says lab co-founder Dr. Rob Smith, it's a growing story. "I don't think anybody predicted the tick would become abundant in so many different habitats or environments, and certainly not in northern New England," Smith says.

It turns out, Maine offers prime real estate for ticks. Migratory birds bring them in. Rodents, deer, and damp wooded vegetation make them stay. There are 14 species of ticks in the state, but researchers at the Vector-borne Disease lab focus on deer ticks because in Maine that's the only kind that transmits diseases to humans.

"Nobody predicted that this tick could carry several different organisms," Smith says. "We're now up to five different pathogens that have been recognized that deer ticks can carry and transmit to people" - potentially serious diseases, such as babesiosis and anaplasmosis that are treatable with antibiotics, and the rare but deadly Powassun virus, which claimed the life of a Maine woman last year.

While the lab has helped to identify some of these pathogens, it's a more difficult chalalenge to control them. "I think we have to be pretty humble about



(http://mediad.publicbroadcasting.net/p/mpbn /files/201408/14814310148\_dbf1dd45bc\_o.jpg) Vector-borne Disease Laboratory founders Dr. Robert Smith, left, and Dr. Peter Rand.

Credit Patty Wight / MPBN

our understanding in general because these are complicated infections, and lots of different factors can cause one to become more prominent."

But Maine's islands offer unique laboratories that provide some answers. The lab worked with Monhegan Island in the late '90's to eradicate its abundant deer population, and cases of Lyme disease dropped to almost zero, says lab co-founder Dr. Pete Rand.

"The question is, though, how far do you have to go to reduce a deer population in order to break the cycle?" Rand says. "We and others think that may be 10 deer per square mile or less."

Lab researchers have also found ornamental shrub species like Japanese barberry and honeysuckle are favorite homes for ticks. The lab was also the first to find that a botanical pesticide made of rosemary oil is just as effective at killing ticks as a chemical spray. But for all that they've learned, there's still a long way to go, says Dr. Rob Smith.

"When you look at this on a population basis, there have not a lot of success stories, in terms of preventing these diseases," he says, "even though we think we know how to do it."

And that's because it has not been easy making the public aware and concerned enough to take preventative measures - wearing long sleeves and pants and using repellant. But that's just one of the things the Vector-borne Disease Lab is working on, as it continues to tell the story of ticks in Maine.

Tomorrow we'll hear about the Vector-borne Disease Laboratory's work on mosquito-borne illnesses.

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# First report of allergic reaction to antibiotic pesticides consumed in food

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<u>Allergy</u> <u>Nutrition / Diet</u> <u>Public Health</u> Featured ArticleAcademic Journal

An article published in the *Annals of Allergy, Asthma and Immunology* finds that it is possible for people to have allergic reactions to antibiotic residues in food.



The use of antibiotics in agriculture is banned in some European countries, but it is still allowed in the US and Canada.

In the piece, the authors study the case of a 10-year-old girl who had an anaphylactic reaction from eating blueberry pie.

Although the girl was known to be allergic to penicillin and cow's milk - and also had <u>asthma</u> and seasonal allergies - she was not known to be allergic to any ingredients in the pie.

## Both the girl and a sample of the pie were tested, with the authors of the article eventually concluding that what had provoked her severe reaction were blueberries contaminated with streptomycin - an antibiotic that is also used as a pesticide.

The authors say that this - to their knowledge - is the first report of an allergic reaction to fruits treated with <u>antibiotic</u> pesticides used to control the growth of bacteria, fungi and algae.

The use of antibiotics in agriculture is banned in some European countries, but it is still allowed in the US and Canada.

### 'A very rare' allergic reaction

Dr. James Sublett, president elect of the American College of Allergy, Asthma and Immunology, says:

"This is a very rare allergic reaction. Nevertheless, it's something allergists need to be aware of and that emergency room personnel may need to know about in order to help determine where anaphylactic reactions may arise. Anyone who is at risk for a life-threatening allergic reaction should always carry epinephrine. They also need to know how to use their epinephrine in an emergency situation."

In 2006, the Environmental Protection Agency (EPA) assembled a report on the risks of using of streptomycin as a pesticide.

The report mentions that, in the first 30 years of its use, streptomycin was frequently used to treat pregnant women, but exposure to the drug was found to be associated with <u>hearing loss</u> or inner ear problems in the child.

However, in these cases, the mothers were receiving oral doses of the antibiotic that were much higher than the limits for chronic dietary exposure.

## The EPA concluded "with reasonable certainty that combined residues of streptomycin from food, drinking water and residential exposures will not result in an aggregate risk of concern to any population subgroup."

Recently, *Medical News Today* reported on a new study that found children who live in innercity areas <u>are more susceptible to food allergies</u>.

Previously, studies had shown that children in urban environments are more prone to asthma and environmental allergies.

This new study demonstrated that 55% of the children in the study - who were based in Baltimore, MD, Boston, MA, New York, NY, or St. Louis, MO - were sensitive to milk, eggs or peanuts, and nearly 10% of them met the criteria for a "full-blown <u>food allergy</u>."

#### Written by David McNamee





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#### FOR MORE INFORMATION, PLEASE CONTACT:

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## **NEWS RELEASE**

### Additional Mosquito Pools Test Positive for Eastern Equine Encephalitis

AUGUSTA – Maine Center for Disease Control and Prevention has confirmed the presence of Eastern Equine Encephalitis (EEE) in three additional mosquito pools in York County, bringing the total number of positive tests to four in 2014.

In addition, an emu from the Sebago Lake region in Cumberland County tested positive for EEE, according to the Maine CDC and the Maine Department of Agriculture, Conservation and Forestry. The animal was not vaccinated.

Regionally, all of our surrounding states have also identified EEE. Thus far, the only human case has been reported in New Hampshire.

EEE, which is carried by mosquitoes, is usually a fatal viral disease in horses, llamas, alpacas, emus and ostriches, according to State Veterinarian Dr. Michele Walsh. "It is important for people to understand that the only way a human can get EEE is from a bite of an infected mosquito."

"EEE is a very serious illness in humans" said Dr. Sheila Pinette, Director of Maine CDC. "Mainers must be aware of the risks and take precautions to prevent mosquito bites and protect against EEE and other mosquito-borne illnesses."

Mainers can take steps to protect themselves and their equines by:

- Wearing long sleeves and long pants
- Using an EPA approved repellent on skin and clothes and always following the instructions on the label
- Taking extra precautions at dusk and dawn

- Using screens on your windows and doors
- Draining artificial sources of standing water where you live, work, and play
- Vaccinating horses, llamas and emus

EEE virus is carried by mosquitoes, which pick it up from infected wild birds. The virus replicates in birds, which act as natural reservoirs for the disease.

Horses, llamas, and emus can be protected from EEE through vaccination, said Walsh. There is no vaccine or treatment for humans, so preventing mosquito bites is very important.

The Maine CDC will continue to update information on mosquito-borne disease surveillance in Maine on a weekly basis. These reports are posted every Monday from May through September at <u>www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/arboviral-surveillance.shtml</u>

Future positive tests will be announced through this report.

Information on pesticides and repellents is available at the Maine Board of Pesticides Control website at: <a href="https://www.maine.gov/agriculture/pesticides/public/index.htm#mosquito">www.maine.gov/agriculture/pesticides/public/index.htm#mosquito</a>

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Portland is one of four collection sites statewide. This free disposal program is open to homeowners, family-owned farms and greenhouses.

Cape Elizabeth collects pesticides as part of its annual Household Hazardous Waste collection, but the next collection is not scheduled until next May. but

\*It's important for the protection of public, wildlife, and environmental health that these products are deak with properly and not thrown in the trash or down the drain, where they can contaminate land and water resources, including dinking water, said Department of Agriculture, Conservation and Forestry Commissioner Walt Whitcomb. "People holding these chemicals should contact the (Board of Pesticide Control) as soon as possible to register for the Octaber collection."

It's not unusual for homes and farms to have unintentional hazardous waste-banned pesticides or pesticides that have become caked, frozen, or otherwise rendered unusable-sitting around in

207-287-2731 FLIT date Pe Side Colle a Be NAME BOARD OF PESTICIDES CONTROL MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Sites in Presque Isle. Bangor, Auguste and Portland

For more information and to register: .thinks

rstspraylast.org

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#### Cooperative Extension: Garden & Yard Home

Mainers Urged to Sign Up for Free Disposal of Banned, Unusable Pesticides

Print

AUGUSTA—This October, the Maine Department of Agriculture, Conservation and Forestry's (DACF) Board of Pesticides Control (BPC) will team up with the Maine Department of Environmental Protection (DEP) to help Mainers dispose of banned or unusable pesticides.

This free disposal program is open to homeowners, family-owned farms and greenhouses. Collection will occur at sites located in Presque Isle, Bangor, Augusta and Portland. To qualify, people must register by September 26, 2014.

Governor Paul R. LePage is urging Mainers to take advantage of this opportunity to protect the environment and save money through this once a year collection event that highlights cooperation Home Gardening Information

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#### Free Disposal of Banned, Unusable Pesticides



Maine Department of Agriculture, Conservation and Forestry Walter E. Whitcomb, Commissioner

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#### Joint Press Release

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Bickford Slides Hile, Aug 30 Front Parted Saturday, August 75, 2014

## Maine collecting banned and unusable pesticides from residents and barn owners



The Associated Press

Lewiston-Auburn | Sunday, August 24, 2014 at 10:53 pm

AUGUSTA — Maine is beginning a drive to encourage residents to take advantage of free disposal of banned and unusable pesticides.

Officials say the disposal program is open to homeowners, family-owned farms and greenhouses. Collection will take place in Presque Isle, Bangor, Augusta and Portland.

Gov. Paul LePage calls the effort "an opportunity for Mainers to dispose of unusable pesticides properly and at no expense." State officials say many homes and farms unintentionally have hazardous wastes in basements, garages and barns. Collected materials will go to out-of-state disposal facilities to be reprocessed or incinerated. Residents must register for the program by Sept. 26.

Online: http://www.maine.gov/dacf/php/pesticides/index.shtml



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