Natural Resource Management Plan Update

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Community Advisory Committee Meeting
December 8, 2011
Agenda

- Quick history of natural resource management on BNL site 1800s-1990s
- Establishment of Upton Reserve
- 2003 NRMP – Accomplishments
- 2011 NRMP – where we’re going
History of Natural Resource Management

- Formal & Informal Management
  - 1850s – 1900s - Cord wood industry, some farming in area of Solar Farm
History of Natural Resource Management

- Formal & Informal Management
  - 1917 - Clearing of area to establish Camp Upton in WW I
  - 1921 – Camp Upton auctioned off
History of Natural Resource Management

- Formal & Informal Management
  - 1934 – 1940 - CCC reforests Upton National Forest
    - Firebreaks
  - 1940 – Clearing for Camp Upton in WW II
History of Natural Resource Management

- **Formal & Informal Management**
  - 1947 - BNL established – maintenance of fire breaks, use of natural areas for experimentation through late 1970s.
  - RCRA Inspection and Consent Order 1993
    - Site wide Biological Surveys 1994 & 1995
    - Wildlife Management Plan (WMP) 1999 – focus on Tiger Salamanders
  - 2000 - Upton Ecological and Research Reserve (Upton Reserve) and Technical Advisory Group (TAG)
WMP/NRMP – 2000 to 2004

- **Upton Reserve**
  - Set aside 530 acres for research purposes
  - Technical Advisory Group – worked to recommend research and review NRMP.
    - NYSDEC, TNC, SC Parks, USFWS, USNPS, CPB Commission, DOE, BSA, CAC, PEP, BER
  - Two U.S. Fish & Wildlife Employees
    - Forest Management
    - Fire Management
    - Evaluation of Deer Population
    - Establish monitoring programs
    - Provide for adaptive management
  - $200K/year for management and research – 5 years
    - Funded for 4 years

- **Foundation for Ecological Research in the Northeast (FERN)** established to carry on research
NRMP - 2003

- NRMP Finalized December 2003
  - Built upon WMP – maintained strong focus on tiger salamanders but expanded to virtually all natural resources
  - Established an “Adaptive Management” approach
  - Integrated other management needs (ex. Cultural Resources)
  - Focus on gaining better understanding of site resources
  - Began or continued managing what we could (salamanders, fish, invasive plants, etc.)
Accomplishments 2003-2011

- Geographic Information System – multiple layers
  - Aerial photos
  - Soils
  - Vegetation
  - Wetlands
  - Protected species
  - Monitoring layers
  - Cultural Resources – WW I, WW II, CCC

- GIS used for planning – NSLS II, LISF, Permits, etc.
Accomplishments 2003-2011

- Plants
  - Vegetation Map for BNL
  - Invasive species mapped (volunteers and interns) – 2003-2005
  - Invasive Species Prevention Zones (ISPZ) established
  - Invasive plant management – 2009 - 2011
Accomplishments 2003-2011

- **Plants**
  - Native Grass Initiative started – now LINPI – producing native plants for restoration work
Accomplishments 2003-2011

- **Plants**
  - Forest health monitoring – 2005 - 2006
  - Baseline vegetation surveys ahead of LISF construction
Accomplishments 2003-2011

- Invertebrates – Building our understanding
  - Damselfly & dragonfly surveys – supportive of NY State damselfly & dragonfly atlas
  - Tiger beetle surveys – BNL and Pine Barrens
  - Burying beetle surveys
  - Pollinator surveys – ahead of LISF construction
Accomplishments 2003-2011

- **Reptiles and Amphibians**
  - 28 of ~32 species on Long Island documented on BNL

- **Eastern tiger salamander**
  - Increased number of known habitats from 15 – 26
  - Increased the size of upland habitat required 850 ft. to 1000 ft. – potentially larger
  - Significant research aiding writing of NYS recovery plan
  - Protections built into construction projects

- **Eastern Hognose Snake**
  - Better understanding of habitat needs

- **Box Turtles**
  - Home range and intraspecific interactions

- **Spotted Turtles**
  - Population restoration
Accomplishments 2003-2011

- **Fish**
  - Banded Sunfish –
    - Rescue ahead of Peconic River Cleanup
    - Multiple population assessments
    - Initial re-introduction to Peconic River after clean-up, additional reintroductions as better cover develops
    - Working with NYSDEC on genetics and distribution on Long Island
  - Swamp Darter
    - Likely gone from BNL due to draught conditions in 2005 (re-introduce?)
  - Recovery Plans (both fish) – still needed
Accomplishments 2003-2011

- Mammals
  - Small mammal surveys –
    - general understanding
    - Baseline prior to LISF construction
  - Flying squirrels – initial surveys
  - Bats
    - 1st documentation of White-nose Syndrome on Island
    - 1st acoustical surveys for Long Island
Accomplishments 2003-2011

Mammals

- White-tailed Deer
  - Gradual progress toward management
  - Significant employee involvement
  - Environmental Assessment Delayed due to Higher Priorities
  - EA to begin Dec. 2011

- Feral Animals & Nuisance Wildlife
  - Long-term management appears to be effective for feral animals
  - Continual issues with nuisance wildlife
Accomplishments 2003-2011

- **Birds**
  - 12 years bird survey data – 116 species documented on 7 permanent transects
  - Data useful for understanding trends, NEPA reviews, changes in habitat
  - Turkeys – Population stable – routinely used by NYSDEC
    - Source for trap and transfer
    - Tagging
  - Geese – population management – mixed success
    - 2008-2010 reduction in population
    - 2011 population increase
Accomplishments 2003-2011

- Research & Interns
  - Work with Office of Education Programs
- 100 + Interns, Teachers, Professors, etc. since 2000
- 100+ projects see http://www.bnl.gov/esd/wildlife/research.asp
Accomplishments 2003-2011

- Interns go on for advance degrees in wildlife, immunology, medicine, veterinary science, environmental science, chemistry, become teachers, etc. (~24 w/advanced degrees)
- Professors build relationship with BNL for use of facilities (NSLS Increase Program)
- Teachers utilize experience in class rooms (aquatic science, soils, insects, genetics) touching thousands of students
Accomplishments 2003-2011

- Natural Resource Management Program foundation of Green Institute - Open Space Stewardship Program (35 schools, 3,000 students involved)
  - Started after 2 Teachers worked within the Natural Resource Program in 2004
    - Established summer workshop
    - Continue to worked with other teachers
NRMP 2011 Update

- Build on previous success
- Learn from past experience
- Key Focus areas
  - Protection of threatened and endangered species and their habitat
    - Tiger salamanders, frosted elfin, banded sunfish, swamp darter, others
  - Management of Invasive Species
    - Continue to reduce distribution of invasive plants, protect ISPZ
  - Deer management
    - Complete EA, implement management strategies
    - Establish deer exclosures
NRMP 2011 Update

- **Focus Areas Continued**
  - **Fire Management**
    - Increase use of prescribed fire
  - **Feral & Nuisance Animal Management**
    - Better policy for handling nuisance animals
  - **Wetland and River Management**
    - Monitor changes in Peconic River due to removal of discharges
      - Improved habitat for banded sunfish?
      - Improved wetland habitat?
      - Are our predictions accurate?
Focus Areas Continued

- Forest Health & Monitoring
  - 5 – 6 years in can we detect changes?
  - Active management of white pines approaching 80 yrs of age
- Continue bird surveys
- Re-establish bluebird boxes (Add 25 new boxes around LISF)
- Climate change – begin focusing on long-term impacts of climate change on local ecosystem
  - Work with other agencies evaluating adaptation options
  - Department of Interior Landscape Level Conservation
- Research – primary focus on LISF next 3-5 years
Long Island Solar Farm - LISF
LISF

- Impacts of Utility Scale Solar Arrays
  - Wildlife impacts
    - Habitat – small mammals, birds, reptiles, amphibians
    - Use of Fence
  - Ecosystem impacts
    - Vegetation
    - Water budgets
    - Microclimate
    - Pollinators
  - Soils
    - Soil chemistry
    - Mercury deposition
Solar Arrays

Summer Sun

Winter Sun
Precipitation

Precipitation Concentrates

Rain Shadow

Precipitation Concentrates
Questions?