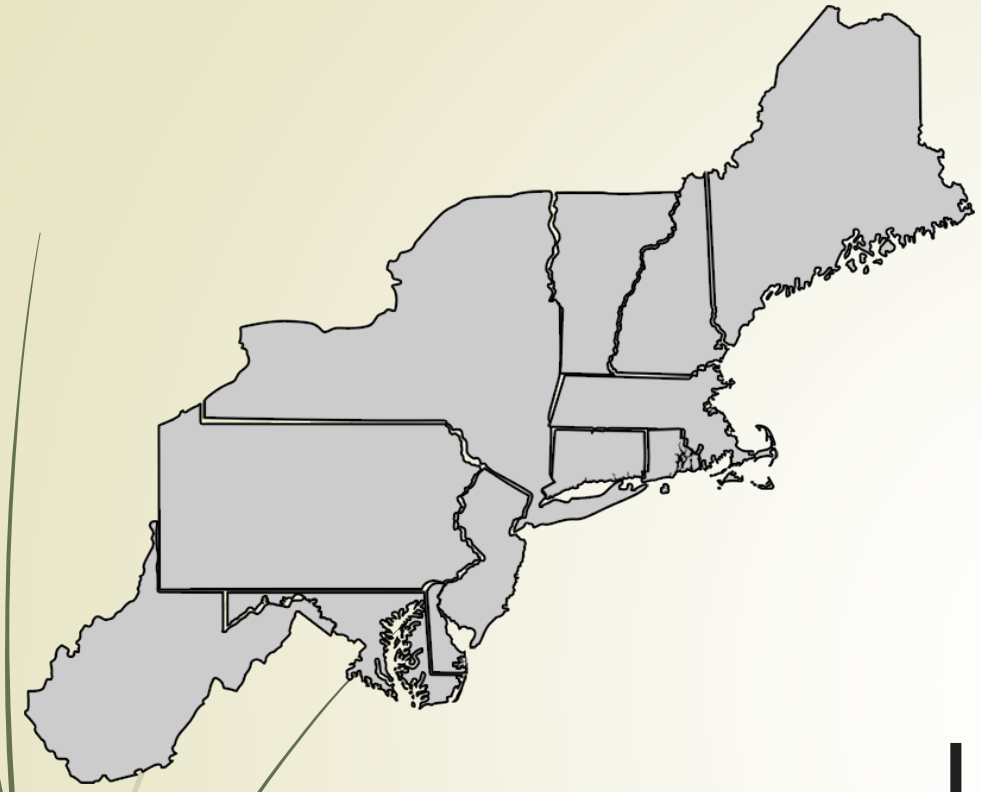


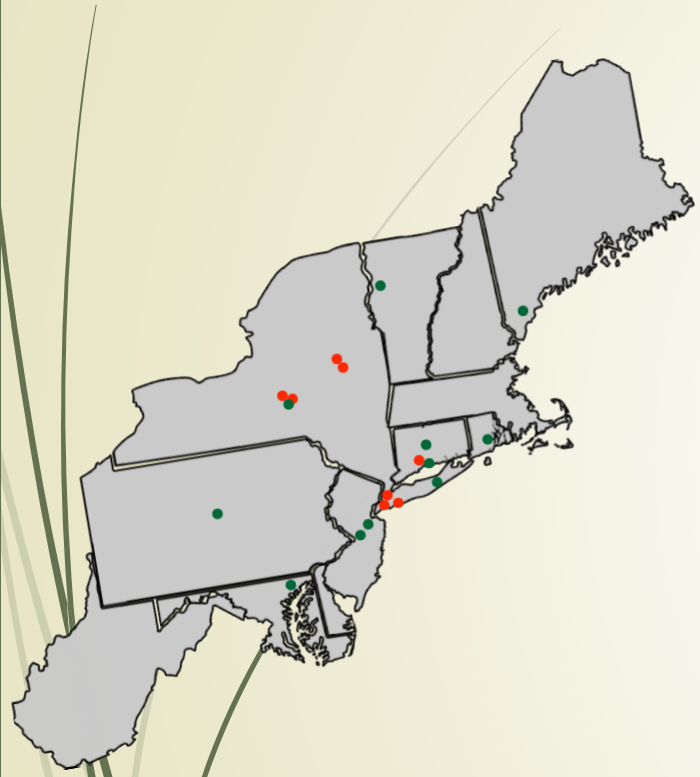
Updates from the Northeast Regional Center for Excellence in Vector-Borne Diseases

Our Leadership Team

- Cornell University, Department of Entomology (Center Hub)
  - Laura Harrington, PhD (Principal Investigator, Program Director)
- Connecticut Agricultural Experiment Station
  - Theodore Andreadis, PhD (Co-Principal Investigator)
- New York State Department of Health
  - Bryon Backenson, MS (Co-Principal Investigator)
- Wadsworth Center, NYSDOH
  - Laura Kramer, PhD (Co-Principal Investigator)
- Columbia University, Department of Ecology, Evolution & Environmental Biology
  - Maria Diuk-Wasser, PhD (Co-Principal Investigator)

Our Regional Partners

Over 60 partners across more than 20 organizations in the Northeast



- Connecticut Department of Public Health
- Cornell College of Veterinary Medicine
- Cornell College of Agriculture and Life Sciences
- Earth Institute, Columbia University
- Calder Center, Fordham University
- Johns Hopkins University
- Maine Medical Center Research Institute
- New Jersey Mosquito Control
- New York City Department of Mental Health & Hygiene
- New York State Integrated Pest Management
- Pennsylvania State University
- Rutgers University
- Suffolk County (NY) Health Department
- SUNY at Albany
- University of Rhode Island Department of Plant Sciences & Entomology
- Vermont Department of Health
- Yale School of Public Health

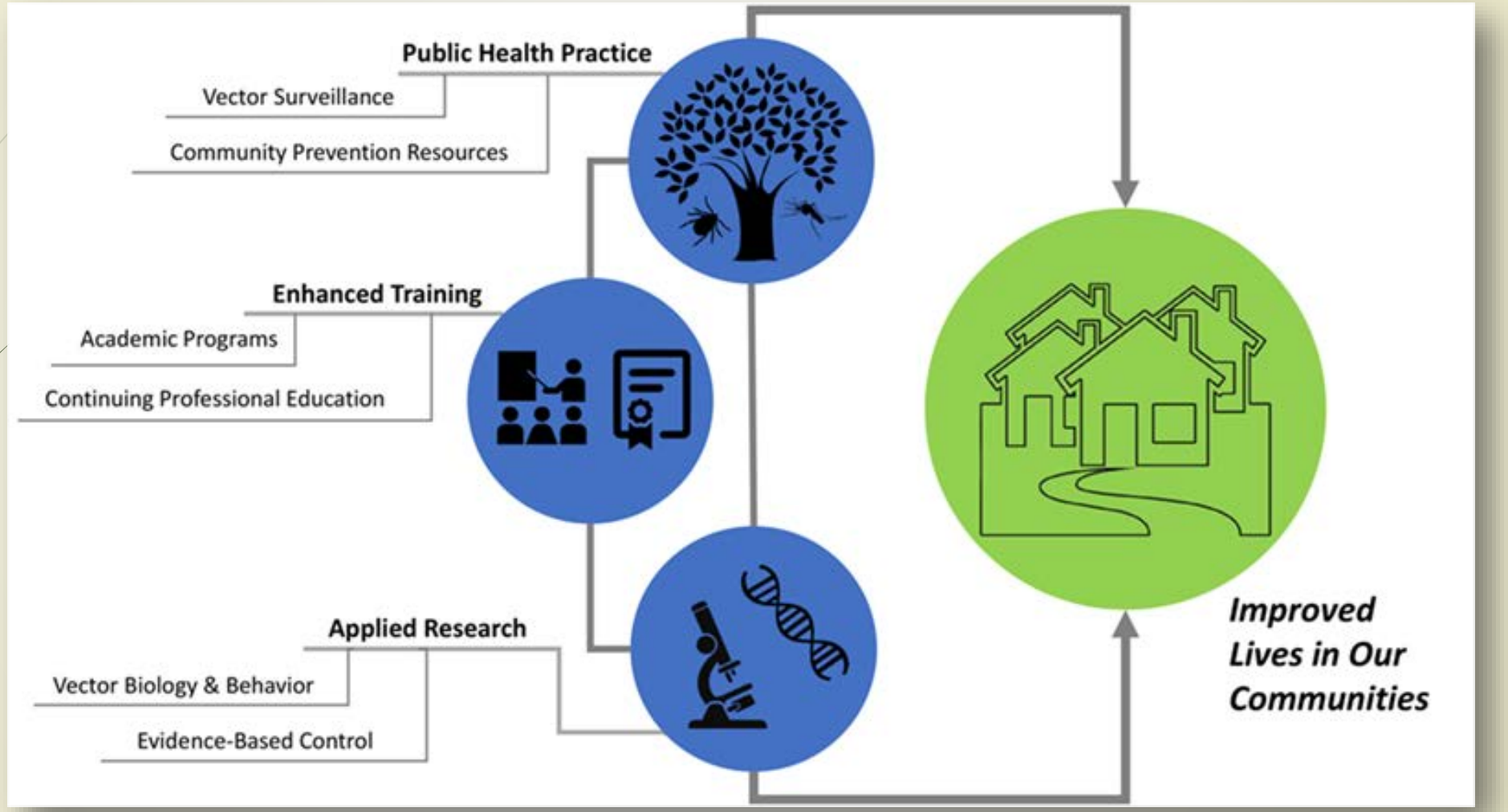
Our Goals

- **Train a cadre of public health entomologists** with the knowledge and skills required to rapidly detect, prevent and respond to vector-borne disease threats in the US

- **Build effective communities of practice** via collaborations between academic communities and public health organizations at federal, state, and local levels for vector borne disease surveillance, response and prevention

- To conduct applied research to **develop and validate effective vector-borne disease prevention and control tools and methods** necessary to anticipate and respond to disease outbreaks

Structure of Our Network



Academic Training Programs

- Master of Science in Entomology at Cornell University
  - Concentration: Medical and Veterinary Entomology
  - Program Focus: Vector Biology
  - Incoming class Fall 2018
- Master of Public Health Program at Cornell University
  - Concentration in Infectious Disease Epidemiology
  - Co-instruction of students
  - Placement for practicum and capstone experiences

MS in Entomology

- Foundation in skills needed to work in fields of
  - Public health vector-born disease surveillance
  - Vector surveillance and control
- Development of new courses
  - Introduction to Disease Vectors
  - Vector-Borne Disease Control Lab
  - Vector-Borne Disease Modeling
  - Topical Seminars
- Public Health training
  - Epidemiology
  - Public Health Foundations
  - Public Health Ethics and Leadership

10-week Internship Topical Areas

- Vector biology & modeling
- Vector surveillance
- Vector control
- Insecticide resistance
- Repellents
- Big data management
- Novel strategies for vector control
- Public health messaging
- Public perceptions of vector-borne disease

Professional Training Efforts

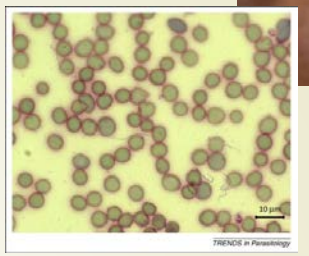
- **NEVBD Needs Assessment & Workforce Interviews**
  - Training needs:
    - vector/pathogen identification
    - vector surveillance techniques
    - vector ecology and behavior
    - enhanced communication
  - Training delivery: short courses, online webinars with targeted content
- **2018 Plans:**
  - Explore development of physician-targeted content
  - Development of targeted webinars on focal public health topics
- **2018 Vector Biology Boot Camp**
  - Louis Calder Center, May 22-24, 2018
  - Accepting applications until March 2, 2018 (visit our website to apply)
  - Course curriculum in development

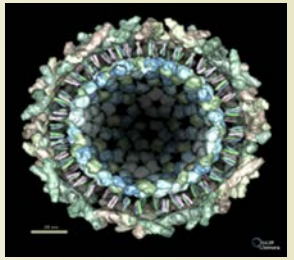
2018 Vector Biology Boot Camp

Arthropod Surveillance	Review of arthropod biology and behavior, major regional diseases and emerging threats, and key components of a vector surveillance program
Arthropod Collection & Testing	Hands-on exercises in monitoring and collecting ticks and mosquitoes. Review of best practices for processing field samples and how they are subsequently tested for pathogens.
Taxonomy & Identification	Hands-on exercises in the use of taxonomic keys for arthropod identification
Vector Control	Review of current vector control strategies for ticks and mosquitoes
Data Interpretation & Management	Overview of best practices for data entry and management; use of data to understand trends and inform program strategies; and best practices for displaying data to stakeholders

http://neregionalvectorcenter.com/training-career-resources

Applied Research and Public Health Challenges for the Northeast





- Invasive species range expansion
- Existing and emerging pathogens
- Need for new surveillance tools
- Need for new control strategies
- New diagnostics for human and arthropod samples
- Funding shortfalls to support applied research

Asian Tiger Mosquito

Black legged tick or 'deer tick'

Lone Star tick

Research Cluster 1: Evaluation of Novel Trapping & Surveillance Methods

Philip M. Armstrong

Theodore Andreadis

2018 Priorities:

1. Efficacy comparisons between existing traps and modified traps
   - Use of modified lures on BG traps
2. Continuation of larval surveys and citizen science efforts
3. Review of regional capacity for active tick surveillance

Research Cluster 2: Predicting Current & Future Human Risk of Infection

- **Focus Are**
  human risk
- **Focus Are**
  borne dise
- **Focus Are**
  vectors in

Maria Diuk-Wasser

2018 Priorities:

1. Continue development of TickApp
2. Continue development of climate models for key pathogens and vectors
3. Analysis of passive tick surveillance data
   - Tick testing labs across the region
   - Companion animal and wildlife passive surveillance
4. Explore standardization of surveillance methodologies to enhance regional-scale modeling efforts

Research Cluster 3: Vector-Pathogen Interactions & Vector Competence

- **Vector incr**

NEW YORK STATE

Wadsworth Center
NEW YORK STATE DEPARTMENT OF HEALTH

Laura Kramer

2018 Priorities:

1. Baseline competence of Northeast *Ae. albopictus* strains
2. Impact of temperature variations on tick and mosquito vectorial capacity
3. *Ae. triseriatus* and La Crosse virus
4. Standardization of protocols across project teams

Research Cluster 4: Field Biology & Climate, Diapause and Overwintering

- Climate and
- Overwinterin
- Overwinterin
- Blood feedin

2018 Priorities:

1. Blood feeding and foraging behavior of *Ae. albopictus*
2. Continuation of tick overwintering studies in CT and ME
3. Lone Star tick overwintering and range expansion
4. Continuation of *Ae. albopictus* diapause study in Lower Hudson Valley
5. Host interactions of juvenile ticks

CAES
The Connecticut Agricultural Experiment Station
Putting Science to Work for Society since 1875

Goudarz Molaei

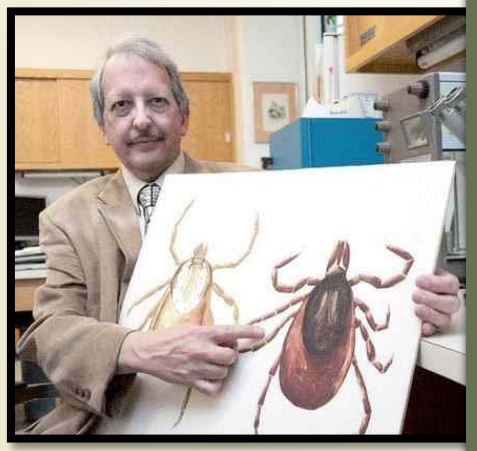
La

Research Cluster 5: Chemical Control, Resistance Monitoring & Management

- Testing new and ir
- Region-wide resist

2018 Priorities:

1. Enhance partnerships with key organizations
2. Conduct resistance testing of ticks & mosquitoes
3. Resistance mapping in Northeast
4. Assess regional capacity for routine seasonal mosquito and tick control
5. Testing of tick and mosquito products in the field, including cost & efficacy evaluations



Kirby Stafford

NORTHEAST REGIONAL CENTER FOR EXCELLENCE IN VECTOR-BORNE DISEASES

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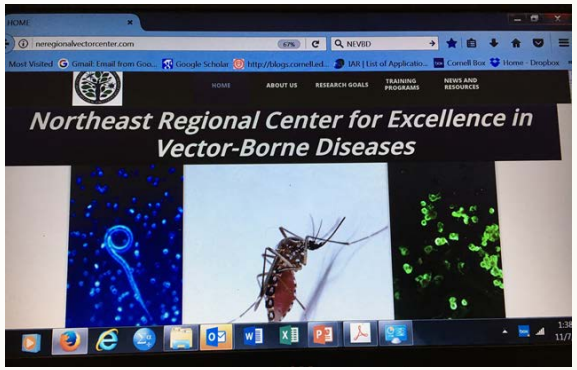
Visit us online at:

Neregionalvectorcenter.com



The Northeast Regional Center for Excellence in Vector-Borne Diseases is supported through Cooperative Agreement Number 1U01CK000509-01 between the Centers for Disease Control and Prevention (CDC) and Cornell University