Update Natural and Cultural Resources

Brookhaven National Laboratory

Community Advisory Council

November 14, 2019

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Environmental Protection Division

BROOKHAVEN
NATIONAL LABORATORY

U.S. DEPARTMENT OF
ENERGY

Agenda

- **2018 SER Chapter 6**
- **Natural Resources Update**
- **Cultural Resources Update**

Chapter 6 - Natural and Cultural Resources

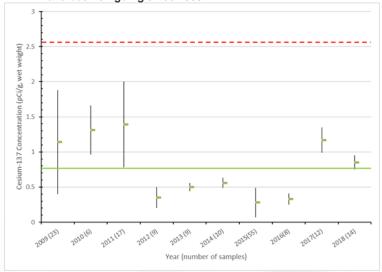- **Natural Resource Management**
    - Deer Management
        - End of year population ~ 400
    - One successful prescribed fire
    - Continued opportunities for interns looking at a variety of ecological topics
        - Long-time collaborator honored for outstanding mentorship

- **Surveillance Monitoring**
    - Cs-137 in deer had similar results as past years - highest value 2.29 pCi/g, wet weight, off-site on Route 25. Highest onsite value was 2.19 pCi/g, wet weight.
    - Ten-year trend shows decline; 2018 on-site average in meat was 0.97 pCi/g, wet weight, with ten year on-site average being 0.79 pCi/g, wet weight

Murty Kambhampati (third from left) with interns and BNL collaborator Tim Green (fourth from left). Collaborations have been on going since 2006.

Ten-Year Trend of Cs-137 Concentrations in Deer Meat, dashed line is pre-cleanup avg. (2.57 pCi/g, wet weight), solid line is 10-year average (0.79 pCi/g, wet weight).

Chapter 6 - Flora and Fauna Monitoring (continued)

- **Fish surveillance monitoring**
  - Peconic River dry most of year – no fish monitoring
- **Peconic River Clean-up**
  - Final 2600 sq. ft. area naturally restoring, mostly open water habitat.

- **Terrestrial vegetation and soils**
  - Grassy vegetation and soils similar to past years, highest veg. value was 0.22 pCi/g wet weight, highest soil was 0.22 pCi/g dry weight.
- **Precipitation monitoring**
  - Low level mercury – highest value 8.59 ng/L
  - Mercury in precipitation is higher than what is seen Sewage Treatment Plant effluents

2017

2019

Chapter 6 – Wildlife Programs

- **Internships**
  - 10 Undergraduate Interns
  - 2 Faculty Members (Hofstra and SUNO)

- **Projects**
  - Eastern box turtles – final summer
  - Small mammals and ticks – pre-coyote data collection
  - Forest health – deer exclosure surveys
  - 4-Poster altered feeding schedule experiment
  - Pollinator studies – established protocols for the LISF.

- **MOU w/SUNY College of Environmental Science and Forestry (SUNY - ESF)**
  - Selection of first project – Forest Health Monitoring

Chapter 6 - Cultural Resource Management

- **1960s-era efficiency apartments**
    - Apartments eligible for listing on National Register
    - Formal recordation completed submitted to New York State Historic Preservation Officer (NYSHPO)
    - NYSHPO requested Memorandum of Agreement
        - Recommend saving portion of one apartment building
    - Cement roads from WW I Camp Upton evaluated for historic significance
        - Determined not eligible as they could not be confirmed from 1917-1918 period.

Natural Resource – 2019 Update

- **Deer Management**
    - April 2019
    - Initial population estimated ~350 (this was likely low; probably between 400-500)
    - 250 deer taken, 5,467 lbs. of meat donated
    - 50 batch samples tested for Cs-137, nothing above 0.20 pCi/g, wet weight; avg. 0.06 pCi/g, wet weight
    - Current estimate (fall 2019) before surveys ~ 250
    - Working on Interagency Agreement between DOE and USDA

- **Fire Management**
    - Wildland Fire Management Plan in place
    - Prescriptions in place
    - Continued work to establish Memorandum of Understanding with NYSDEC or Central Pine Barrens Commission

Natural Resource – 2019 Update

- **MOU between BNL and SUNY - ESF**
  - First Summer of Forest Health Monitoring
  - 53 of 90+ plots monitored
  - 8 Interns, 1 Professor, 1 Grad student
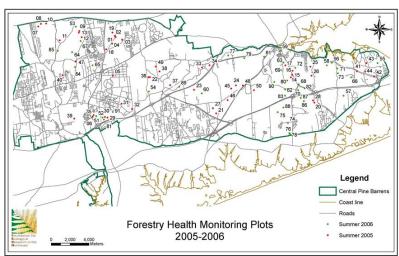
- **Eastern Box Turtles**
  - Data analysis of 2011-2018 data collection started
  - Intern analyzing movement of turtles and use of solar farm (publication almost ready for submission)

- **Pollinator studies**
  - Interns from Southern University New Orleans established three-year study of LISF
  - Continued in 2019
  - Important as New York is establishing requirements for solar farms

- **4-Poster experiment**
  - New cameras purchased for consistency
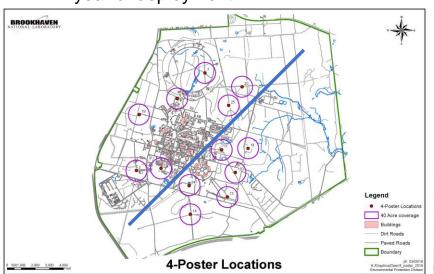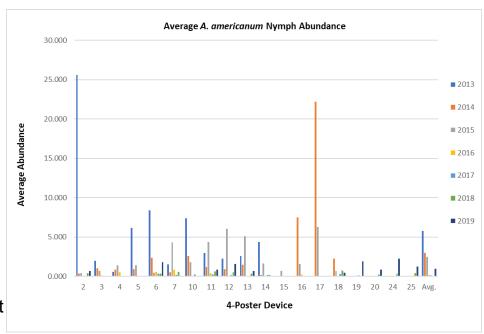 - Second year of modified treatment

Forestry Health Monitoring Plots
2005-2006

Legend
- Central Pine Barrens
- Coast line
- Roads
- Summer 2006
- Summer 2005

8

Natural Resource – 2019 Update

■ 4 – Poster

- ■ Continued deployment – under experimental conditions
  - 3-year experiment
  - 7 devices serviced weekly, 7 devices every 3 weeks
  - 49,050 lbs. of corn over 30 weeks
  - Last year 64,500 lbs. of corn over 31 weeks
- ■ By year 3, 4-Posters were better than 90% effective at reducing ticks in areas of deployment
- ■ Current effectiveness is 84% compared to first year of deployment

Average *A. americanum* Nymph Abundance

4-Poster Locations

Cultural Resource – 2019 Update

- **HFBR Stack D&D**
    - Added Stack to 1999 MOU with NY State Historic Preservation Officer covering the BGRR
    - Compiling information for MOU

- **1960s era efficiency apartments**
    - Recordation submitted to NYSHPO in 2018
    - NYSHPO would like to see at least part of one apartment building saved
    - Negotiating an MOU

- **NYSHPO visit – September 2019**
    - First visit since 2003
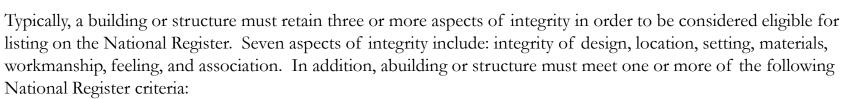   - Representative gained insight about Laboratory

- **Long Island Museum – History of BNL**
    - Identifying artifacts for exhibit

- **Contract established to evaluate science buildings 50+ years of age, plus a couple Camp Upton buildings**
    - More buildings are being determined eligible for listing on National Register

Cultural Resource – 2019 Update

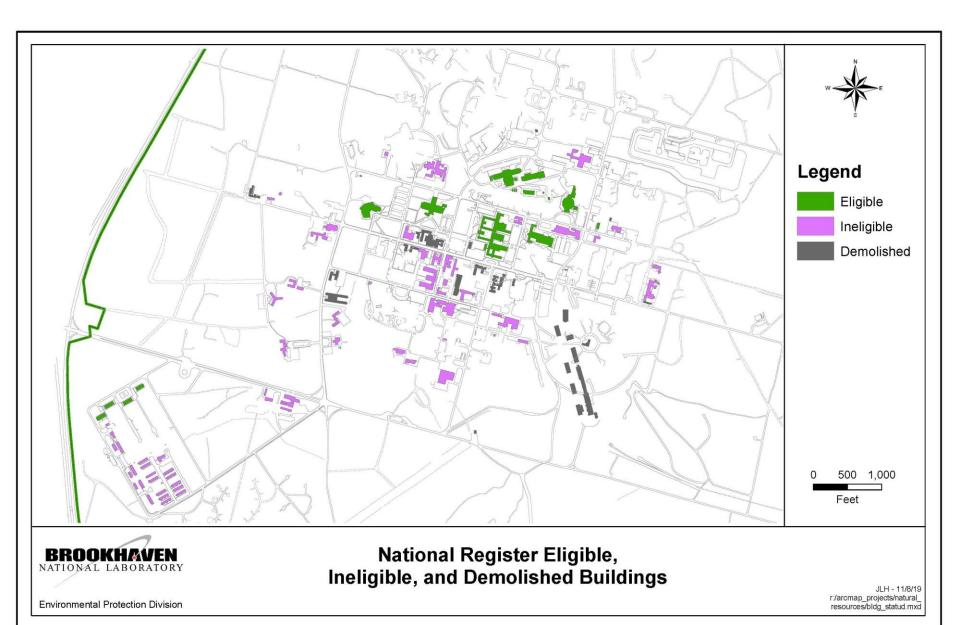- **Building evaluations for buildings 50+ years of age**
    - Evaluation is against four criteria

- **National Register Criteria**

Typically, a building or structure must retain three or more aspects of integrity in order to be considered eligible for listing on the National Register. Seven aspects of integrity include: integrity of design, location, setting, materials, workmanship, feeling, and association. In addition, abuilding or structure must meet one or more of the following National Register criteria:

A) be associated with events that have made a significant contribution to the broad patterns of our history; or
B) be associated with the lives of persons significant in our past; or
C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D) have yielded, or may be likely to yield, information important in prehistory or history.

Legend

- Eligible (green)
- Ineligible (magenta)
- Demolished (dark gray)

0 500 1,000
Feet

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Environmental Protection Division

**National Register Eligible,
Ineligible, and Demolished Buildings**

JLH - 11/8/19
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resources/bldg_statud.mxd

QUESTIONS?