

## ILIA ROCHLIN, PHD

Laboratory Director/Entomologist

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## Research Interests

I address the “mosquito” problem or any other scientific inquiry within the ecological framework as part of a complex system of interacting environmental, social, and biological factors. Hence, my interests encompass a broad range of topics from purely entomological such as mosquito habitat characterization or molecular identification of vector species to West Nile virus eco-epidemiology to the effects of salt marsh restoration on mosquitoes and other marsh inhabitants. The underlying commonality among those diverse interests is a strict quantitative approach driven by statistical modeling. I often rely on Geographic Information Systems (GIS) for analysis because most ecological questions involve a spatial component. My professional interests overlap with my long standing fascination with “old fashioned” natural history and pursuits in macrophotography.

### Current areas of interest

- Ecology and epidemiology of West Nile Virus transmission cycle
- Exotic container *Aedes* mosquito species
- Analysis of long term trends in mosquito populations
- Salt marsh health assessment, restoration, and mosquito control
- Pesticide efficacy monitoring
- Tick biology and control

### Completed projects

#### West Nile virus

- Designed and completed a modeling study on epidemiological human risk for West Nile virus (WNV) in Suffolk County, NY (Ph.D. Dissertation, Rochlin et al. 2011)
- Investigated early predictors for WNV late season activity (Ginsberg et al. 2010)
- Developed and completed a USDA funded study on West Nile virus (WNV) hotspots and their entomological components (Rochlin et al. 2009)
- Characterized landscape ecology of WNV and EEEV vector species (Rochlin et al. 2008)

#### Mosquito vector biology and ecology

- Investigated the bionomics of important WNV vector species (Rochlin et al. 2008)
- Improved methodology for molecular identification of WNV mosquito vectors (Rochlin et al. 2007)

- Developed and carried out a CDC funded study on ecology and vectorial capacity of *Culex* species to transmit WNV in field and laboratory (Ebel et al. 2005)

#### Salt marsh and wetland entomology, ecology and restoration

- Conducted comprehensive analysis of a long-term salt marsh restoration project (Rochlin et al. 2012)
- Assisted in developing Integrated Marsh Management (IMM) concept (Rochlin et al. 2012)
- Applied novel geographic methodology to salt marsh mosquito control assessment (Rochlin et al. 2009)
- Characterized aquatic insect communities on salt marches (Rochlin et al. 2011)

#### Invasive container *Aedes* species

- Investigated temporal and spatial characteristics of invasive container *Aedes* species in northeastern US (Rochlin et al. 2012)
- Conducted a modeling study on *Aedes albopictus* expansion in northeastern US (Rochlin et al. 2013)

#### Tick biology and control

- Conducted and analyzed large scale tick control trial on Long island, NY (Rochlin and Gilrein, in preparation)
- Compiled a review of ticks of medical importance in Suffolk County, NY (Suffolk County Tick Management Task Force report)

## Educational Background

- Ph.D. in Health Sciences, TUI/Touro College (2010)
- Ph.D. Program in Entomology, Cornell University (2000-2002)
- M.S. in Biology, Weizmann Institute of Science (1999)
- B.S. in Biology, Tel Aviv University (1995)

## Professional Experience

- Laboratory Director and Entomologist (2005-present), Division of Vector Control, Suffolk County DPW, New York
- Biologist (2004-2005), Arthropod-Borne Disease Laboratory, Suffolk County Department of Health Services, New York
- Research Scientist (2003-2005), Arthropod-Borne Disease Program , New York State Department of Health
- Assistant Research Scientist (2002-2003), Arbovirus Laboratories, New York State Department of Health

## Publications

- Rochlin I, Ninivaggi DV, Hutchinson ML, Farajollahi A (2013) Climate change and range expansion of the Asian Tiger mosquito (*Aedes albopictus*) in northeastern USA: implications for public health practitioners. *PLoS ONE* 8(4). Full text at: <http://dx.plos.org/10.1371/journal.pone.0060874>
- Rochlin I, Gaugler R, Williges E, and Farajollahi A (2012) The rise of the invasives and decline of the natives: insights of competitive displacement and reduction revealed from adult populations of the mosquitoes *Aedes albopictus*, *Aedes japonicus*, and *Aedes triseriatus* (Diptera: Culicidae) in temperate North America. *Biological Invasions* 15(5): 991-1003. Full text at: <http://link.springer.com/article/10.1007/s10530-012-0345-3/fulltext.html>
- Rochlin I, James-Pirri MJ, Adamowicz SC, Wolfe RJ, Capotosto P, Dempsey ME, Iwanejko T, and Ninivaggi DV (2012). Integrated Marsh Management (IMM): a new perspective on mosquito control and best management practices for salt marsh restoration. *Wetlands Ecology and Management* 20(3): 219-232
- Rochlin I, James-Pirri MJ, Adamowicz SC, Dempsey ME, Iwanejko T, and Ninivaggi DV (2012). The effects of Integrated Marsh Management (IMM) on salt marsh vegetation, nekton, and birds. *Estuaries and Coasts* 35(3): 727-742.
- Rochlin I, Turbow D, Gomez F, Ninivaggi DV, Campbell SR (2011) Predictive Mapping of Human Risk for West Nile Virus (WNV) Based on Environmental and Socioeconomic Factors. *PLoS ONE* 6(8). Full text at: <http://www.plosone.org/article/info:doi/10.1371/journal.pone.0023280>
- Rochlin I, Dempsey ME, Iwanejko T, and Ninivaggi DV (2011). Aquatic insects of New York salt marsh associated with mosquito larval habitat and their potential utility as bioindicators. *Journal of Insect Science* 11:172. Full text at <http://insectscience.org/11.172>
- Ginsberg HS, Rochlin I, and Campbell SR (2010). The use of early summer mosquito surveillance to predict late summer West Nile Virus activity. *Journal of Vector Ecology* 35(1): 35-42.
- Rochlin I, Ginsberg HS, and Campbell SR (2009). Distribution and abundance of host-seeking *Culex* species at three proximate locations with different levels of West Nile virus (WNV) activity. *American Journal of Tropical Medicine and Hygiene* 80: 661-668. Full text at: <http://www.ajtmh.org/content/80/4/661.full.pdf+html>
- Rochlin I, Iwanejko T, Dempsey M, Ninivaggi D (2009). Geostatistical evaluation of integrated marsh management impact on mosquito vectors using before-after-control-impact (BACI) design. *International Journal of Health Geographics* 8:35. Full text at: <http://www.ij-healthgeographics.com/content/8/1/35>
- Rochlin I, Harding K, Ginsberg HS, and Campbell SR (2008). Comparative analysis of distribution and abundance of West Nile and Eastern Equine Encephalomyelitis Virus vectors in Suffolk County, New York, using human population density and land use/cover data. *Journal of Medical Entomology* 45 (3): 563-571.

- Rochlin I, Dempsey M, Campbell SR, and Ninivaggi, D (2008). Salt marsh as *Culex salinarius* larval habitat in coastal New York. *Journal of the American Mosquito Control Association* 24(3):359-367.
- Rochlin I, Santoriello MP, Mayer RT, Campbell SR (2007) Improved high-throughput method for molecular identification of *Culex* mosquitoes. *Journal of the American Mosquito Control Association* 23(4):488-91.
- Ebel GD, Rochlin I, Longacker J, and Kramer LD (2005) *Culex restuans* (Diptera: Culicidae) relative abundance and vector competence for West Nile Virus. *Journal of Medical Entomology* 42 (5): 838-843.
- Alami, R, Gilman JG., Feng YQ, Marmorato A, Rochlin I, Suzuka SM, Fabry ME, Nagel RL, and Bouhassira EE (1999). Anti- $\beta$  s-Ribozyme Reduces  $\beta$  s-mRNA Levels in Transgenic Mice: Potential Application to the Gene Therapy of Sickle Cell Anemia. *Blood Cells, Molecules, and Diseases* 25(2): 110-119.

## Honors and Awards

- Travel Grant iDigBio Insect Collection Digitization Workshop
- Invited Speaker Salt Marsh Mosquito Management Structural Decision Making, US Fish and Wildlife Service
- Outstanding Reviewer, Coastal and Estuarine Research Federation
- Cornell University Entomology Department Graduate Research Scholarship
- Weizmann Institute of Science, Feinberg Graduate School Fellowship
- Tel Aviv University cum laude

