

Natural & Cultural Resources Update



Brookhaven National Laboratory

CAC – Nov. 9, 2017

Tim Green

70 YEARS OF
DISCOVERY

A CENTURY OF SERVICE



BROOKHAVEN
NATIONAL LABORATORY

Agenda

- 2016 SER Chapter 6
- Cultural Resources Update
- Natural Resources Update

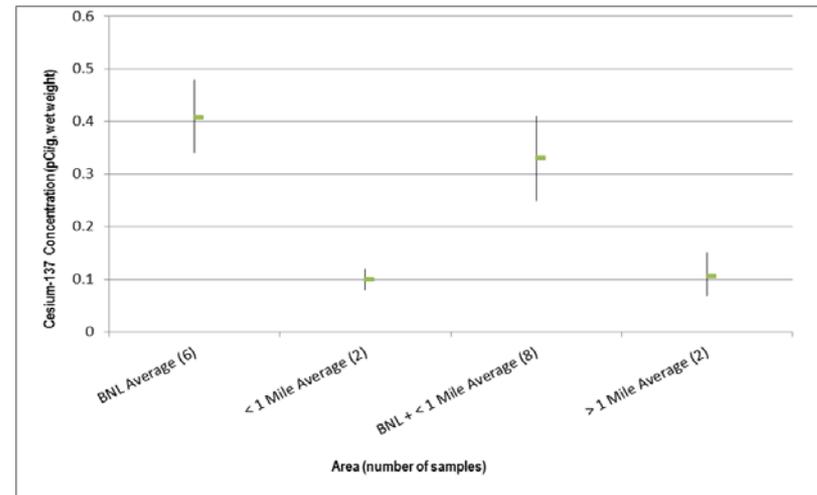
Chapter 6 - Natural and Cultural Resources

■ Natural Resource Management

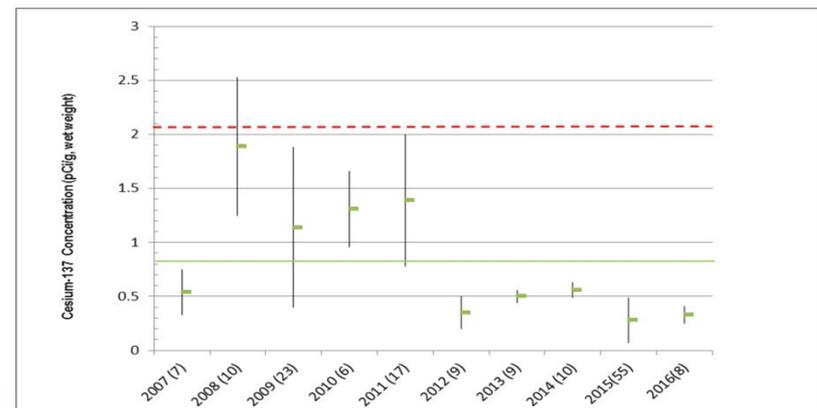
- Deer Management – end of year population of ~ 450-500
- Turkey population at ~500 due to very successful reproduction
- Continued opportunities for interns looking at a variety of ecological topics

■ Surveillance Monitoring

- Cs-137 in deer had similar results as past years - highest value 1.69 pCi/g, wet weight, on-site RHIC area
- Ten-year trend shows decline; 2016 on-site average in meat was 0.41 pCi/g, wet weight, with ten year on-site average being 0.83 pCi/g, wet weight



Comparison of Cs-137 Average Concentrations in Deer Meat (2016)



Ten-Year Trend of Cs-137 Concentrations in Deer Meat



Chapter 6 - Flora and Fauna Monitoring (continued)

- **Fish surveillance monitoring**
 - Approach to fish monitoring altered to reflect absence of discharge to the Peconic
 - Peconic River Dry – no fish monitoring
- **Cs-137 in terrestrial vegetation and soils**
 - Grassy vegetation and soils similar to past years
 - Vegetation highest value 0.08 pCi/g wet weight
 - Soil highest value 0.88 pCi/g dry weight
- **Precipitation monitoring**
 - Low level mercury – highest value 19.1 ng/L

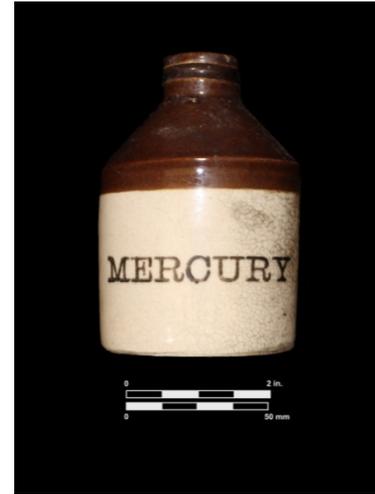
Chapter 6 - Cultural Resource Management

■ Cultural Resource Activities 2016

■ Discovery Park

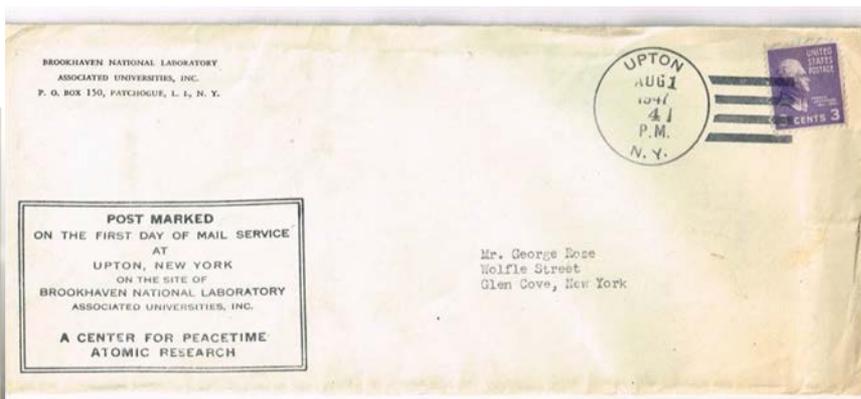
- Archeological survey – 989 shovel test pits, 2,099 artifacts mostly glass and nails – no significant archeological resources
- Architectural evaluation – four 1960s era efficiency apartments – determined to be eligible for listing on the National Register

- Planning for 70th Anniversary of BNL and 100th Anniversary of Camp Upton



2017 Cultural Resource Update

- **Tagging Project – minor additions**
- **70th – 100th Anniversary Celebrations**
 - **Summer Sundays – July 16th**
 - Camp Upton & BNL displays
 - Lab history driving tour
 - **Loan of Camp Upton materials to Suffolk County Historical Society & Town of Brookhaven**
 - **70th Anniversary Celebration**
 - **70th Anniversary Post Mark – Aug. 1**
 - History of BNL Site talk
 - **Final Celebration today – Veterans Day Celebration**



70 YEARS OF DISCOVERY

A CENTURY OF SERVICE

BROOKHAVEN LAB 70 YEARS OF DISCOVERY STATION
AUGUST 1, 2017 • UPTON, NY 11973

2017 Natural Resource Update

■ Peconic River

- Sediment in process of being shipped to Energy Solutions in Utah

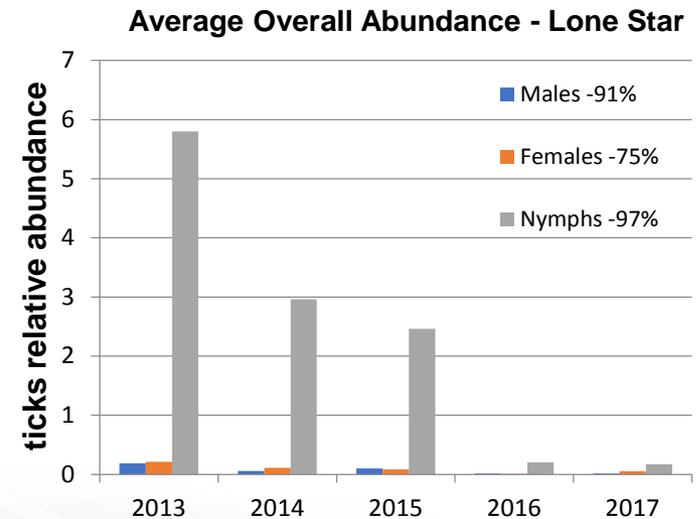
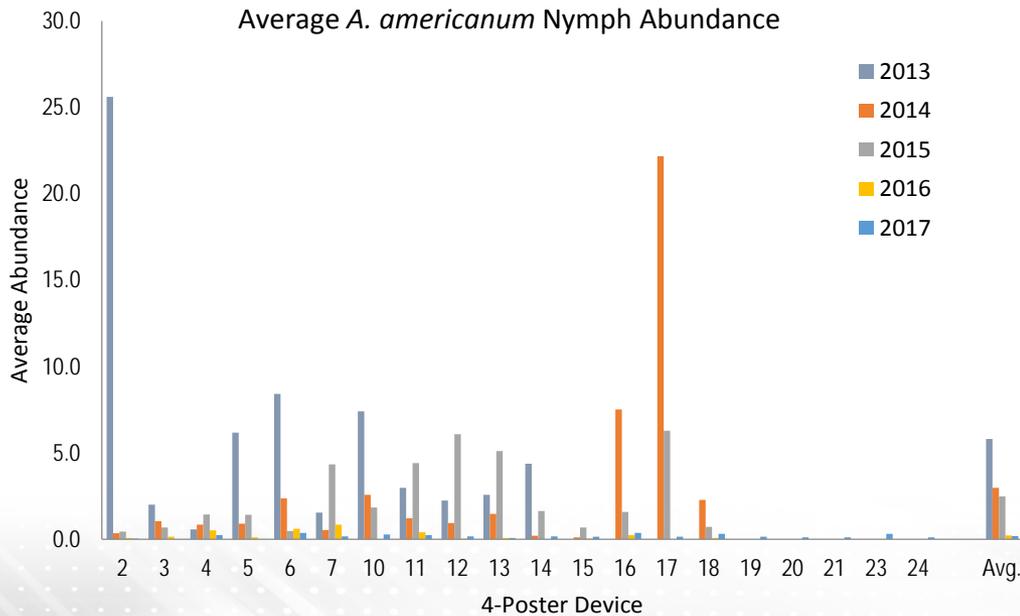
■ Deer Management

- 2017 cull (202 deer removed)
 - A few deer starting to be seen in open areas
- Planning for other considerations
 - Current population estimated between 210 – 300 deer
 - Need to take 100+ annually to maintain herd
 - Target population <250



Natural Resource Update

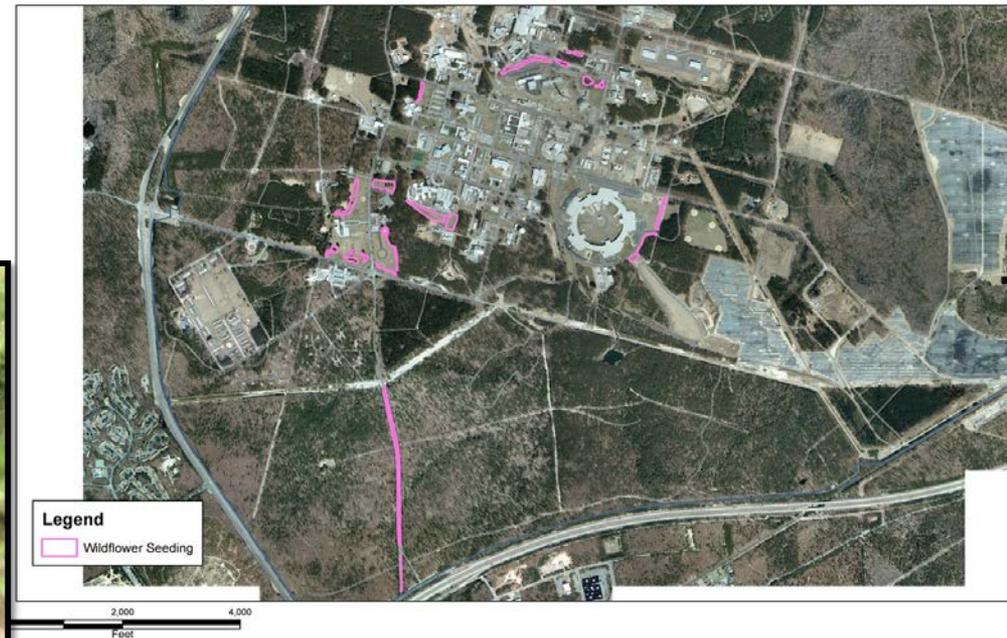
- 4-Poster – year five
 - Increase in corn consumption – turkeys, raccoons, geese, squirrels
 - Continued drop in tick numbers
 - Drought helping?
 - Fewer deer helping?



Natural Resource Update

■ Pollinators - 2017 Actions

- Assess no-mow areas
 - Plantings not successful – drought
 - Some areas more supportive than others – NSLS-II
- Assess Long Island Solar Farm
 - Pollinator support plants plentiful
 - 21 total species of wildflowers - mostly non-native
 - 19 butterfly species
 - 9 bee species

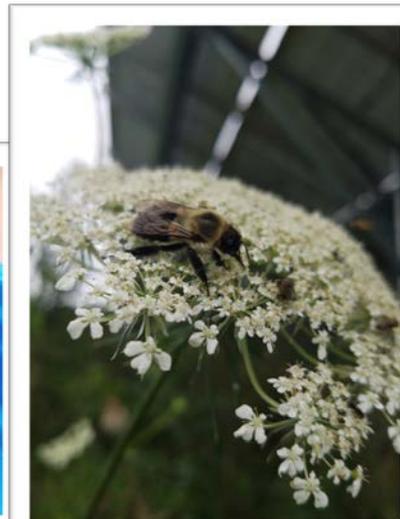


Papilio polyxenes (Black Swallowtail)

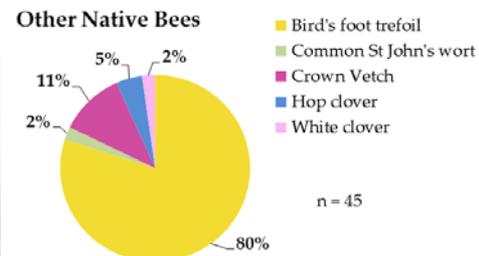
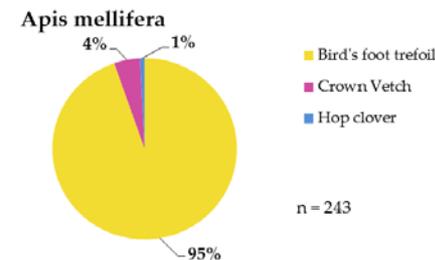
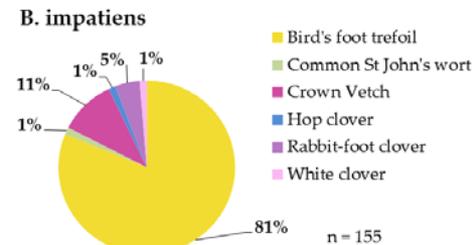
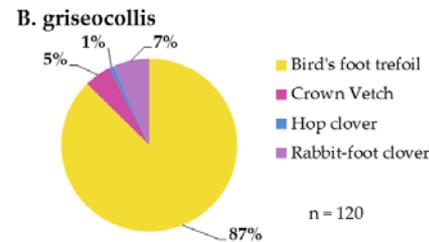
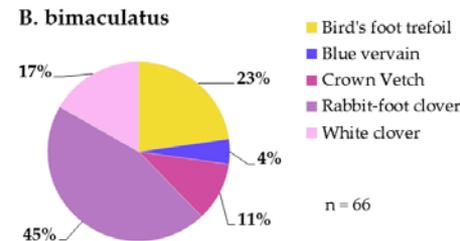
Junonia coenia (Common Buckeye)

Comparison of areas - bees

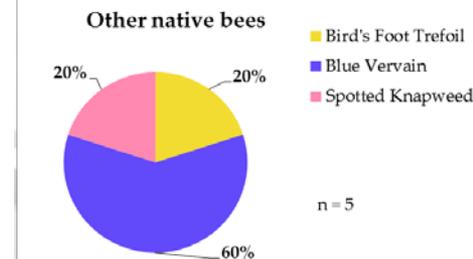
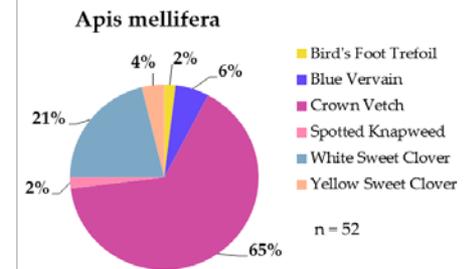
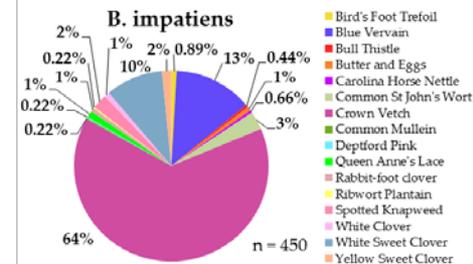
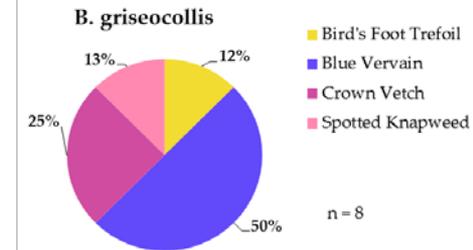
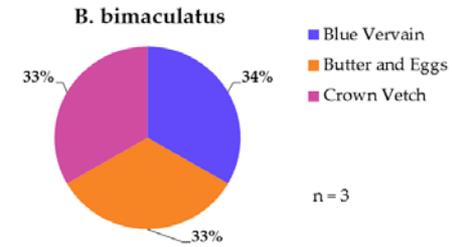
- No-mow areas less diversity of plants
- LISF – high plant diversity
- Bees utilize resources differently
 - Ex. *B. impatiens* – generalist, *B. bimaculatus* more specialist



No-mow



Solar Farm 1



Natural Resource Update

- Prescribed fire
 - Three successful growing season fires



- Increased experience
- Building capacity
- Training

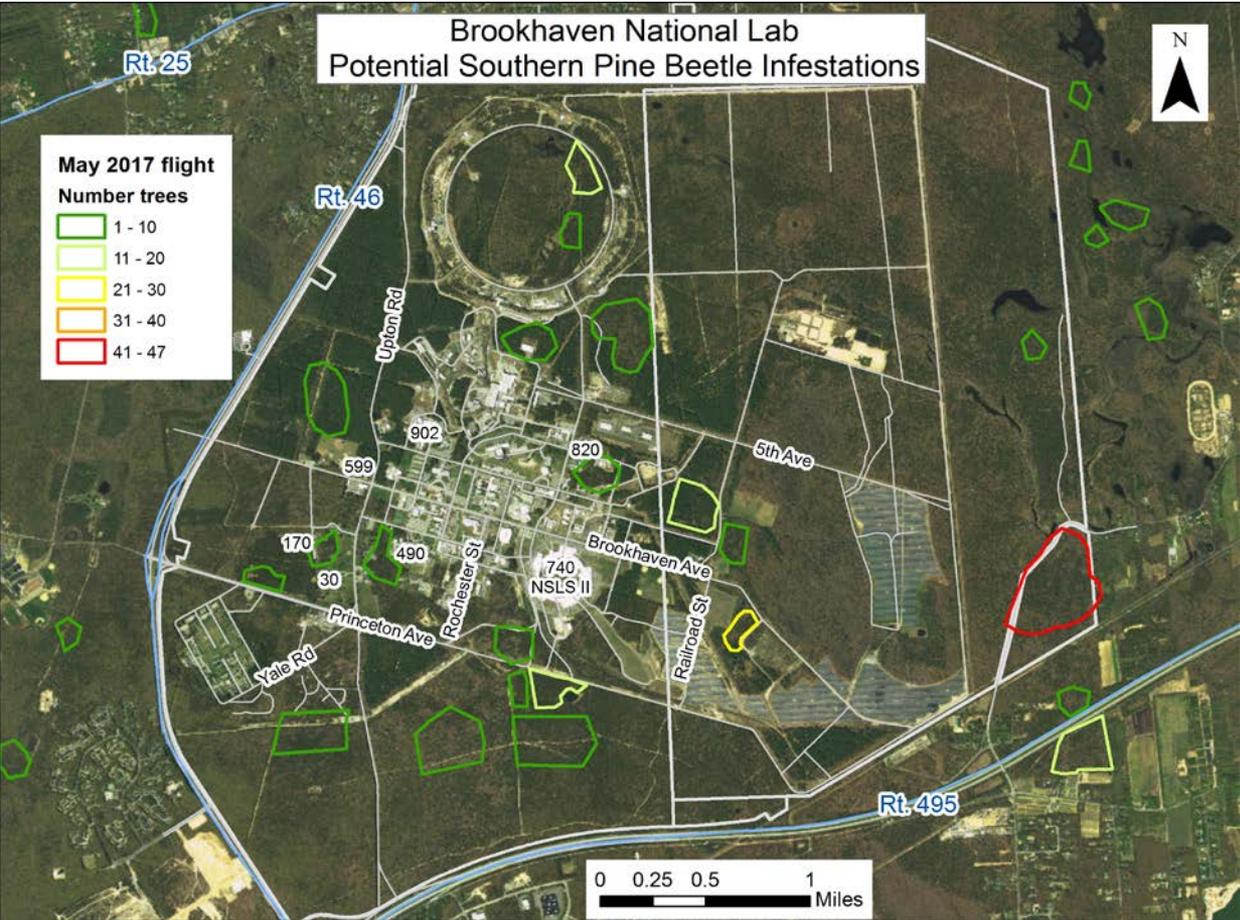


70 YEARS OF
DISCOVERY
A CENTURY OF SERVICE

Natural Resource Update

■ Southern Pine Beetle

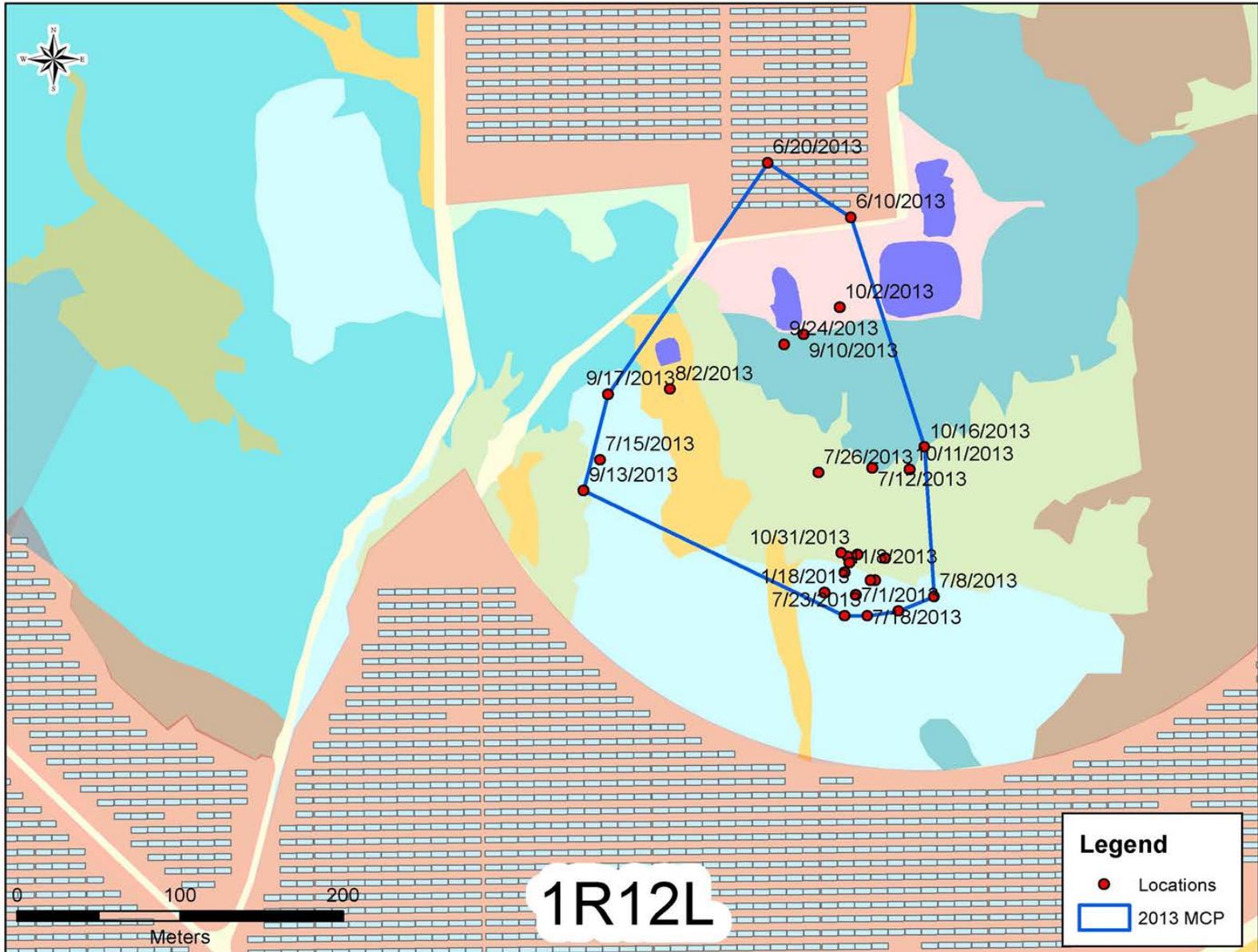
- Suppression event – Summer 2017
- 17 acres – SE corner of Lab
- 81 trees felled
- No cost to BNL



Eastern box turtles

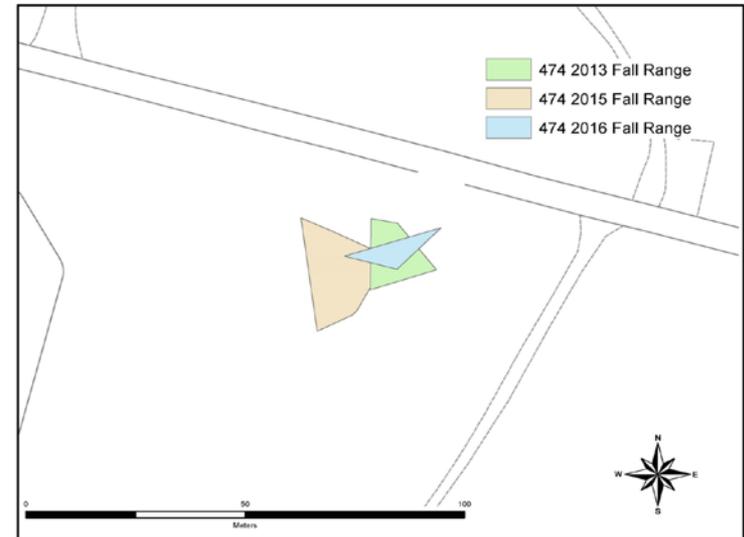
- Turtles tracked over 7 years using radio-telemetry
 - 2011 – 6 Turtles tracked
 - 2012 – 26 Turtles tracked
 - 2013 – 26 Turtles tracked
 - 2014 – 26 Turtles tracked
 - 2015 – 24 Turtles tracked
 - 2016 – 24 Turtles tracked
 - 2017 – 21 Turtles tracked
- Home Range and general movements





Other Turtle Work

- Fecundity – reproductive ability
- Internal Dataloggers
 - Overwintering temps
- Hibernation site, site fidelity
- GPS testing
- Habitat selection



Natural Resource Update

- Long Island is largest land mass in North America w/out coyotes
 - Coyotes expected to become established in next several years
 - Opportunity to study ecological changes as they become established
 - Impacts to small mammals/Lymes
 - Impacts to mesocarnivores
 - Impacts to other species

