

Brookhaven National Laboratory

WILDLIFE MANAGMENT PLAN

ANNUAL REPORT

CALENDAR YEAR 2002

1.0 Introduction

This document summarizes activities carried out under Brookhaven National Laboratory's (BNL) Wildlife Management Plan (WMP) during calendar year 2002. All activities during CY2002 will be discussed. The format will follow past reporting documents. This report will also facilitate development of summary information for the Site Environmental Report for 2002.

2.0 Comprehensive Natural Resource Management Plan

The Technical Advisory Group (TAG) was formed in December 2000. The TAG was formed to provide technical advice and input on the development of the BNL Natural Resource Management Plan (NRMP) and develop criteria for soliciting, reviewing, and approving research to be carried out in the Upton Ecological and Research Reserve (Upton Reserve). The TAG is composed of 10 individuals representing nine groups. The TAG was originally to include twelve members, but the National Park Service declined membership and the Peconic Estuary Program did not respond to the request for participation.

The TAG met 6 times during CY2002. The primary focus of the TAG was to review and approve research to be carried out using FY2002 and FY2003 dollars, review and comment on the Draft Fire Management Plan, and assist in the continued development and review of the draft Natural Resource Management Plan. Portions of several meetings held toward the end of the year focused on fire in wetlands, the BNL proposed cleanup of the Peconic River and the need for basic information concerning wetlands and the Peconic River.

The U.S. Fish and Wildlife Service sent out requests for proposals in August 2002 with several proposals being submitted for review. Proposals ranged from amphibian assemblage research to nutrient cycling dynamics associated with prescribed fire were received. The TAG approved funding research related to nutrient cycling, tiger salamander life history research, and educational programs for undergraduate research.

The first draft of the NRMP was prepared for submission to the TAG by the close of CY 2001. The TAG began reviewing the NRMP and made a decision to go through the goals and actions section by section as they were modified. A full second draft of the plan was distributed late in 2002 with comments requested by the end of January 2003.

The U.S. Fish and Wildlife Service developed a draft Fire Management Plan (FMP) in 2001 and the plan was reviewed by all TAG members, updated and presented to the BNL Management Council, Citizens Advisory Council, and the Brookhaven Executive Roundtable. The FMP was nearing final draft stage when information was received that a national template for fire management plans was available and should be used. The new template ensures that a fire management plan agrees with the National Fire Management Plan. The U.S. Fish & Wildlife Service was in the process of transferring the existing draft FMP into the new template at the end of 2002. In addition the FWS develop prescriptions for research and demonstration burns that were included in the updated FMP. Once completed the newly updated plan will be sent for editing before submission to DOE.

3.0 Progress

Progress on implementation is based on the 17 action items listed in the appendices of the WMP.

3.1 Progress Reports

Since all action items of the WMP have been fully implemented with the exception of those linked directly to the clean-up operations of the Lab. Progress reports on the implementation of the various actions, other than this annual report, are no longer a necessity. The annual report has been made a requirement within the Annual Self Assessment Plan for the Environmental & Waste Management Services Division. The requirement of the Annual Report being developed supports the requirement of annual reporting within the WMP in order to assess the need for new and/or modified actions based on knowledge gained during the previous year. The annual report also serves to document the progress of the previous year.

3.2 Annual Summary Report

The annual summary report for CY2001 was approved and released on May 16, 2002. In general the annual report is completed and submitted to division management by March 30 each year. The delay in the 2001 Annual Summary Report was due to time constraints related to investigations and corrective actions related to the discovery and subsequent correction of a high concentration of cs-137 found in a deer just offsite of the Lab. The purpose of the annual report is to summarize all of the activities that occur in the previous calendar year. The annual report also provides beneficial information that is later incorporated into the annual Site Environmental Report.

3.3 Tiger Salamander Surveys

Annual tiger salamander surveys were conducted for egg masses between April 10 – 15 and larval surveys were conducted in early June. A drought persisted throughout most of 2002 with the first substantial precipitation occurring around the first week in April. Sufficient water was present in 8 ponds to warrant egg mass surveys, while most ponds remained dry. A total of 95 egg masses were found in these eight ponds. The continued drought resulted in the majority of these eight ponds going dry. In early June 2002 only three ponds had water and only one of these had larval tiger salamanders present. A total of three larvae were detected in the one pond.

Approximately one week later the pond was nearly dry and the three larval salamanders were found dead on the bottom of the pond. During the summer of 2002, Heather Kling, an Energy Research Undergraduate Laboratory Fellowship (ERULF) intern continued research on the use of cover boards by amphibians. The research was originally targeted toward tiger salamanders, but was modified to look at use by all amphibians since no salamanders emerged from ponds during 2002. All surveys and research were carried out under an endangered/threatened species permit (License No. ESP02-0145) issued to Tim Green. The summary of the surveys may be seen in attachment 1.

3.4 Peconic River Monitoring

Monitoring of discharges to the Peconic River continue as required under BNL's State Pollution Discharge and Elimination System permit. Flow and water quality are reported monthly to the NYSDEC and results of monitoring are summarized in the Site Environmental Report 2001 – Brookhaven National Laboratory (BNL, 2002).

3.5 Peconic River Fish Sampling

Environmental monitoring of fish for contaminant content was suspended for the BNL portion of the Peconic River beginning in 2001. This suspension continued in 2002 and is expected to last for at least three years in order to allow the onsite fish population to recover from several years of heavy sampling efforts. Replacing the environmental monitoring program was a population health survey that was conducted in the July-August, 2002 time frame. The population survey used electro-shocking techniques to capture virtually all fish inhabiting the stretch of the Peconic River extending from the Sewage Treatment Plant Outfall to about 75 feet east of the east firebreak. A total of 118 fish from six species were taken during the sampling. All fish were measured and released. See Table 1 and 2, and Figure 1 and 2 below for comparison of sizes, size distribution, numbers and distribution, and differences between 2001 and 2002 data.

In general the average size of fish declined between 2001 and 2002 this is likely due to the fact that the region was in a drought. The numbers of fish taken between 2001 and 2002 also declined overall with the declines being noticed in all species except pumpkinseeds and golden shiners which increase by 62 and 14 individuals respectively. With a decrease in size and number of fish in the Peconic River, the moratorium on sampling will be extended through 2003.

Banded sunfish (*Enneacanthus obesus*) and swamp darter (*Etheostoma fusimorme*) both occur in Zeke's pond. No surveys of these two fished occurred during 2002 due to drought conditions. Zeke's pond became a small puddle of approximately 100 sq. ft. A rescue effort for banded sunfish and swamp darter was arranged with the NYSDEC and Cold Spring Harbor Aquarium and Fish Hatchery. The NYSDEC seined the puddle repeatedly to obtain sunfish and swamp darters. The result was the capture of several banded sunfish that were taken to Cold Spring Harbor Aquarium and Fish Hatchery for safekeeping. The fish will be released back to Zeke's pond once water returns to the pond in 2003.

Table 1. Summary data of Peconic River fish sampling onsite at BNL (2001 vs. 2002)

Peconic River Location	Banded Sunfish		Brown Bullhead		Chain Pickerel		Creek Chubsucker		Golden Shiner		Largemouth Bass		Pumpkinseed	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
Year														
Downstream of HMn*	2.63	2.13	4.36	4.00	6.68		4.30	2.25		1.25	5.50		3.59	2.15
HMn Flume	2.86				6.54		4.46						3.63	
Upstream of HMn			5.26	6.23	13.00	7.89	4.35	2.58	4.39	1.82			5.75	1.60

Note: * HMn is the name identifying the monitoring station located at the east firebreak.

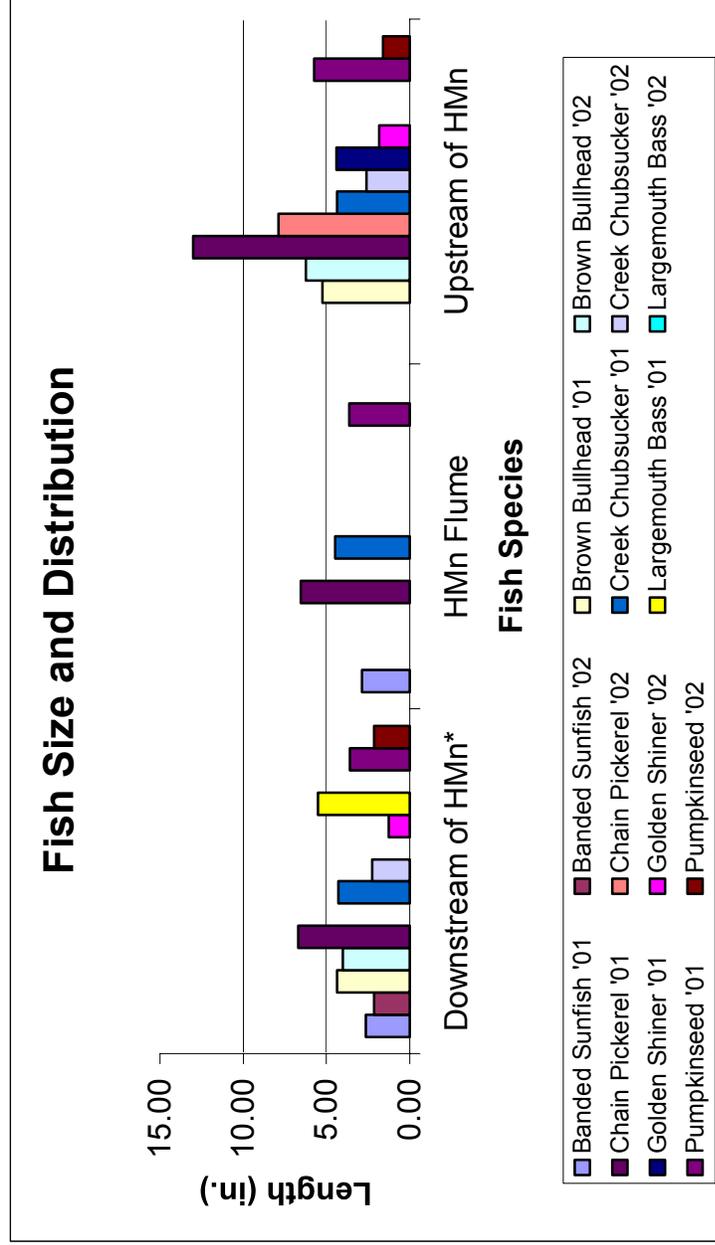


Figure 1. Size distribution of fish taken between the sewage treatment plant and the east firebreak.

Table 2. Population distribution of the 159 fish sampled in 2001 and 118 fish sampled in 2002 from the onsite portion of the Peconic River.

Peconic River Location	Banded Sunfish		Brown Bullhead		Chain Pickerel		Creek Chubsucker		Golden Shiner		Largemouth Bass		Pumpkinseed	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
Downstream of HMn*	4	1	7	1	7		26	1	1.00	1			11	19
HMn Flume	14				6		6						2	
Upstream of HMn			36	12	7	1	21	3	9	22			2	58
Total Counted	18	1	43	13	20	1	53	4	9	23	1	0	15	77

Note: * HMn is the name identifying the monitoring station located at the east firebreak.

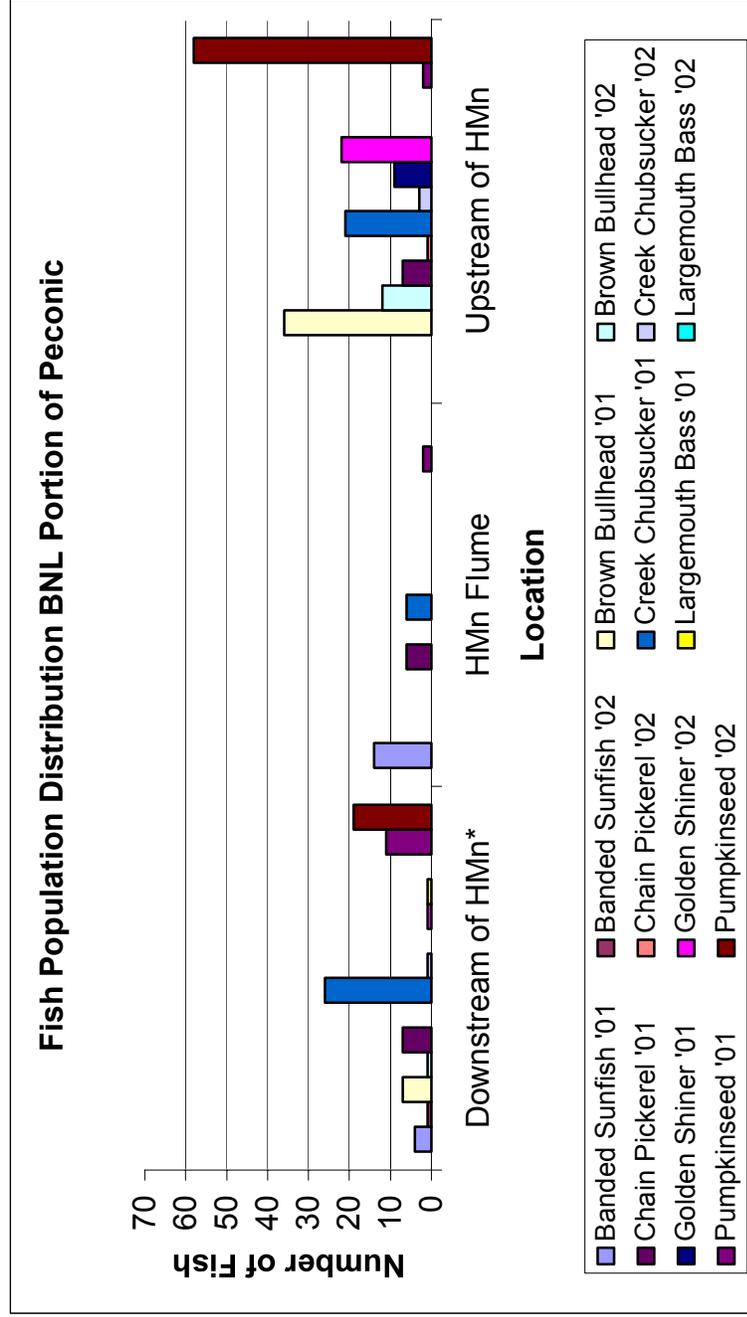


Figure 2. Population distribution of fish species between the sewage treatment plant and the east firebreak in the onsite portion of the Peconic River on BNL (2001 vs. 2002).

3.6 Education

BNL-sponsored events during the week of Earth Day included student art contests, fun runs for children, 5K run for adults, wildlife displays, and a display on the Upton Reserve. BNL also participated in the Earth Day activities held at Hecksher State Park in East Islip. The Environmental Services Division also hosted a Summer Sundays program in August 2002 with displays on alternative fuel vehicles, prescribed fire, the Upton Reserve, face painting, shell painting, native grass seed drill, groundwater models, recycling relays, animal tracks, and other events. During the year, BNL's natural resource manager also gives talks and ecology walks for Lab employees, civic organizations, student groups, Take Your Sons to Work Day, and Take Your Daughters to Work Day participants. The Upton Reserve staff and researchers also provided walks and talks for Lab staff.

The Environmental Services Division hosted four students; one under the Energy Research Undergraduate Laboratory Fellowships (ERULF), one under the Community College Intern (CCI) program, and two under the Pre-Service Teacher (PST) program. The ERULF student, a return student, worked on amphibian use of cover boards, and variations in relative humidity between ambient humidity and that found under cover boards which may potentially have an effect on amphibian selection of cover boards. The CCI student conducted white-tailed deer surveys and used the data to review various methods of calculating deer density. The research supported the methodology currently used by BNL and other agencies, and raised questions on suitability of survey methods. Her research was presented at a Poster Session at the Annual Pine Barrens Research Forum and was awarded a Pine Barrens Research Award.

The two PST students worked primarily under the Suffolk County Community College summer ecology field investigations program that was jointly funded by Brookhaven Science Associates and funds from the Upton Reserve. Their work included developing lesson plans on ecology, teaching high school students ecology, and leading the students in various studies within the Upton Reserve. One high school student was awarded a Pine Barrens Research Forum Award for work conducted using geographic information systems.

Through the Upton Reserve, a research initiative was established with Longwood High School. This initiative will begin in 2003 and will look at the distribution of gypsy moth egg masses as a predictor of infestation. The initiative allows Longwood science teachers the opportunity to expose junior and senior level students to environmental science and the scientific method.

3.7 TS-1, TS-2, TS-7 and TS-W3: Attachments for Egg Masses

These four sites all provided excellent habitat for tiger salamander production in 2001 and less so in 2002. Egg mass surveys identified egg masses at TS-1, TS-2, and TS-7. Water levels were declining at all ponds due to drought conditions that began in late 2001. As drought conditions set in, illegal ATV use began increasing around TS-2. Increased traffic has resulted in destruction of attachment sites around the perimeter of this pond. Illegal ATV use is a growing problem throughout the Pine Barrens. Unfortunately routine patrols, citations, and confiscation of vehicles does little to curtail the activity. Effective control measures have not been identified.

Existing control measures, in place elsewhere, involve the blocking of trails with debris, but are generally in-effective as the ATV users simply make a new trail around the blockage.

3.8 TS-10 Excavation to allow Retention of Water.

The Lab has increased discharges from non-contact cooling water systems. This increased discharge has resulted in permanent water in the basin. Because of the presence of permanent water this basin was used as one of the research sites by the summer ERULF intern discussed above. In 2002 this pond continued to receive both storm water runoff and cooling water discharges. The pond continues to hold water year around and is thought to provide suitable habitat for tiger salamanders. Four adult tiger salamanders were identified using the cover boards around this pond in November 2002.

3.9 TS-2: Institute Security Patrol of Area

As mentioned above, this pond was beginning to be used by ATV users as a racetrack. BNL's security force was alerted to the increased ATV use in the area. BNL Security began participating in the Law Enforcement Task Force of the Central Pine Barrens and has requested "sting" operations to enforce ATV use laws. The natural resource manager periodically monitors the area and informs security of increasing traffic. Unfortunately, the increase in ATV use is occurring throughout the Central Pine Barrens and will likely go unstemmed due to a lack of law enforcement personnel to keep on top of the problem as well as a lack of viable measures to prevent the use of the area by ATV users.

3.10 Bird Nests

Nine additional bluebird boxes were installed in various open fields in 2002. This addition brings the total number of boxes up to 46. A volunteer who checks on the boxes every 3-4 weeks during the breeding season and keeps track of nesting success. Of the 45 boxes, 19 bluebird nests were identified. Other species using the boxes included house wrens (12 boxes), chickadees (2 boxes), tree swallows (4 boxes), and wasps (3 boxes). Both tree swallows and blue birds used at least two boxes during the season.

3.11 Turkey Sighting Reports

Turkey sighting reports are received periodically via the Turkey Sighting Report form on the Natural Resources Web Page, direct e-mail, or submittal of NYSDEC report forms. The turkey population is currently estimated at 175 birds. This population level is down from the estimated 250 birds reported in 2002. The decrease in population is likely due to the drought, which has forced the turkeys to spread out more. Several broods were seen during the spring of 2002 with one brood having approximately 18 poults. The largest winter flock of turkeys has only been 30 birds, which is much smaller than the 100+ bird flock seen in 2001. Population estimates are periodically reported to NYSDEC for their records.

3.12 Deer Population Estimation and Control

The winter surveys of 2001-2002 resulted in a population estimate of 1,169 deer onsite. The winter was a relatively mild winter with few extended periods of extended cold. As mentioned above, a summer intern worked on population estimates of the deer. The student's estimate at the end of the summer was 1,606 deer or an increase of 37% over the previous spring. Fall/winter estimates late in 2002 began indicating a potential decline as few animals were seen during surveys and the overall estimate by year's end was 1,100 animals. However, the winter of 2002-2003 was turning out to be harder than the typical winter on Long Island. Inclement weather was the norm for virtually all surveys completed in the fall/winter time frame.

The Department of Energy approved the need for the preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) in order to discuss the various options proposed for deer management. However, they requested an issue and decision paper be written and approved by Lab management prior to preparation of the EA. The EA is likely to be a simple adoption of a statewide EA written by the United States Department of Agriculture – Animal and Plant Health Inspection Service, Wildlife Services (USDA-APHIS/Wildlife Services or simply Wildlife Services). Once the statewide EA is adopted, site-specific management options and conditions (deer population, ecosystem health, etc.) are discussed and a deer management decision made. Public input on management options is expected to be part of the decision process. At year's end, Wildlife Services had not achieved an approved EA with Finding of No Significant Impact.

3.13 Wildlife Management Plan Update

The Wildlife Management Plan continued to be implemented while the update, the Natural Resource Management Plan, is being developed with the input from the Technical Advisory Group. The NRMP will also contain the wildfire management plan. The first major draft of this plan was given to the TAG in 2002 with request for comments due in early 2003. The final draft version for management review should be released in late spring 2003.

3.14 Remediation of TS-W4, TS-W6b, and OUV

Design work for TS-W4 and TS-W6b are in process. The remediation of TS-W4 may be started and completed in 2003. Work on TS-W6b would likely not start until after the clean up of the Former Hazardous Waste Facility is completed in order to keep the area from getting contaminated from that action. The Sewage Treatment Plant portion of the OU V clean up began in 2002 and is scheduled for completion in 2003. Two pilot studies showcasing two methods of cleanup took place early in 2002. One method of cleanup used a process called suction guzzling that involves use of vacuuming contaminated sediments from the river bottom while protecting the vegetation in the area. The other method used standard excavation and restoration techniques. Numerous interested stakeholders reviewed the techniques and the techniques may be utilized in the full cleanup operation scheduled to begin as early as summer 2003.

3.15 Songbird Surveys

Songbird surveys were carried out each month from March through October 2001. Five transects were established in 2000 to monitor migratory bird population in the various habitats that exist on the BNL site. A sixth transect was established in 2002 in order to cover the Upton Reserve. As the database builds, trending will be completed to determine the health of various bird species onsite at BNL. As a result of three years worth of data, the surveys will be narrowed to the period from April through September each year. The CY2002 data is summarized below.

- 73 species identified (consistent for three years)
- 7 new species compared to the past two years
- A total of 100 species identified over all three years
- 48 species common in all three years, 5 fewer than in 2001
- 3309 data points collected
- 3355 individuals counted
- 9 species were counted only once
- 20 species were counted between 2 and 5 times
- 14 species were counted between 6 and 10 times
- 27 species were counted more than 10 times
- Biology Fields Transect had 54 species identified
 - 1 more than in CY2001
 - 9 species not identified in CY2000 or CY2001
 - 75 species over three years
- East Trenches Transect had 29 species identified
 - 3 fewer than in CY2001
 - 5 species not identified in CY2000 or CY2001
 - 47 species over three years
- North Transect had 30 species identified
 - 4 species fewer than in CY2001
 - 5 species not identified in CY2000 or CY2001
 - 45 species over three years
- Peconic River Transect had 46 species identified
 - 1 less than in CY2001
 - 6 species not identified in CY2000 or CY2001
 - 67 species over three years
- South Transect had 29 species identified
 - 10 species fewer than in CY2001
 - 4 species not identified in CY2000 or CY2001
 - 53 species over two years
- Z-Path (New Transect added in 2002)
 - 47 species identified
- 17 species counted on all six transects
- 6 species counted on five transects
- 5 species counted on four transects
- 11 species counted on three transects

- 16 species counted on two transects
- 18 species counted on only one transect

Table 3. Results of BNL Bird Surveys CY2000 and CY2001

Common Name	Scientific Name	BNL Bird Surveys Three Year Comparison											
		Biography Fields 2000 2001 2002	East Trenches 2000 2001 2002	North Transect 2000 2001 2002	Peconic River 2000 2001 2002	South Transect 2000 2001 2002	Z-Path 2002						
Acadian Flycatcher	<i>Empidonax vireescens</i>	X	X	X	X	X	X	X	X	X	X	X	X
American Crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	X	X	X	X	X	X	X	X
American Redstart	<i>Setophaga ruticilla</i>	X	X	X	X	X	X	X	X	X	X	X	X
American Robin	<i>Turdus migratorius</i>	X	X	X	X	X	X	X	X	X	X	X	X
Baltimore Oriole	<i>Icterus galbula</i>	X	X	X	X	X	X	X	X	X	X	X	X
Barn Swallow	<i>Hirundo rustica</i>	X	X	X	X	X	X	X	X	X	X	X	X
Belted Kingfisher	<i>Ceryle torquata</i>	X	X	X	X	X	X	X	X	X	X	X	X
Bewick's Wren	<i>Thryomanes bewickii</i>	X	X	X	X	X	X	X	X	X	X	X	X
Black-and-White Warbler	<i>Mniotilta varia</i>	X	X	X	X	X	X	X	X	X	X	X	X
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Black-capped Chickadee	<i>Poecile atricapillus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Blackpole	<i>Dendroica striata</i>	X	X	X	X	X	X	X	X	X	X	X	X
Black-throated Green Warbler	<i>Dendroica virens</i>	X	X	X	X	X	X	X	X	X	X	X	X
Blue Jay	<i>Cyanocitta cristata</i>	X	X	X	X	X	X	X	X	X	X	X	X
Blue-Grey Gnatcatcher	<i>Polioptila caerulea</i>	X	X	X	X	X	X	X	X	X	X	X	X
Blue-winged Warbler	<i>Vermivora pinus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Brown Creeper	<i>Certhia americana</i>	X	X	X	X	X	X	X	X	X	X	X	X
Brown Thrasher	<i>Toxostoma rufum</i>	X	X	X	X	X	X	X	X	X	X	X	X
Brown-headed Cowbird	<i>Molothrus ater</i>	X	X	X	X	X	X	X	X	X	X	X	X
Canada Goose	<i>Branta canadensis</i>	X	X	X	X	X	X	X	X	X	X	X	X
Carolina Wren	<i>Thryothorus ludovicianus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Cedar Waxwing	<i>Bombycilla cedrorum</i>	X	X	X	X	X	X	X	X	X	X	X	X
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	X	X	X	X	X	X	X	X	X	X	X	X
Chimney Swift	<i>Chaetura pelagica</i>	X	X	X	X	X	X	X	X	X	X	X	X
Chipping Sparrow	<i>Spizella passerina</i>	X	X	X	X	X	X	X	X	X	X	X	X
Common Grackle	<i>Quiscalus quiscula</i>	X	X	X	X	X	X	X	X	X	X	X	X
Common Yellowthroat	<i>Geothlypis trichas</i>	X	X	X	X	X	X	X	X	X	X	X	X
Cooper's Hawk	<i>Accipiter cooperii</i>	X	X	X	X	X	X	X	X	X	X	X	X
Dark-eyed Junco	<i>Junco hyemalis</i>	X	X	X	X	X	X	X	X	X	X	X	X

BNL Bird Surveys Three Year Comparison

Common Name	Scientific Name	Biology Fields			East Trenches			North Transect			Peconic River			South Transect			Z-Path
		2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002	2002
Double-crested Cormorant	<i>Phalacrocorax auritus</i>																X
Downy Woodpecker	<i>Picoides pubescens</i>	X	X														X
Eastern Bluebird	<i>Sialia sialis</i>	X	X														X
Eastern Kingbird	<i>Tyrannus tyrannus</i>																
Eastern Phoebe	<i>Sayornis phoebe</i>																
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Eastern Wood Pewee	<i>Contopus virens</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
European Starlings	<i>Sturnus vulgaris</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Sparrow	<i>Spizella pusilla</i>	X															
Fox Sparrow	<i>Passerella iliaca</i>																X
Fish Crow	<i>Corvus ossifragus</i>																
Golden Eagle	<i>Aquila chrysaetos</i>																
Golden-crowned Kinglet	<i>Regulus satrapa</i>																
Goldfinch	<i>Carduelis tristis</i>	X	X														X
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	X															
Great Black-backed Gull	<i>Larus marinus</i>																X
Great Blue Heron	<i>Ardea herodias</i>																X
Greatcrested Flycatcher	<i>Myiarchus crinitus</i>																X
Great Horned Owl	<i>Bubo virginianus</i>																X
Grey Catbird	<i>Dumetella carolinensis</i>	X	X														X
Hairy Woodpecker	<i>Picoides villosus</i>	X	X														X
Hermit Thrush	<i>Catharus guttatus</i>																
House Finch	<i>Carpodacus mexicanus</i>																
Herring Gull	<i>Larus argentatus</i>	X	X														X
Horned Lark	<i>Eremophila alpestris</i>	X	X														X
House Wren	<i>Troglodytes aedon</i>	X	X														X
Indigo Bunting	<i>Passerina cyanea</i>	X	X														X
Killdeer	<i>Charadrius vociferus</i>																
Magnolia Warbler	<i>Dendroica magnaolia</i>	X															X
Mallard Duck	<i>Anas platyrhynchos</i>																
Merlin	<i>Falco columbarius</i>																
Mourning Dove	<i>Zenaidura macroura</i>	X	X														X

BNL Bird Surveys Three Year Comparison

Common Name	Scientific Name	Biology Fields 2000 2001 2002	East Trenches 2000 2001 2002	North Transect 2000 2001 2002	Peconic River 2000 2001 2002	South Transect 2000 2001 2002	Z-Path 2002
Mute Swan	<i>Cygnus olor</i>	X	X				
Nashville Warbler	<i>Vermivora ruficapilla</i>	X		X			
Northern Bobwhite	<i>Colinus virginianus</i>	X	X	X	X	X	
Northern Cardinal	<i>Cardinalis cardinalis</i>	X	X	X	X	X	X
Northern Flicker	<i>Colaptes auratus</i>	X	X	X	X	X	X
Northern Mockingbird	<i>Mimus polyglottos</i>	X	X	X	X	X	X
Northern Parula	<i>Parula americana</i>	X					
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	X			X		X
Ovenbird	<i>Seiurus aurocapillus</i>	X	X	X	X	X	X
Palm Warbler	<i>Dendroica palmarum</i>	X	X	X	X	X	X
Pine Warbler	<i>Dendroica pinus</i>	X	X	X	X	X	X
Plain Pigeon	<i>Columbus livia</i>						
Prairie Warbler	<i>Dendroica discolor</i>	X		X	X	X	X
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	X	X	X	X	X	X
Red-breasted Nuthatch	<i>Sitta canadensis</i>	X	X	X	X	X	X
Red-eyed Vireo	<i>Vireo olivaceus</i>	X	X	X	X	X	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X					
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	X	X	X	X	X	
Ring-billed Gull	<i>Larus delawarensis</i>	X					
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	X					
Ruby-crowned Kinglet	<i>Regulus calendula</i>	X					
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	X					
Scarlet Tanager	<i>Piranga olivacea</i>	X		X	X	X	X
Sharp-shinned Hawk	<i>Accipiter striatus</i>	X					
Snow Goose	<i>Chen caerulescens</i>		X				
Song Sparrow	<i>Melospiza melodia</i>				X		
Tree Swallow	<i>Tachycineta bicolor</i>	X	X	X	X	X	X
Tufted Titmouse	<i>Baeolophus bicolor</i>	X	X	X	X	X	X
Veery	<i>Catharus fuscescens</i>		X	X	X	X	X
White-breasted Nuthatch	<i>Sitta carolinensis</i>	X	X	X	X	X	X
White-eyed Vireo	<i>Vireo griseus</i>	X		X	X	X	X

BNL Bird Surveys Three Year Comparison

Common Name	Scientific Name	Biology Fields		East Trenches		North Transect		Peconic River		South Transect		Z-Path					
		2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2002					
White-throated Sparrow	<i>Zonotrichia albicollis</i>		X	X				X	X	X							
Wild Turkey	<i>Meleagris gallopavo</i>		X	X				X	X	X		X					
Wood Thrush	<i>Hylocichla mustelina</i>		X	X		X	X	X	X	X							
Yellow Warbler	<i>Dendroica petechia</i>							X	X								
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>		X				X	X									
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>		X	X			X	X	X			X					
Yellow-rumped Warbler	<i>Dendroica coronata</i>		X					X	X								
Yellow-throated Warbler	<i>Dendroica dominica</i>		X														
Totals		50	53	54	31	32	29	23	34	30	48	47	46	32	39	29	47

3.16 Tiger Salamander Breeding Pond Survey

As mentioned above, CY2002 was considered a drought year with less than average precipitation. The lack of precipitation resulted in most breeding ponds drying down prior to the development of larvae. Pond TS-7 was the only pond with documented larvae during breeding pond surveys and even those larvae died due to the drought.

3.17 RHIC Revegetation

The revegetation of the RHIC ring began in CY 2002. During April and May of 2002 approximately 56 acres of the ring were planted with a native grass seed mixture consisting of little bluestem, panic grass, and switch grass using the Truax Seed Drill purchased in 2001. In addition to the native grasses, volunteers and Lab personnel planted 6,000 pitch pine seedlings. Unfortunately the majority of the trees and some of the grass did not establish due to the drought. However, much of the grass seed is likely still present and may sprout with the moisture gained during the 2002-2003 winter. Additional seed will be purchased in 2003 and planted in areas that were not established in 2002. A mix of native wildflower seeds was purchased for planting in the spring of 2003.

4.0 Other Related Initiatives

Two initiatives started in CY2000 were carried over into CY2001. These two are the Upton Ecological and Research Reserve and the Resource Zoning Map of BNL. A third initiative started in CY2001 was development of ecological overlays for BNL in the geographic information system (GIS).

4.1 Upton Ecological and Research Reserve

The Upton Reserve continued operation with the US Fish & Wildlife Service managing. The annual report for the Upton Reserve is attached.

4.2 Resource Zoning

The resource-zoning map has been incorporated into the geographic information system (GIS) overlays.

4.3 GIS Overlays

The natural resource management program includes a half-time BNL employee assigned to GIS. A prioritized list of GIS needs was developed for implementation and development of GIS overlays. Included in this list were overlays for cultural resources, bird transects, tiger salamander data, the resource zoning mentioned above, deer transects, frost damage, fire area information, and data collection to be established in the Upton Reserve (deer exclosures, forest health monitoring locations, etc.). As data is gathered for natural resource management it is to the GIS. This mapping effort has resulted in the incorporation of the site wide vegetation map,

bird transects, deer exclosures, deer transects, and tiger salamander habitat, as well as locating all deer sampling data within the GIS.

Attachment 1

Annual Report for

Endangered/Threatened Species Permit

License No. ESP02-0145

Attachment 2

Fiscal Year 2002 Accomplishments

Upton Ecological and Research Reserve