

MUSCATATUCK NATIONAL WILDLIFE REFUGE

Seymour, Indiana

ANNUAL NARRATIVE REPORT

Fiscal Year 2003

U.S. Department of the Interior

Fish and Wildlife Service

NATIONAL WILDLIFE REFUGE SYSTEM

REVIEW AND APPROVALS

MUSCATATUCK NATIONAL WILDLIFE REFUGE

Seymour, Indiana

ANNUAL NARRATIVE REPORT

Fiscal Year 2003

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Refuge Manager Date Refuge Supervisor Date

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Regional Office Approval Date

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RMIS

Muscatatuck National Wildlife Refuge

Annual Narrative

Seymour, Indiana

Fiscal Year October 1, 2002 to September 30, 2003

(*Calendar year data is used for climate, and waterfowl UD)

*2003 CLIMATIC DATA

<u>Temperatures</u>		<u>AVG</u>			<u>Precipitation</u>	
<u>Totals</u>						
<u>Month</u>	<u>Maximum</u>	<u>Minimum</u>			<u>NWR¹</u>	<u>Normal²</u>
January	32.9	13.0			1.98	3.30
February	38.3	17.6			4.27	2.94
March	63.7	29.5			2.21	4.22
April	68.9	39.0			4.62	3.83
May	77.7	51.8			6.20	4.31
June	82.5	53.0			6.00	4.14
July	88.5	62.9			9.37	4.77
August	91.1	62.8			0.88	2.91
September	81.3	49.9			8.05	3.03
October	68.7	38.9			2.40	2.47
November	66.1	35.9			5.18	3.09
December	<u>44.0</u>	<u>24.3</u>			<u>3.13</u>	<u>3.16</u>
TOTALS:	67.0	39.9			54.29	42.17
	(AVG)	(AVG)				

1. Rainfall and temperature data from the office gauge.
2. Normal rainfall is from the 1951 to 1977 period.
(Recorded at Seymour, IN)

INTRODUCTION

The Muscatatuck National Wildlife Refuge, established October 6, 1966, is located in south central Indiana midway between Indianapolis, Indiana, and Louisville, Kentucky. The refuge is just south and east of the junction of I-65 and US 50 and is divided by the county line of Jackson and Jennings Counties. The Restle Unit, a 78 acre parcel northwest of Bloomington, Indiana, was donated in 1990 as part of the Muscatatuck National Wildlife Refuge and includes bottom land hardwoods and a restored wetland. The 50,000 acre Big Oaks National Wildlife Refuge (former Jefferson Proving Ground) was established June 30, 2000 and formally dedicated July 8, 2000 and was managed as part of Muscatatuck / Big Oaks NWR complex until August 2002 when it became a "stand alone" refuge.

The refuge name, Muscatatuck, means "Land of the Winding Waters" which historically reflects the topography of the area. Approximately 36% of the refuge lies within the annual flood plain of the Muscatatuck River-Vernon Fork which forms the southern boundary of the refuge. The topographic relief from the refuge bottom lands to gently sloping uplands ranges from 540 to 620 MSL in the otherwise flat region known as the Scottsburg lowlands. Given the physiographic diversity of the area, the refuge is rich in history of early cultures.

The refuge was authorized by the Migratory Bird Conservation Commission in 1966 and purchased with "Duck Stamp" money. A total of 7,724 acres were purchased. The primary objectives for the refuge are to provide migratory waterfowl with a resting/feeding area during the migration and to produce wood ducks.

To start achieving these objectives at significant levels, 1,200 acres of managed waters, i.e., lakes, moist soil impoundments and green tree impoundments were constructed with Bicentennial Land Heritage Program (BLHP) funding by the fall of 1983. Hardwood forest dominates 4,160 acres of the flood plain and on the upland slopes. An additional 1,870 acres of land are reverting to forest lands and brush lands and an ongoing cooperative farming program of 494 acres provides the following diversity of corn, wheat, soybeans and hay to a broad spectrum of wildlife to compliment the habitat diversity within the Muscatatuck National Wildlife Refuge.

The Muscatatuck NWR Fish and Wildlife Easement Management District includes 30 Indiana counties. The Muscatatuck NWR Private Lands Coordination Area includes 13 Indiana counties. Photo by Mark Trabue



HIGHLIGHTS:

Photo by Mark Trabue

National Wildlife Refuge Week Celebration (sec. 7a)

* Conservation field days attended by 600 third graders in October

* CLC 5k Run/Walk and Log Cabin Day

FFA National Convention in Louisville, KY highlights careers and centennial to 51,000 (sec. 7b)

16 Whooping Cranes visit Muscatatuck for Bed and Breakfast in route to Florida (sec. 4c)

Refuge U. S. Hwy 50 main Entrance Receives Safety Upgrade (sec 7a)

Junior Duck Stamp Contest attracts 205 entries from throughout the state (sec. 7a)

March 14, 2003 National Wildlife Refuge Centennial Celebration (sec 7a)

Three bald Eagles hatch at Muscatatuck NWR, successful nesting on refuge (sec. 1a)

Wings over Muscatatuck Migratory bird festival attended by 1000 people (sec. 7a)

Eleventh annual "Take a Kid Fishing" event attracts over 400 (sec. 7a)

Student Volunteer/interns assist at Muscatatuck (sec. 7b)

Amphibian Monitoring Program/Atlas route conducted (sec. 1a)

Muscatatuck NWR highlights refuge system's centennial to 150,000 people (sec. 7b)

Construction Begins on Conservation Learning Center (sec 7a, 7b)

1 MONITORING AND STUDIES

1a. Surveys and Censuses

The annual Sandhill Crane Count was conducted 10/31/02 with none on the refuge. Migration did start in November with some groups visiting for overnight stops and crane sightings overhead through March 2003.

Muscatatuck NWR conducted the annual Christmas bird count on 1/1/03. It was a day filled with heavy rains so bird activity was slow, but 22 hardy volunteers assisted with the count. Sixty four species and 4,200 individuals were counted. Some interesting sightings included a snow goose, three bald eagles, and an eastern phoebe.

The annual May day bird count was conducted 5/10/03 with 123 species and 1,170 individuals counted, highlights included 4 bald eagles, a Wilson's phalarope, and a sedge wren.

Interesting sightings through the year include sixteen WHOOPING CRANES 11/11-12/02, bald eagles, three NEW BORN Eagles 3/31/03, peregrine falcons, tundra swans, barred owl, osprey, sandhill cranes, great egrets, dickcissels, cliff swallows, Bonaparte's gulls, common moorhen, rose-breasted grosbeak, Henslow's sparrow, horned larks, horned grebe, loon, whip-poor-will, Mississippi kite, Nelson's sharp tailed sparrow, least sandpiper, and golden winged warbler.

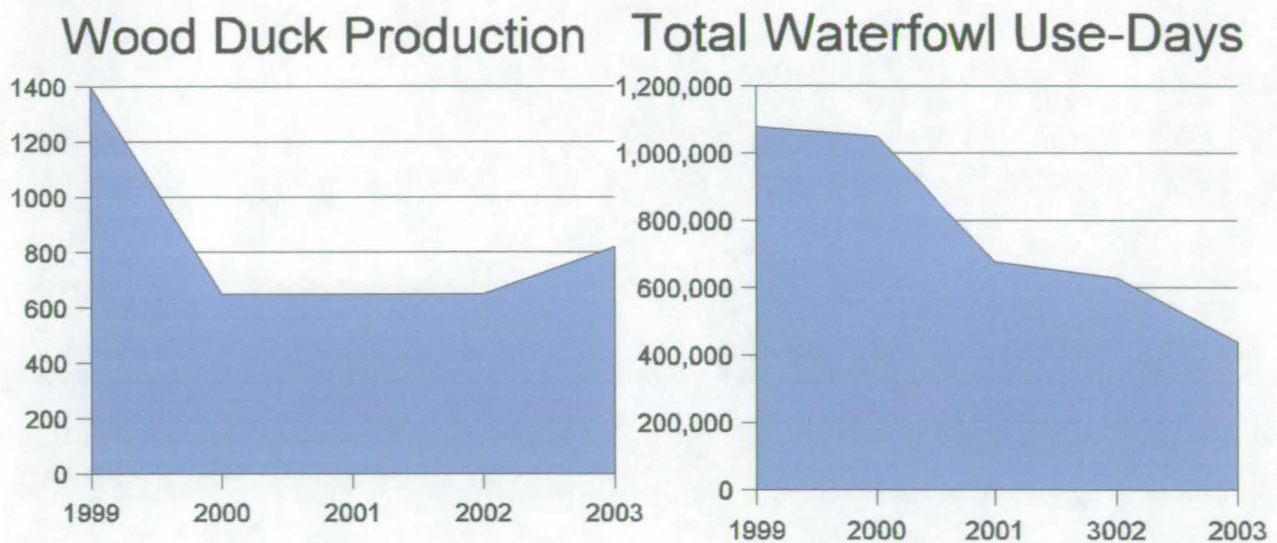
Great blue heron nesting has been monitored at Muscatatuck for at least 15 years. In the past, rookeries have been located on Moss Lake in the closed area of the refuge. A rookery located near the southwest bank of Moss Lake was active for more than 12 years. In spring 2002 a substantial colony was active in a new location near the southeast bank of Moss Lake. The rookery is in a stand of dead trees about 100 yards out in the water on Moss Lake making it inaccessible to most land-loving creatures. During FY2003, the IDNR assigned known Great Blue Heron colonies to be counted. MNWR count was conducted in early May with 55 nests recorded. IDNR state-wide 2003 data collected was virtually identical to those counted five years previously, although mean colony size declined. Statewide totals were 6,728 active nests in 131 colonies for 2003.

Current Dragonfly survey indicates 35 species present, one species found the *Epitheca canis* (beaverpond Baskettail) is known in Indiana only at MNWR.

Muscatatuck NWR in conjunction with IDNR created an atlas route on the refuge for participation in the North American Amphibian Monitoring Program in 2/01. This program is part of a larger international task force effort and is designed to determine the abundance and distribution of amphibians to better understand their conservation needs. The survey route was completed according to established protocol and the 2003 data was sent to IDNR as required. Nine species were recorded; spring peeper, chorus frog, southern leopard frog, bullfrog, cricket frog, Copes gray tree frog, green frog, wood frog and Fowler's toad.

Amphibian call counts were conducted again on the Restle unit as part of the Bean Blossom Bottoms Atlas route stop 4, by Dr. Meretsky (IU) and students. During spring 2003, we recorded chorus frog, spring peeper, southern leopard frog, Cope's gray tree frog, cricket frog, and green frog. Water levels may have excluded bullfrogs, which have been heard in past years. Wood frogs were heard calling less than 1/10th mile from the property.

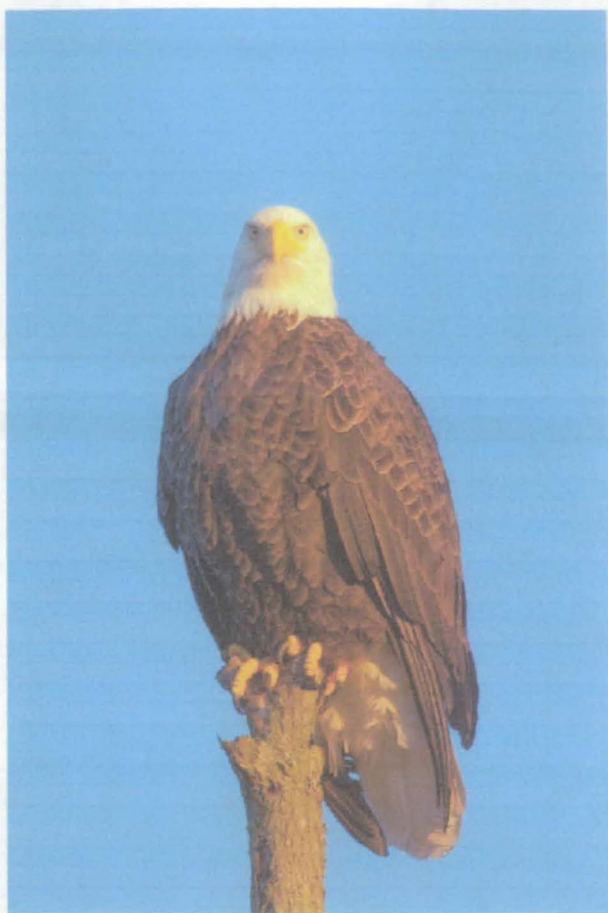
Brood surveys conducted gave production estimates of 820 wood ducks fledged with the first wood duck brood seen 4/26/03 on McDonald Marsh, 150 Canada geese fledged first goslings seen 4/24/03 at M6.



Weekly waterfowl reports were sent to IDNR (fall season) waterfowl biologist.

Total waterfowl use days for 2003 was 438,417 UD.

National Midwinter Waterfowl survey 1/8/03 had 6 species with 3,575 individuals counted. The refuge had 90% ice cover on its water areas.



Indiana Bald Eagle Survey 1/10/03 had 2 mature bald eagles on the refuge.

Photos by Mark Trabue

Our bald eagles returned to nest again and on 03/31/03 refuge biologist, Mike Oliver confirmed that a Muscatatuck NWR bald eagle nest had produced eaglets. Located in the closed area of the refuge, the successful nest represented the first time triplets hatched. The three young eaglets fledged 6/10/03. The refuge nest was one of a record 45 active nests in the state. Statewide production in 2003 from 33 successful nests resulted in 63 eaglets reaching flight stage.



MNWR weed Survey was completed and sent to RO per their request.

During IDNR monitoring of a radio collared bobcat it was discovered using the Restle Unit in June and July 2002. The bobcat was initially collared at Crane, then discovered at the Restle Unit area, after which it was tracked through Indiana and at FY02 years end was by Brookville Reservoir in the eastern edge of Indiana. It then returned east of Crane by 01/03/03.

Water Quality testing was done quarterly in 2003 on Sandy Branch and Mutton and Storm creeks by volunteer interns with volunteer Theresa Dailey taking the lead.

Vegetation Survey of the Moist Soil Units was conducted 8/18/03 by Wildlife Biologist Oliver, the data is in the water management plan.

Utilizing transects and plot counts, an invasive plant survey of the refuge was conducted during Summer 2001. The survey focused on multiflora rose, autumn olive, Canada thistle and garlic mustard. The survey examined species densities and relationship to habitat type. Multiflora rose was the most prevalent invasive in the survey with forest habitat having the highest density. Further surveys are recommended for the future. Much of this data was entered on the nwrinvasives.spaceinvaders website in 2002. Summer 2003 interns mapped a garlic mustard infestation south of Stanfield lake and created a strategic plan to contain and control the spread. Administration of this strategic plan should begin spring of 2004.

MNWR volunteers held the butterfly count on the refuge 7/12/2003 in conjunction with the American Butterfly Association. Surveyors documented 25 different species and 295 individuals on the refuge during the counting period, which was an usually low count. This count is an annual count and over time the information should provide insight on trends in the butterfly population on the refuge.

1b. Studies and Investigations

Herpetofauna study and surveys have continued by Earlham College, Dr. John Iverson and students, since 1995 and continued in 2002. Dr. Meretsky, Indiana University is also doing incidental studies along with the MSS-RNA study. To date FY03, 39 Herpetofauna species are known on the refuge.

Along with Muscatatuck and Bloomington Field Office staff the summer 2003 interns surveyed the refuge for deformed frogs. FY2003 at Muscatatuck we collected 52 southern leopards and 1 green frog from the boardwalk area. 36 of the frogs had either small pustule(s) on their abdomen, small lump(s), or small dark cyst-like bumps on their tails. 1 was missing a few toes and one was missing a foot and had a lump on the right corner of mouth (similar to the lumps found on so many of the green frogs from sand pond). None of the lumps, pustules, cysts, etc. created any obvious physical problem for the animal, and most animals only had a few small ones. BFO Robin McWilliams assumes they are some sort of parasite, but did not have any animals from

this site analyzed. Even though MNWR is not going to participate next year, it might be interesting to get a few frogs from the boardwalk area again, and send them in for parasitology work up if we see similar stuff. We would only need 10 animals. At sand pond we collected 50 green frogs and 1 bull frog. 22 of the green frogs had one or more small to large lumps, primarily around the mouth/throat area, that have been preliminarily identified as a trematode metacercaria called *Clinostomum* (commonly called "yellow grub" by sport anglers). These trematodes mature in herons. Several other metacercariae were encountered in these frogs, including *Ribeiroia*, which is infamous for causing limb deformities. *Ribeiroia's* primary hosts are snails. Hopefully a final report on these animals will be received sometime in the near future, which BFO will pass on to MNWR.

Finally, at sand pond we collected 14 additional green frogs to send to Univ. of Wisconsin to include in the parasitology work since some of the animals from the first collection died. Of these, 6 had the lumps around the throat/mouth/ventral area. These 14 were not included in the site totals since they were collected after the original group was released and theoretically, some of them could have been animals already counted in the first batch.

BFO will be counting everything that is not a perfect/healthy/normal frog as abnormal (that is our protocol), but there will be caveats for everything so that no one comes away with the idea that 50% of the animals are "deformed". There is a big difference in the definitions of deformed, malformed, and abnormal. The survey which arose due to the discovery of deformed leopard frogs by a Minnesota school class field trip a few years ago marked the fourth time that the refuge has been surveyed. The survey is aimed at identification of deformed population and related casual environmental factors. The report for Muscatatuck is expected to reflect no more than the normal three percent deformity in the population.

The population of the state endangered southern tubercled orchid was studied by Refuge volunteer Brian Lowry. He collected vegetation data for the MSS-RNA area and Endicott, as part of an ongoing study. Continuing survey work was conducted 7/30/03. The MSS-RNA population was located and the population closest to the road held a healthy, but seemingly young population of plants. Most of these were contained on the hummocks of small trees (esp. Alder). There is some possibility that there are few blooming because of age. One other possibility is that they are too shaded to produce blooms. On this date 48 plants were counted, with 4 in bloom. Brian was also excited to find a variation of a non-orchid plant that occurs in this area. It is a variant form of *Monarda fistulosa* that only occurs in 2 or 3 other areas in the state. Since this plant is NOT considered a separate specie, it does not classify as endangered. Nevertheless, it is a unique find.

Another state listed rare orchid, *Platanthera clavellata*, dwells very healthily in this habitat. Several were seen in flower and the population appears stable. In fact, this year, the population seems to have expanded. There were 39 plants counted, with 28 in bloom.

The older population of *Platanthera flava* v. *flava* at the MSS-RNA has shown some signs of decline. It was a struggle to find plants again this year. They were scattered and did not hold

good numbers of plants within each sub-population. A total of 32 plants were found with only 12 in flower were found. We still suspect that the drought of 2001 played a role in their decline. This area has seemed progressively drier over the past few years. The dry spell that we had the middle of summer 2002 did not help. There also seems to be a lot of additional undergrowth development, which may be competing with this plant. The level of natural variability overtime is not clear for this perennial species.

The Endicott population survey was conducted 7/30/03 and a total of 29 plants were found with 21 in bloom. Indiana has 42 native species of orchids. To date Brian is aware of ten species of orchids at Muscatatuck. They are as follows: *Aplectrum hyemale*, *Tipularia discolor*, *Platanthera clavellata*, *Plantanthera flava* v. *flava*, *Platanthera peramoena*, *Platanthera lacera*, *Galiaris spectabilis*, *Spiranthes cernua*, *Spiranthes lacera*, *Spiranthes tuberosa*. The MSS-RNA area study by Dr. Meretsky began in 1998 with vegetation transects, and water depth and pH measurements. The 2001, research in the MSS-



RNA continued to document pH profiles at the points established in 1998. In 2001 the study was expanded to include 19 water level and pH monitoring wells which have been monitored since 4/2001. The seep-spring soil chemistry/hydrology/ecosystem study field work continued in 2002 with pH and water level measurements at the monitoring wells. Dr. Jenkinson and Meretsky

have been working on mapping water levels and determining hydrology and soil patterns on the site. Modeling work continues slowly on this study. In 2003 Meretsky and Jenkinson met and discussed publishing forms and venues. A final write-up has not yet been completed.

Another Muscatatuck "wildlife first" was documentation of a state endangered salamander 4/13/01. A previously-unknown population of the state endangered 4-toed salamander (*Hemidactylium scutatum*) was discovered 4/13/01, in the acid seep. The four-toed salamander project began in 2002 by installing drift fence trapping devices in early 4/02, and observed a female on eggs at that time. However, heavy spring rains flooded the prospective trapping area, and that portion of the project had to be cancelled. In mid June/02 a series of 15 experimental cover objects were placed along the edge of the seep. These were monitored until the ground froze in Nov/02. Refuge interns and IU students did the monitoring at roughly 10-day intervals, and monitoring was expanded to include natural cover objects in the area. Four-toed salamanders

salamanders have been observed only in the northern end of the seep, confirming early information that the species range is quite small at the Refuge. In 2003 four-toed salamanders continue to be found only at the north end of the Chestnut Ridge study area. Spring 2003 we added a line of cover objects along the top of the ridge, and have found almost red-backed salamanders almost exclusively in this area. Along the base of the ridge, we continue to find red-backed, dusky, and slimy salamanders along the length of the study area, in addition to the state-listed four-toed salamanders found at the north end. On 10/10/2003, Meretsky photographed a very dark salamander which was later confirmed to be a dark-phase zig-zag salamander. Dr. Karns and Iverson agreed that enhanced versions of the photographs showed markings consistent with a zig-zag salamander. This is the first individual of this species we have found at Chestnut Ridge, although the area is well within the range of the species.

Ten years into the water table monitoring study (FY02), the Wet Soil Monitoring Project was terminated 12/31/02 by NRCS and Purdue University as originally scheduled. Muscatatuck was a very important site for the testing of a new hydric soil indicator device called Indicator of Reduction in Soils (IRIS). The device is a special iron oxide coating applied to PVC tubing that when placed in the soil can, by visual inspection in the field, determine the presence or absence of hydric soil conditions (namely, soil saturation and anaerobic activity). NRCS personnel are continuing field testing in different regions of the country in 2003. They were especially pleased with the results at Muscatatuck because of the special character of the soils (low OM % in A horizon) on the property and because the IRIS tubes consistently reflected the interpretation vis-a-vis the other data collected through the years. The success of the IRIS tubes at Muscatatuck turns out to be a pretty big deal when compared with the results from other sites where the IRIS tubes were tested. In FY 2003 the Wet Soils project is complete although all instruments are not scheduled to be pulled until 2/04. Dr. Franzmeier and Byron Jenkinson of Purdue have started to write up the data for publication. It does appear that Russ Pringle (Hydric Soil Technical committee member) recommended at the ASA meetings 11/03 that they are planning to use Muscatatuck as a regional site for a hydric soil teaching session summer 2004.

Muscatatuck NWR and the Ohio River Valley Ecosystem received a final report 10/31/98 on the Binkley Cave/Karst study that indicates in the 20 mile cave system, 68 species have been found including 18 of significant global rarity and 7 species new to science. MNWR in partnership with The Nature Conservancy received 5K in FY 2000 challenge grant money that assisted TNC with census of septic tanks, town system, and an awareness project. In 2001 Muscatatuck NWR, ORVE-cave/karst subgroup reviewed the completed Binkley Cave System Site Conservation Plan at a meeting with the Nature Conservancy. The plan was prepared by Nature Conservancy employee Cassie Hauswald through the aid and partnership of the USFWS challenge grant program. Binkley cave located in Corydon is the largest known cave system in Indiana and contains 23 rare and ecologically important species, including the federal-endangered Indiana Bat. The plan outlines the various threats affecting Binkley Cave and the actions that need to be taken to preserve it. The main objective of this plan is to educate the residents of the Binkley watershed area on how to maintain healthy water quality levels by using proper agricultural practices, conscientious waste disposal systems and various other means.

In FY 2003 TNC is currently dye tracing the watershed. They introduced dye into a sinkhole in New Middletown in February. After several tinkering with amounts, they got a weakly positive result to a spring outlet for Binkley. They contacted the Ozark Underground Lab in Missouri who do dye tracing all over the world and they offered their services at a reduced rate for TNC. Thus, they analyze the samples collected on a weekly basis. The latest trace goes farther out from New Middletown, about 6.5 miles straight line distance. They are using two separate dyes concurrently with two sinkholes. They have yet to get a positive trace from either of these (dye was introduced on 11/18/03). This is typical, though, as the OUL helps TNC perfect the dye concentration factor. Needless to say, a lot of effort goes into this process before results are obtained, Harrison County just funded a wastewater treatment feasibility study. One of the main considerations of the study was the protection of Binkley Cave! TNC was involved in these meetings but the valuation of the cave system really didn't come from them - positive press. This comes at the same time that the town of New Middletown is refining a proposal for a wastewater treatment facility (population 85). As the dye trace reveals that this town likely drains to Binkley Cave, they are interested that USFWS/ORVE and TNC past and present work supports their ask for money from the county.

Muscatatuck NWR working on the ORVE cave/karst subgroup help protect groundwater in Indiana. In 2003, thousands of the brochure "SINKHOLES, GROUNDWATER, & other MYSTERIES below your feet in Southern Indiana" were available to the public in all southern Indiana counties. The Nature Conservancy Blue River Project and Muscatatuck NWR were the lead on the project that highlights the importance of protecting groundwater in the large cave/karst area of Indiana. This project was produced in partnership with TNC, seven local Soil and Water Conservation Districts, Bluespring Caverns, Indiana Karst Conservancy, American Cave Conservation Association, Marengo Cave, Indiana Geological Survey, and US FWS.

Muscatatuck NWR was awarded a 1997 Riverwatch grant from the IDNR and refuge volunteers have continued their monitoring efforts through 2003 of Storm creek, Mutton creek, Richart Lake feeder, Stanfield Lake feeder, and Sandy Branch. Over the past 8 years, the creeks that have been tested at Muscatatuck have ranked from medium to excellent with an overall average of good. In 2003 quarterly water sampling was done by refuge volunteers. All data has been submitted via internet to the IDNR Riverwatch website.

The dragonfly survey is part of a larger research project recently completed by Dr. Curry of Franklin College to update the Odonata of Indiana. Muscatatuck NWR photo's and dragonfly species are featured in the newly published book "The Dragonflies of Indiana", by Dr. James Curry of Franklin College. This is a groundbreaking field guide to the fascinating insects and the 97 species of dragonflies that call Indiana home. Current data 2003 indicates that Muscatatuck is home to 35 species documented by Dr. Curry on the refuge and we certainly feel a few more species are lurking about somewhere.

The river Otters reintroduced into Indiana at MNWR in 1995 continue to be studied by IDNR Wildlife Biologists. IDNR Biologist Scott Johnson is excited about the successful breeding that is taking place at MNWR and feels the refuge will continue to be a good source for young otters to help populate the Muscatatuck River Basin. Successful reproduction at MNWR has been confirmed 1996 through 2003.

2 HABITAT RESTORATION

2a. Wetland Restoration

Repairs were made to the outlet pipe of Persimmon Pond 11/18/99. Beaver continue to plug the inlet pipe in 2003.

Muscatatuck NWR staff, BFO Jeff Kiefer and Dave Hudak retired USFWS continue to work within the Restle unit area. There is now along with the 78 acre Restle Unit tract over 700 contiguous acres protected in the Bean Blossom Bottoms area of Monroe County, IN. Protected acres include land owned by IDNR, Sycamore Land Trust, TNC, WRP acreage, and Partners for Fish and Wildlife Program projects. Work was completed early FY2001 to make viewing from the platform more accessible for environmental education and follow-up vegetation and noxious weed control was completed 6/2003.

Muscatatuck NWR Restle unit had an interesting spring 2002 including good news and bad news. The bad news first: was due to extreme Indiana flood conditions, the dike has been breached and is in need of emergency repair for the 2400 foot dike. The 30 acre wetland area is now dry except during rain and flood times - when/if funding becomes available engineering design and rebuilding needs to be done to repair damages. In September 2002 a tornado also hit the property and destroyed the refuge sign. It was replaced 6/2003. Now the good news: a bobcat (state endangered) that was outfitted with a radio transmitter 1/2001 by the IDNR, 40 miles from the Restle unit was tracked 6/12-17/2002 on the Restle unit by IDNR personnel. This is the first confirmed sighting of the bobcat on the Restle unit. Visitors this spring have seen a pair of bald eagles overhead and a Great blue heron rookery is located on the protected acreage.

2b. Upland Restoration

Sandy Branch watershed work with Jackson Co. SWCD and NRCS continues.

2c. Riverine Restoration

We continue to work with Jackson, Jennings, Scott, and Washington SWCD and NRCS to promote conservation efforts in the Muscatatuck River watershed. This work includes efforts to reduce sedimentation, non point source pollution and promote awareness focusing on improving water quality within the watershed.

2d. Deepwater/Coral Reef Restoration - N/A

3 HABITAT MANAGEMENT

3a. Water Level Management

1,130 acres of wetland areas in 11 units were managed by refuge staff guided by the 2003 water management plan to benefit fish, wildlife and water quality.

Water level gauges on managed water units were monitored biweekly.

Greentree drawdown began early 3/03, but was hampered by an extremely wet spring. Precipitation continued to be a problem in what turned out to be the tenth wettest year on record since record keeping began in 1871.

MSU drawdowns were also affected by the extremely wet spring, summer and fall. August was the only month recording below normal precipitation. Shorebird use of the units was greatly reduced as a probable result of the reduction in mud flats.

3b. Moist Soil Management

270 acres in 8 units were managed by refuge staff guided by the 2003 water management plan to benefit fish, wildlife and water quality.

Muscatatuck NWR completed rehabilitation of the 32 acre Moist Soil Unit 9 and the 18 acre Unit 8; by bog discing to improve future moist soil plant production 10/02. The new/replacement tractor obtained with MMS dollars this year made the job much more efficient and better.

Vegetation checks of all MSU were conducted 8/18/03 by Wildlife Biologist Oliver.

Management of moist soil units was done in accordance with the 2003 water management plan. The M1 unit has a leak in the west dike and needs to be repaired and a quick fix was done prior to filling 9/01. Further repairs will be scheduled for summer 2004.

3c. Graze/mow/hay

Hay cutting was done according to grassland/cropland management plans.

3d. Farming

Croplands are managed for migrant waterfowl, sandhill cranes and resident wildlife. Cropland production supports the moist soil management program in food production for migratory birds.

In 2003, 494 acres were farmed using the rotation corn, soybeans, wheat, hay evenly distributed across the farm acreage. Due to a wet cool spring planting was delayed. The refuge continued its planned rotation on the 55 acre "Farming for a clean watershed project" in partnership with IDNR, PU, SWCD and farm cooperator Snyder. This is the eighth year of the project. Compliance checks completed with all farmers 9/03, roundup ready (but not bt) soybeans and corn were tested as part of the IPM program. With the planned ending of all farming on the east side of County line road in 2004, row crops were not planted and those fields remained in hayland and will be retired to succession.

3e. Forest Management

Approximately 350 acres of cropland will be removed from the program after the 2003 season and allowed to succeed to forest.

3f. Prescribed burning

With a change in refuge objectives beginning in 2003, reforestation will negate the need for future prescribed burn plans for the refuge.

3g. Pest plant control

Control per Indiana noxious weed laws conducted for Johnsongrass and Canada thistle. Purple loosestrife scouting took place and a few plants were found and sprayed off US HWY 50 by the managers home in 2003. A small infestation of Japanese knotweed on 1225 E. was sprayed in 2003.

Pesticide use report sent to RO 1/9/03.

3h. Invasive Plant Management

Utilizing transects and plot counts, an invasive plant survey of the refuge was conducted during Summer 2001. The survey focused on multiflora rose, autumn olive, Canada thistle and garlic mustard. The survey examined species densities and relationship to habitat type. Multiflora rose was the most prevalent invasive in the survey with forest habitat having the highest density. Further surveys are recommended for the future. Much of this data was entered on the nwrinvasives.spaceinvaders website in 2002. Summer 2003 interns mapped a garlic mustard infestation as part of a garlic mustard management assessment project, south of Stanfield lake. They created a strategic plan to contain and control the spread. Administration of this strategic plan should begin spring of 2004. Late in the fiscal year cost-share funds were received for volunteer invasive plant removal work.

4 FISH AND WILDLIFE MANAGEMENT

4a. Bird Banding

Wood duck banding efforts began with baiting and site preparation in early August/03. High water levels due to the extreme precipitation prevailed during much of the banding period making the site unavailable for rocket net use. In spite of excellent smart weed production, there was little to no wood duck interest near the banding site. No ducks were banded in 2003.

4b. Disease monitoring and treatment

Refuge staff were vigilant for signs of West Nile disease and Chronic Wasting disease on the refuge in 2003. No cases were reported, but a few suspected cases of distemper were observed in refuge raccoons this year.

4c. Reintroductions

Muscatatuck NWR served as an excellent Bed & Breakfast for the WCEP. Thirteen Cranes and crew flew into the refuge with three cranes arriving by truck for a stopover on 11/11/02 and all sixteen whooping cranes flew out flawlessly on 11/12/02. The project used the same secluded field as last year for a landing strip and penning the cranes. The cranes and aircraft are part of an international partnership effort to establish a migrating flock of whoopers in the Eastern United States. The partnership includes the USFWS. All portions of the stop-over went well, with refuge staff accommodating needs of both the cranes, aircraft and ground crew. Muscatatuck NWR is the only national wildlife refuge on the stop-over schedule between Necedah and Chassahowitzka NWRs.



Northbound Cranes "Whoop It Up" on CRP Wetland - Photo by Mark Trabue

They say “Whooping cranes are so endangered that most people have never seen one.” We participate in the program to establish a migrating population and have seen them in the wild (six birds in 2001 and 16 birds in 2002), which is approximately the population that existed in the world in the early 1940's. On Monday March 17, 2003 Biologist Oliver spotted one of only 22 migrating whooping cranes existing in the eastern flyway on the ground feeding in Jackson county before it continued its migratory journey north. Then, 15 whoopers spent 4/3-12/03 in Jackson County less than 1 mile from the refuge on WRP land.

4d. Provide nest structures

Sixty five bluebird boxes on the road sign posts were monitored, repaired, and replaced by volunteer King in FY03. Fledged young included bluebirds but numbers were down from previous years. There was a rise in number of wren nests and tree swallows. Ants and wasps were a problem in some of the houses. Some racoon predation occurred and the use of predator guards recommended by the bluebird society are being experimented with. The tree swallows used the houses with predator guards and approximately 60 birds fledged.

4e. Native Animal and Predator Control

Beaver continue to plug Water Control Structures especially during greentree unit and moist soil unit drawdowns. Affected structures requiring maintenance staff time to clean out include G1/ML, G1/M7, M3, M4, M5, Lake Linda, Display Pond, M2, M10, Wood duck pond, Persimmon pond, and G3.

4f. Invasive Animal and Other Invasive Non-Plant Taxa Management

The IDNR continue to place and monitor gypsy moth traps on the refuge.

5 COORDINATION ACTIVITIES

5a. Interagency Coordination

Muscatatuck NWR served as training site for thirty NRCS employees 11/02. The refuge wetland areas were used to enhance a WRP restoration training program with “in the field” time spent reviewing plant ID, restoration efforts, waterfowl ID, etc. The program was conducted by the Indiana, NRCS state WRP coordinator

This years annual conservation field days held in May for Jennings County and October in Jackson County at the refuge continues as a great collaborative effort for environmental education with students working their way through rotating stations. The sessions consisted of wetlands, wildlife, forestry, soils, geology, and recycling. The sessions were taught by personnel from Purdue Extension, Jackson and Jennings County SWCD's, IDNR, Natural Resource Conservation Service, Jackson Co. Solid Waste Management District, and the refuge.

Muscatatuck NWR staff has joined with the Jackson County Industrial Development Council in their Job Shadow program for high school students. Job shadowing is an excellent way to familiarize students with their career interest and will enable them to gain information such as education requirements, training either on-the-job or outside, and opportunities that will be available to them upon graduation from high school or college. We hosted our first job shadow student involved with this program in 11/02 and continued to host other students as requested throughout the year.

The USDA announced that the White River RC&D Area, IN has been selected as one of the twenty newly designated RC&D areas nationwide in FY02 a tour was provided to the RC&D coordinator in 2003. The White River RC&D includes Jackson, Washington, Lawrence and Orange Counties in Indiana. Muscatatuck NWR was publicly recognized as one of the many supporters who helped to get the RC&D approved. The staff at Muscatatuck look forward to a fine working relationship with this RC&D area committees to further environmental education and the mission of the US Fish and Wildlife Service.

The refuge ORP serves on the Historic Hoosier Hills RC & D Conservation Education Committee. The group held an educators workshop in North Vernon in 5/03 which was attended by approximately 30 people.

Muscatatuck NWR interns assisted the Indiana DNR band geese at Crosley State Fish and Wildlife Area and other off refuge sites.

The DNR again provided outstanding support to the refuge in many areas- research (otter tracking), law enforcement (by conservation officers), education (through help at field days), and recreation (by managing the refuge deer hunt drawing).

The refuge ORP spent considerable time working with the Jackson and Jennings County Visitor Bureaus on the Wings Over Muscatatuck bird festival.

The Muscatatuck Wildlife Society, the refuge ORP, refuge volunteers, and the Scott County Chapter of Ducks Unlimited worked together on the Indiana Junior Duck Stamp program that is administered by Muscatatuck NWR.

The ROS and BIO continue to work with NRCS, SWCD, IDNR with WRP, CRP, EQIP, Partners for fish and wildlife and other joint projects concerning the Muscatatuck River Basin and watershed. The refuge has been actively involved with the ORVE team and have helped to coordinate meetings and a cave/karst study being done on Binkley's cave system in Indiana and a study at the Twin/Donaldson cave system.

ROS Knowles was appointed as the Region 3 member of the USFWS national Fulfilling the Promise National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act Policy Team 5/00. Her activities in FY 03 included doing the final preparation of team edits

on the revision of volunteer chapters Service Manual 150 FW 1,2,3 along with the final response to comments and submitting them to R9/FWS on 11/6/02 for surnaming. At FY03 end the chapters were at Division of Policy and Directives Management along the surname process. ROS Knowles also did the final preparation of team edits and the teams summary responses to the comments received during the Service Directorate review for FW 604 chapter 4. This was submitted to R9/FWS 2/03/03. At FY03 end the chapter was still in Arlington with the Chief of Visitor Services and Communication.

5b. Tribal Coordination - N/A

5c. Private Land Activities

BFO Jeff Kieffer conducted a statewide training session that was hosted at Muscatatuck NWR 4/29-30/03. Eight FWS employees attended the meeting to learn about new forms, regulations and to participate in the workshop. A private lands tour was conducted by NRCS-WRP state coordinator Jerry Roach, Biologist Kieffer and ROS Knowles.

Muscatatuck NWR staff and local NRCS staff have concentrated Wetland Reserve Program (WRP) efforts in the Muscatatuck River basin and a lot of interest has been generated. In the Muscatatuck River Watershed there are currently (FY03) 54 easements totaling 3,901 acres of land under WRP easement protection with 24 unfunded applications representing 1295 acres of eligible but unfunded applications pending. Restoration efforts completed in 2003: 4500 lineal feet of low level dike, and 6500 lineal feet of macro topography (swale shape), five acres of pothole, two water control structures, and approximately 20 tile blocks.

Fifty landowners were provided information on Partners for Fish and Wildlife, WRP, EQIP, CRP, wetlands, tree planting, prairie grass planting etc. by MNWR staff.

Partners for Fish and Wildlife restorations for FY03 include:

Haston	15 acre prairie restoration Warren County
Noah's Ark	10 acre prairie restoration Jefferson County
Bonham	20 acre prairie restoration Delaware County
Hughes	2 acre wetland restoration Jackson County
Heath	8 acre tree planting Jennings County
Stephens	12 acre wetland restoration Jefferson County
McGannon	15 acre wetland restoration Scott County
Susnick	5 acre wetland restoration Scott County

Eleven PFFW sites were monitored and all Conservation Easements MNWR is responsible for were field checked. Technical assistance was provided to NRCS for 5 WRP applications.

6 RESOURCE PROTECTION

6a. Law Enforcement

Violation	*Federal Citations	Federal Warnings	State Citations	State Warnings
No Fishing License				1
Speeding			2	2
Illegal Parking		2		
Unauthorized Firearm		1		
Trespass After Hours	3			#15
Boating Without Life Jacket	1			
Spotlighting Deer	3	2		
Hunting Area Closed to Hunting	6		4	
Hunting with Illegal Tree Steps	2			
Trespass Closed Area	2			
Unauthorized Take of Deer	1			1
No Hunter Orange	2			
Rabbit Hunting Closed Season		1		
Possession Uncased Firearm	2	3		
Off-road Trespass (Criminal Mischief)			#1	

*Cases made by state officers taken to federal court #Cases made by State Police

TOTALS: 22 9 7 19

ORP Stanley no longer serves as a refuge officer for Muscatatuck NWR. IDNR Conservation Officers worked the refuge as much as their time permitted. Jason Lewis and Brian Winters (Refuge Officers from Big Oaks NWR) worked four days at Muscatatuck during the refuge deer season.

The refuge ORP received an unusually large number of calls from people locked inside the refuge automatic gates at night during May, June, and July. The Indiana State Police were very helpful about coming out to let the people out, although they had no authority to write citations to the subjects.

One Indiana Conservation Officer used his speed gun on the refuge occasionally, and it is hoped this will help improve wildlife observation opportunities for visitors and promote visitor safety.

In March a pickup truck was found damaged and stuck in a very muddy trail going back to Barkman Cemetery. The subject had driven past a "No Vehicle..." sign, hit a tree and became stuck on the way out. The driver was nowhere to be found so the State Police towed the vehicle. Eventually the driver, a convicted felon, was found and arrested for criminal mischief (damage to the refuge trail). The subject paid approximately \$300 to the U.S. Fish and Wildlife Service in addition to court costs.

In June a primitive "firebomb" made of gasoline, rags, and a plastic bottle was found along Road 500 near Mini-Marsh.

A number of complaints were received regarding unauthorized trolling motors in August, and unauthorized driving to the Office Pond was noted.

A car window was broken in a vehicle parked along the auto tour route in November. The vehicle owner apparently returned at the right time and observed two young males hastily leaving her vehicle.

November brought lots of gunshot reports to the west side of the refuge. Conservation Officers had information a poacher was working with a rifle. One apparently poached buck was found, but no apprehensions were made.

In December two bridge signs were stolen from the West Entrance Road. On 12/29/02, during the refuge deer hunt, one Conservation Officer was called out by Visitor Center staff and found 7 illegal hunters in an hours time on the east side of the refuge (non-hunting area).

6b. Permits & Economic Use Management

Twelve special use permits were issued during FY03 for meetings at the VC, entry into the closed area, youth camping in the scout camping area, youth fishing derbys, and other purposes. The number of permits is going down as staff extend old permits verses writing new ones.

6c. Contaminant Investigations - nothing to report

Water quality monitoring was done where water enters refuge property at Sandy Branch, Mutton Creek, Storm Creek, Richart (n), Richart (s), and Stanfield. This was done quarterly by volunteers in FY03. Data is being sent to Indiana Riverwatch statewide network.

The Spill Prevention Control and Countermeasure (SPCC) information worksheet was completed 7/18/02 and a refuge visit by John Spencer of New Horizons Environmental Consultants was conducted 8/26/02. The SPCC plan was signed by RM Herzberger 01/22/03 after it was reviewed/coordinated by the RO.

6d. Contaminant Cleanup - nothing to report

6e. Water Rights Management

The 2003 water management plan was written and approved 1/24/03.

6f. Cultural Resource Management

A categorical exclusion for the Conservation Learning Center project was signed off on by all needed signatures 10/08/02. Groundbreaking for the CLC was conducted 3/14/03.

NEPA and section 7 documents were signed off on for the Conservation Learning Center Project in FY2002.

Refuge volunteers utilized funds provided by the Muscatatuck Wildlife Society to repair stones in Myers and Barkman cemeteries during the year. Volunteer Mark Wolfal did an exceptional job repairing badly damaged stones at Barkman cemetery.

6g. Landownership support - nothing to report

7 PUBLIC EDUCATION & RECREATION

7a. Provide Visitor Services

The annual National Wildlife Refuge week celebration at Muscatatuck consisted of many events . The Muscatatuck Wildlife Society friends group hosted the annual refuge week "Log Cabin Day" community festival at Myers cabin 10/19/02. The festival at a restored log cabin on the refuge was attended by about 300 people (in spite of rainy weather) and featured a free ham and bean dinner, old time craft demonstrations, a storyteller, music and wagon rides into the refuge closed area. The Muscatatuck National Wildlife Society Foundation held their annual 5K run/walk in support of the learning center project, and visitors were permitted to enter the refuge waterfowl sanctuary closed area.

Muscatatuck NWR conducted its annual Jackson County Conservation Field Days 10/22-24/02 at the visitor center. More than 600 students, parents, staff, and teachers participated. Students received environmental education in the fields of wildlife, soils, wetlands, forests, geology, and recycling. Partners included Jackson and Jennings county SWCD, NCRS, IDNR, Purdue Extension, NRCS, Jackson County solid waste management district, and the refuge.

Muscatatuck NWR main entrance off US Hwy 50 was made much safer and more visible for the 140,000 visitors/year with completion of a TEA 21 funded construction project in FY03. The project included the installation of turn lanes on US Highway 50 and paving the entrance road and parking areas in the refuge to the Visitor Center. Numerous positive comments about the newer safer entrance into the refuge have been received from visitors, especially those coming from the east. The project had been "on the drawing board" for many years as an important MMS project need and was considered a high priority by the Muscatatuck Wildlife Society and refuge.

Deer hunter orientation programs, held two afternoons prior to the refuge hunt, (10/13 and 12/6), were attended by approximately 100 hunters. Muscatatuck's special permit deer hunt 12/7-22/02 provided hunting opportunities for 4200 hunters. The hunt is held annually as a management tool to control the herd size and maintain a healthy deer population without negative impact on the vegetation in the ecosystem. Deer harvest information was gathered with a voluntary drop box reporting system. This information indicates an estimated harvest of 90 bucks and 68 does, a small increase from the 2001 harvest.

The refuge was open to ice fishing 1/23-2/3/2003 with over 1000 anglers trying their luck out at top refuge fishing areas.



CLC Groundbreaking on March 14, 2003

On 3/14/2003 Muscatatuck National Wildlife Refuge celebrated the Centennial of the National Wildlife Refuge System. The celebration opened with the ground-breaking for the Conservation Learning Center, a ““Birthday present”” from the Muscatatuck Wildlife Society Foundation.

Approximately 130 staff, volunteers, dignitaries and enthused citizens witnessed the ground-breaking and time capsule dedication which followed. Students from a local elementary school sang a song in commemoration of Teddy Roosevelt, the Muscatatuck Wildlife Society president, local mayors, state senator and representative, U.S. Senators and congressional staffers all added comments during the dedication that ended in a greetings letter to the staff of the 2103 Muscatatuck refuge from the 2003 staff. The celebration included an open house from 9 am until 2 pm with refreshments and an opportunity for the staff to visit with the conservation-minded attendees. The event was covered by local news media generating radio station broadcasts, front page articles in the Seymour Tribune and was even mentioned in USA today.

An essay contest was held in conjunction with the celebration of the 100th anniversary of the refuge system with 127 entries all being placed in the time capsule that was dedicated 3/14/2003 to be opened 3/14/2103. The essay winner was Jeremy Herb a third grade student from Medora.

Bloomington Field office Biologist Jeff Kiefer led several school classes at the Restle unit in the spring 2003. One group was from Bloomfield Elementary (about 100 kids over 2 days) and the other was a class from Journey Christian School in Bloomington (about 15 kids). The kids from Bloomfield got to see an immature bald eagle both days, which was a first for nearly all the kids and their teachers.

Muscatatuck NWR volunteers managed the ninth annual Indiana Junior Duck Stamp contest with 205 entries from throughout the state. The judging took place at the refuge Visitor Center on 3/22/03. Approximately 100 people attended the awards ceremony held 5/10/03 under a circus tent during Wings over Muscatatuck. The winning art is displayed at the Visitor Center and a rotating display was moved by Scott County DU chapter to state park visitor centers throughout the state.

Approximately 25 Boy Scouts camped in the Scout Camping Area 4/25-26/03. They cleaned up refuge fishing areas while they visited the refuge.

Muscatatuck NWR held the fifth annual 'Wings Over Muscatatuck' migratory bird festival on Saturday, 5/10/03, in celebration of International Migratory Bird Day. In spite of sporadic, heavy rain and storm warnings, approximately 1,000 people came out to attend the 25 programs, hikes, demonstration, and tours that ran from before dawn to after dusk. Partners included Muscatatuck Wildlife Society and Foundation, Jackson and Jennings County Visitor Bureaus, and Jackson County Solid Waste Management District.

Muscatatuck NWR conducted its annual Jennings County Conservation Field Days 5/12-14/2003 at the visitor center. More than 600 students, parents, interns, staff, and teachers participated. Students received education in the fields of wetlands, wildlife, forests, soils, geology, and National Wildlife Refuges. Partners included Jennings County SWCD, IDNR, Purdue Extension.

Muscatatuck NWR hosted approximately 400 people for "Take A Kid Fishing Day" on 5/31/03. Richart Lake was opened for fishing from 6/1-8/03. Kids could participate in activities that included fly fishing demonstrations, a "fish art" contest, casting contest, and fishing contest. Prizes were awarded for those who caught the most and the biggest fish and special tagged fish from Richart lake. The event was sponsored by the Muscatatuck Wildlife Society with help from the refuge and volunteers. Many local businesses, scout troops, and Indianapolis Flycasters Association helped make this event a success.

Muscatatuck staff and volunteers assisted with the Seymour Walmart Kids fishing day event 6/7/03.

A 340 - foot boardwalk and steps were completed on the Chestnut Ridge trail. The 100 percent recycled plastic (made from milk jugs) replaces a wooden one that was a favorite of visitors. Partial funding came from a grant from the Jackson County Solid Waste Management District and the Muscatatuck Wildlife Society. The Chestnut Ridge trail makes a loop behind the Visitor Center and the boardwalk takes walkers over a wetland area.

7b. Outreach

A three acre corn maze in the shape of MNWR with trails to “local wildlife” was developed on private land by a Jennings County Church August - October 2002. Approximately 4,000 people learned more about MNWR, the refuge system and local wildlife by going through this corn maze.

Muscatatuck placed exhibits on the refuge system Centennial and the Junior Duck Stamp program at the Hardy Lake Raptor Days event 10/5-6/02, the exhibits were viewed by several hundred people.

Muscatatuck and Big Oaks provided Centennial Exhibit and materials at the Jennings County Library and Jackson County Library in 10/02. About 1000 people viewed these exhibits.

Muscatatuck NWR participated in the Franklin College Internship Fair as part of our ongoing diversity outreach efforts 10/02. The centennial, volunteer/internships, refuge system, and USFWS were highlighted to over 80 students. Approximately 25 other companies were represented and many of those folks were able to spend time at the Muscatatuck booth asking questions. This was another opportunity to reach the non- traditional audience with information.

Muscatatuck NWR and BONWR staff operated an exhibit at the 75th National FFA Convention in Louisville, KY 10/30-11/1/2002. The convention focused on careers and was attended by approximately 51,025 students, advisors and guests, the largest annual student gathering in the country. The diverse group of 34% females, 77% white, and 73% urban, non rural members are very interested in the work of the Service and kept the staff busy with career questions. The Centennial of the refuge system was highlighted. Several of the student groups made Muscatatuck NWR a tour stop on their FFA trip.

Muscatatuck ROS Knowles met with Jennings county highway commissioner and his staff 11/02 to review boundaries and road maintenance impacted by the refuge deer hunt. A tour of the refuge was conducted and good cooperative efforts were agreed upon to answer hunters questions about safe access off Jennings county roads during the deer hunt.

Muscatatuck NWR centennial exhibit was on display at the Falls of the Ohio, Indiana State Park for six weeks in December and January 2003. Over 1000 Visitors to the park learned about the refuge and the centennial of the refuge system.

There were numerous newspaper articles and radio interviews during the year on the volunteer program, the Conservation Learning Center project, the bird festival, other special events, and the refuge. MWS volunteers and staff contacted approximately 2,000 educators at the Hoosier Association of Science Teachers Conference in Indianapolis in February with refuge information,, Educators Guides to Muscatatuck, bookstore items, and an exhibit about the Indiana Junior Duck Stamp program.

Ball State University's celebration of National Women's History Month included a panel discussion on "Rescuing Indiana's Natural Resources". This annual women's week event at the university presented by the Women's Studies Program celebrates the achievements and experiences of women. Refuge Operations Specialist Susan Knowles of Muscatatuck National Wildlife Refuge was one of the panelists 3/28/03, speaking on her experiences during her 35 year career in the conservation field. Her discussion included the U.S. Fish and Wildlife Service and its celebration of the 100th anniversary of the Refuge system and Indiana's refuges, what she does and how she arrived in her current position. Attendance included 50 college students, professors and the Dean of the College of Sciences and Humanities. BSU is in Muncie, Ind., with an enrollment of 18,000.

Muscatatuck had a Centennial exhibit at Tanger Outlet Mall in Seymour March-May 2003.

Muscatatuck NWR helped coordinate an Arbor Day/Earth Day 2003 program held at Scottsburg Middle School for 300 sixth grade students and staff. This annual program conducted by teachers, features environmental education learning stations for students and then all participants go home with a tree seedling to plant. This is the 8th year for this program.

Muscatatuck NWR helped coordinate an Arbor Day/Earth Day 2003 program held at Vienna Finley Elementary School for all 400 students and staff in grades K-5. The teachers incorporated conservation education in special programs throughout the week. This annual program conducted by teachers, features environmental education learning stations for students and then all participants went home Arbor day with a tree seedling to plant. This is the 13th year for this program.

ORP Stanley talked to 60 members of the Indiana Audubon Society at the Mary Gray Bird Sanctuary on 5/3/03. The program was the refuge, the centennial, and the whooping crane reintroduction program.

Muscatatuck and Big Oaks staff and the Blue Goose staffed a display at the Cincinnati Zoo International Migratory Bird Day program on 5/8/03. Approximately 1000 people entered the refuge exhibit area.

Muscatatuck NWR contacted Senator Lugar, Senator Bayh, Congressman Hill, State Senator Skillman, and State Representative Goodin, Seymour Mayor Burkhardt and North Vernon Mayor John Hall with information on the Centennial of the Refuge system and all either personally

attended or sent staffers to represent them during the March 14, 2003 time capsule dedication event. A personal follow up was conducted with their local staffers during the summer county fairs by ROS Knowles. They all show interest in the centennial events and we will continue to keep them informed about special events.

Muscatatuck/Big Oaks NWR had an exhibit on the National Wildlife Refuge System Centennial at the Jennings County Fair 6/03. The exhibit along with an adjacent exhibit with information about Muscatatuck and Big Oak NWR's was viewed by approximately 24,000 people. Refuge staff and volunteer interns staffed the exhibit and provided information to many visitors.

Muscatatuck NWR had an exhibit on the National Wildlife Refuge System Centennial at the Jackson County Fair 7/03. The exhibit was staffed by refuge volunteers at peak visitation times. About 3,000 people viewed the exhibit.

The FWS state Centennial committees Centennial Exhibit was on display at the Indiana State Fair in Indianapolis 8/7-18/03. The exhibits were located in the Conservation Building and were visited by about 100,000 people.

Volunteers/Work Programs/Cooperating Associations/Friends Groups

In FY2003 over 217 volunteers donated over 13,334 hours to the refuge. Refuge volunteers continued to staff the visitor center every afternoon, and some mornings.

A volunteer appreciation cookout was held at Myers Cabin at the beginning of National Wildlife Refuge Week and attended by approximately 30 volunteers.

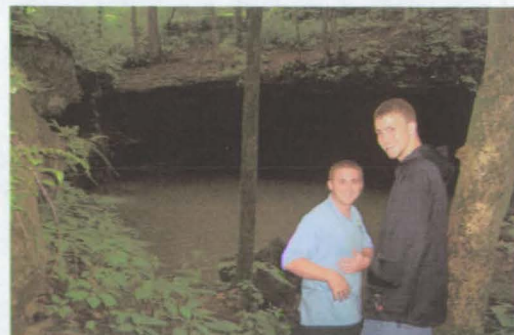
Muscatatuck NWR recruited for volunteer interns through many universities, SWCD, FFA, etc., and had an excellent crew of workers on the refuge during 2003. Interns who worked intermittently were Kara Ravenscroft, Jimmy Boswell, and Zoe Hagberg, all students from IU.

Summer interns were: Nick Burgmeier from Purdue, Tara Hettinger from Franklin College, and Blaine Minnick from IU. They worked on biological, public use, and maintenance projects. This continues to be a great program for the refuge, as well as students. All together these volunteer/interns contributed 1850 hours of work to the refuge.

Tara Hettinger



Blaine Minnick (lt) & Nick Burgmeier (rt)



The Sierra Club had a work day at the refuge 10/19/02 and cleared brush from the Endicott grassland.

The refuge held a volunteer appreciation pitch-in dinner 1/6/03 at the Visitor Center. Twenty-five volunteers and staff attended. A program was given by Dr. Meretsky on the work she and her IU students are doing in the Acid Seep Spring Natural Area.

Muscatatuck Wildlife Society board members Phil and Judy McClure attended the Centennial Refuge Friends Conference in Washington, D.C. 2/1-3/03. RM Herzberger and ORP Stanley also attended.

Jennings County Restart students volunteered several afternoons a month on the refuge in 4/03 cleaning overlook windows and picking up trash.

Another volunteer appreciation dinner held during National Volunteer Week in 4/03 at Ryans Steakhouse in Seymour was attended by approximately 35 volunteers and staff.

Matt Ashcraft, a Boy Scout working on an Eagle project with his troop cleaned up an old dump site and pond on the refuge in early 4/03. The site looked much better after the project was complete. A highlight of the day for the group was watching 15 whooping cranes fly along the west edge of the refuge.

MWS board members and ORP Stanley attended the regional Friends group meeting at Neal Smith NWR in Iowa 5/17-18/2003.

A National Public Lands Day volunteer work day/Trails Festival was held on the refuge in 9/03. Approximately 40 volunteers picked up trash and cleared the West River hiking trail.

The annual meeting of the Muscatatuck Wildlife Society was attended by 55 people 5/23/03. Featured was a trip to see the nesting eagles in the refuge closed area.

Muscatatuck has teamed with Experience Works (formerly Green Thumb) since refuge establishment in 1966. Currently three enrollees Webb Jaynes, John Gaffney, Sr., and Bob West donate 20 hours/week year round to the refuge and they are helping us prepare for the Centennial of the refuge system celebration.

The Muscatatuck Wildlife Society (MWS), the refuge friends group manages the visitor center bookstore. Bookstore revenue was approximately \$33,000. MWS volunteers sold books and gave out refuge information at the Hoosier Association of Science Teachers conference in Indianapolis in February. They finished administering the Big Oaks friends group grant this year (\$2,500), received and administered a forb seed grant from the Indiana Native Plant Society for

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the eighty-ninth is the fact that the
the ninetieth is the fact that the
the ninety-first is the fact that the
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the ninety-sixth is the fact that the
the ninety-seventh is the fact that the
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the ninety-ninth is the fact that the
the hundredth is the fact that the

the Endicott grassland, contributed \$5,000 and handled funds for the boardwalk construction grant, sponsored the Wings Over Muscatatuck Bird Festival, Take a Kid Fishing event and Log Cabin Day festival, and helped with many other refuge projects. They also contributed funds and time to the Indiana Junior Duck Stamp Contest, maintained Myers Cabin and Myers Barn, and paid for the repair of cemetery stones in Barkman and Myers cemetery.



2003 Volunteer of the Year- Muscatatuck Wildlife Society Foundation

The board of directors of the Muscatatuck Wildlife Society Foundation (MWSF) continued to oversee fund-raising efforts to build the Conservation Learning Center adjacent to the Visitor Center on the refuge as a centennial gift to the refuge and its many visitors. To date nearly \$350,000 has been pledged toward the project (although \$75,000 of that is a Build Indiana Grant that faces uncertainty). David Correll, a local architect, completed work on the blueprints and along with the board put it out for bid. The project bid agreement was officially awarded and signed 5/8/03 between Poole Group, Inc. Dillsboro, IN and the Board of Directors of the MWSF. The ceremonial ground breaking was held during the 3/14/03 Centennial Event. At that time the USFWS pledged a challenge grant towards the project in the amount of \$80,000. By the end of the Fiscal Year 9/30/2003 the building was nearing completion.



Conservation Learning Center- September, 2003

8 PLANNING & ADMINISTRATION

8a. Comprehensive Conservation Planning

An estimated 75% of the Habitat Management Plan, a step-down plan portion of the CCP, was completed in 2003. Review, comments and writing will continue in 2004.



Staff (lt to rt): Herzberger, Oliver, Knowles, Stanley, Blasdel, Pagel, Pike
Personnel

Lee Herzberger,
 Refuge Manager, GS-13 PFT

Susan M. Knowles,
 Refuge Operations Specialist, GS-12, PFT

Mike Oliver
 Wildlife Biologist, GS-11, PFT

Donna Stanley,
 Outdoor Recreation Planner, GS-9, PFT

Larry Pagel,
 Maintenance Mechanic, WG-9, PFT

Frederick (Rusty) Pike
 Tractor Operator, WG-6, PFT began on duty 12/10/0

Roger Blasdel,
 Administrative Technician (OA), GS-7, PFT

Funding

Funds for operating the refuge the last six years are shown below. The figures reflect all funds appropriated and OFT'd as available to this station except quarters O&M.

<u>*FY98</u>	<u>*FY99</u>	<u>*FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>
\$532,195	960,678	1,000,214	\$620,425	1,339,425	\$805,000

*JPG/BONWR is in the figure because it operated under MNWR organizational code

Feedback - none

RMIS - Public Education & Recreation
Muscatatuck NWR

31530

This record summarizes records from10/2/02..... through9/30/03.....

----- Visitation and Activities -----

I. Total number of visitors.....	140,000
Wilderness Area visits.....	0
II. Interpretation & Nature Observation (on-site).....	90,000
A. Staff/Volunteer Conducted Activities.....	2,500
1. Talks.....	1,600
2. Tours.....	100
3. Demonstrations.....	2,500
B. Visitor Centers.....	17,000
C. Administrative Office.....	3,000
D. Kiosks.....	2,500
E. Nature Trails.....	90,000
1. Foot.....	42,000
2. Boat.....	0
3. Auto.....	90,000
F. Observation Towers/Platforms/Photo Blinds.....	2,000
G. Other Wildlife Observation.....	13,000
III. Environmental Education.....	4,000
A. Staff/Volunteer Conducted.....	1,200
1. Teachers participating in workshops.....	0
2. Students taught on-site.....	1,200
3. Students taught off-site.....	0
B. Non-staff Conducted.....	4,000
IV. Recreation.....	20,375
A. Hunting.....	3,050
1. Migratory Birds.....	0
a. Waterfowl.....	0
b. Other migratory birds.....	0
2. Upland Game.....	500
3. Big Game.....	2,800
B. Fishing.....	18,000
1. Fresh-water.....	18,000
2. Salt-water.....	0
C. Trapping.....	0
D. Beach & Water Uses.....	0
E. Other recreation.....	1,700
V. Education Outreach - (off-site).....	600,430
A. Group Presentations.....	800
B. Exhibits.....	600,000
C. Other education outreach.....	60
VI. Special Events	
A. Number of news releases.....	50
B. Number of radio/TV spots.....	20
C. Number of other special events.....	10

Volunteer Services Report

FISCAL YEAR 03

Station Information

Station: Muscatatuck NWR

OrgCode: 31530

1. Number of volunteers by age:	Under 18	18-35	36-61	Over 61	TOTAL
	<u>100</u>	<u>12</u>	<u>61</u>	<u>44</u>	<u>217</u>

2. Number of hours by Activity Category

Monitoring & Studies

Surveys & Censuses 1,800

Studies & Investigations 2,000

Habitat Restoration

Wetland Restoration 8

Upland Restoration 40

Riverine Restoration

Deepwater/Coral Reef Restoration

Habitat Management

Water Level Management 1,700

Moist Soil Management

Graze/Mow/Hay 40

Farming

Forest Management

Fire Management

Native Pest Plant Control 50

Invasive Plant Management 40

Fish & Wildlife Management

Bird Banding

Disease Monitoring & Treatment

Reintroductions 25

Nest Structures 100

Native Pest Animal & Predator Control 500

Invasive Animal & Other Inv.Non-Plant 16

Taxa Management

Coordination Activities

Interagency Coordination

Tribal Coordination

Private Lands Activities (ex. restoration)

Resource Protection

Law Enforcement

Permits & Economic Use Management

Contaminant Investigation 150

Contaminant Cleanup

Water Rights Management 5

Cultural Resource Management 60

Land Ownership Support

Public Education & Recreation

Provide Visitor Services 6,000

Outreach 800

Planning

Comprehensive Conservation Planning

Provisions Unique to Alaska

Subsistence

Public Access

Manage Comm./Subsistence Fisheries

Manage Private Lands

Navigability Determinations

Total Hours 13,334

Volunteer Maintenance

General Maintenance by volunteers

Fishery Categories

Fry stocking

Spawning

Fish culture

Operation Costs (\$K)

Operations (Supplies, Materials, Equipment, Uniforms, etc.) K

Travel/Transportation, Per Diem, Housing/Utilities (etc.) K

Other (Staff/Volunteer Training, Recruitment, Recognition) K

TOTAL K

Refuge Comprehensive Accomplishment Report - FY 03

Totals by Activity

MONITORING & STUDIES

1.a. Surveys & Censuses

Inputs:		Outputs:		Outcomes:
45	1260 funds (\$K)	# of wildlife surveys conducted	13	TE: 20%
	Other funds (\$K)	# of habitat surveys conducted	4	WF: 40%
45	Total funds (\$K)	% of effort off-refuge	2	OMB: 20%
120	1260 Staff Days			HEC: 2%
	Other Staff Days			IAF: %
120	Total Staff Days			SDA: 5%
1,800	Volunteer Hours			RW: 10%
				PED: %
				PRC: %
				FAR: %

1.b. Studies and Investigations

Inputs:		Outputs:		Outcomes:
48	1260 funds (\$K)	# of studies conducted	5	TE: 20%
	Other funds (\$K)	% of effort off-refuge		WF: %
48	Total funds (\$K)			OMB: %
130	1260 Staff Days			HEC: 50%
	Other Staff Days			IAF: %
130	Total Staff Days			SDA: 10%
2,000	Volunteer Hours			RW: 20%
				PED: %
				PRC: %
				FAR: %

HABITAT RESTORATION

2.a. Wetland Restoration

Inputs:		Outputs:		Outcomes:
	1260 fund (\$K)	# of refuge acres restored	2	TE: 20%
2	Other funds(\$K)	# of off-refuge acres restored	10	WF: 20%
2	Total funds (\$K)	# of acres of new wetlands	50	OMB: 60%
4	1260 Staff Days	# of acres of new off-refuge wetlands		HEC: %
	Other Staff Days			IAF: %
4	Total Staff Days			SDA: %
8	Volunteer Hours			RW: %
				PED: %
				PRC: %
				FAR: %

2.b. Upland Restoration

Inputs:		Outputs:		Outcomes:
	1260 funds (\$K)	# of refuge acres restored		TE: %
1	Other funds (\$K)	# of off-refuge acres restored	35	WF: %
1	Total funds (\$K)			OMB: 40%
8	1260 Staff Days			HEC: 20%
	Other Staff Days			IAF: %
8	Total Staff Days			SDA: %
40	Volunteer Hours			RW: 40%
				PED: %
				PRC: %
				FAR: %

2.c. Riverine Restoration		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	# of miles of refuge rivers restored	WF: ??%
Other funds (\$K)	# of miles of non-refuge rivers rest.	OMB: ??%
Total funds (\$K)	# riverine projects completed	HEC: ??%
1260 Staff Days		IAF: ??%
Other Staff Days		SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

2.d. Deepwater/Coral Reef Restoration		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	# of refuge deepwater acres restored	WF: ??%
Other funds (\$K)	# of refuge coral reef acres restored	OMB: ??%
Total funds (\$K)	# of off-refuge deepwater acres rest.	HEC: ??%
1260 Staff Days	# of miles of marine shoreline restored	IAF: ??%
Other Staff Days	# of deepwater/coral reef projects	SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

HABITAT MANAGEMENT

3.a. Water Level Management		Outcomes:
Inputs:	Outputs:	TE: 10%
72 1260 funds (\$K)	# of new acres managed	WF: 70%
Other funds (\$K)	# of new units managed	OMB: 20%
72 Total funds(\$K)	# of existing acres managed more effectively	HEC: %
1260 Staff Days		IAF: %
Other Staff Days		SDA: %
235 Total Staff Days		RW: %
1,700 Volunteer Hours		PED: %
		PRC: %
		FAR: %

3.b. Moist Soil Management		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	# of new acres managed	WF: ??%
Other funds (\$K)	# of new units managed	OMB: ??%
Total funds (\$K)	# of existing acres managed more effectively	HEC: ??%
1260 Staff Days		IAF: ??%
Other Staff Days		SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

3.c. Graze/Mow/Hay		Outcomes:
Inputs:	Outputs:	TE: %
15 1260 funds (\$K)	# of acres mowed/hayed 250	WF: 50%
Other funds (\$K)	# of acres grazed	OMB: 20%
15 Total funds (\$K)	# of animal unit months supported	HEC: %
40 1260 Staff Days	# of mi.of fence constructed/maintained	IAF: %
Other Staff Days		SDA: %
40 Total Staff Days		RW: %
40 Volunteer Hours		PED: 15%
		PRC: 15%
		FAR: %

3.d. Farming		Outcomes:
Inputs:	Outputs:	TE: %
10 1260 funds (\$K)	# of acres farmed 400	WF: 50%
Other funds (\$K)	% of acres cooperatively farmed 100	OMB: 10%
10 Total funds (\$K)		HEC: %
50 1260 Staff Days		IAF: %
Other Staff Days		SDA: %
50 Total Staff Days		RW: 20%
Volunteer Hours		PED: 10%
		PRC: 10%
		FAR: %

3.e. Forest Management		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	# of acres harvested	WF: ??%
Other funds (\$K)	# of acres treated	OMB: ??%
Total funds (\$K)		HEC: ??%
1260 Staff Days		IAF: ??%
Other Staff Days		SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

3.f. Fire Management		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	#of refuge prescribed burn acres	WF: ??%
Other funds (\$K)	# of non-refuge prescribed burn acres	OMB: ??%
Total funds(\$K)	# of refuge prescribed burns conducted	HEC: ??%
1260 Staff Days	# of wildfires suppressed	IAF: ??%
Other Staff Days		SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

3.g Native Pest Plant Control			Outcomes:
Inputs:	Outputs:		TE: %
38 1260 funds (\$K)	# of acres treated	250	WF: %
Other funds (\$K)	# of refuge acres infested	350	OMB: 10%
38 Total funds (\$K)	# of acres treated chemically	50	HEC: 70%
70 1260 Staff Days	# of acres treated mechanically	200	IAF: %
Other Staff Days	# of acres treated biologically		SDA: 10%
70 Total Staff Days	# of acres surveyed/monitored		RW: %
50 volunteer hours			PED: 10%
			PRC: %
			FAR: %

3.h Invasive Plant Management			Outcomes:
Inputs:	Outputs:		TE: %
28 1260 funds (\$K)	# of acres treated	100	WF: %
Other funds (\$K)	# of refuge acres infested	1,000	OMB: 10%
28 Total funds (\$K)	# of acres treated chemically	10	HEC: 70%
35 1260 Staff Days	# of acres treated mechanically	90	IAF: %
Other Staff Days	# of acres treated biologically		SDA: 10%
35 Total Staff Days	# of acres surveyed/monitored	30	RW: %
40 volunteer hours			PED: 10%
			PRC: %
			FAR: %

FISH AND WILDLIFE MANAGEMENT

4.a. Bird Banding			Outcomes:
Inputs:	Outputs:		TE: ??%
1260 funds (\$K)	# of waterfowl banded		WF: ??%
Other funds (\$K)	# of other birds banded		OMB: ??%
Total funds (\$K)			HEC: ??%
1260 Staff Days			IAF: ??%
Other Staff Days			SDA: ??%
Total Staff Days			RW: ??%
Volunteer Hours			PED: ??%
			PRC: ??%
			FAR: ??%

4.b Disease Monitoring and Treatment			Outcomes:
Inputs:	Outputs:		TE: %
1 1260 funds (\$K)	# of outbreaks monitored	1	WF: %
Other funds (\$K)	# of mortalities documented	1	OMB: 40%
1 Total funds (\$K)	% of effort on-refuge		HEC: 40%
4 1260 Staff Days			IAF: %
Other Staff Days			SDA: %
4 Total Staff Days			RW: 10%
Volunteer Hours			PED: 10%
			PRC: %
			FAR: %

4.c. Reintroductions		Outcomes:
Inputs: 1 1260 funds (\$K) Other funds (\$K) 1 Total funds (\$K) <hr/> 4 1260 Staff Days Other Staff Days 4 Total Staff Days 25 Volunteer Hours	Outputs: # of mammals released # of birds released # of reptiles/amphibians released # of fish released # of other animals released	TE: 50% WF: % OMB: 10% HEC: 15% IAF: % SDA: % RW: 15% PED: % PRC: 10% FAR: %
4.d. Nest Structures		Outcomes:
Inputs: 1260 funds (\$K) Other funds (\$K) Total funds (\$K) <hr/> 1260 Staff Days Other Staff Days Total Staff Days 100 Volunteer Hours	Outputs: # of bird nest structures erected # of bird nest structures maintained 60	TE: ?% WF: ?% OMB: ?% HEC: ?% IAF: ?% SDA: ?% RW: ?% PED: ?% PRC: ?% FAR: ?%
4.e. Native Animal & Predator Control		Outcomes:
Inputs: 25 1260 funds (\$K) Other funds (\$K) 25 Total funds (\$K) <hr/> 10 1260 Staff Days Other Staff Days 10 Total Staff Days 500 Volunteer Hours	Outputs: # mammals removed # birds removed # reptiles/amphibians/fish removed # acres treated for invertebrates # miles of exclusionary fenced maint. # acres treated for insects/disease control # acres surveyed/monitored	TE: % WF: 75% OMB: % HEC: % IAF: % SDA: % RW: 25% PED: % PRC: % FAR: %
4.f. Invasive Animal & Other Invasive Non-Plant Taxa Management		Outcomes:
Inputs: 1260 funds (\$K) Other funds (\$K) Total funds (\$K) <hr/> 1260 Staff Days Other Staff Days Total Staff Days 16 Volunteer Hours	Outputs: # mammals removed # birds removed # reptiles/amphibians/fish removed # acres treated for invertebrates # miles of exclusionary fenced maint. # acres treated for insects/disease control # acres surveyed/monitored 7,724	TE: ?% WF: ?% OMB: ?% HEC: ?% IAF: ?% SDA: ?% RW: ?% PED: ?% PRC: ?% FAR: ?%

COORDINATION ACTIVITIES

5.a. Interagency Coordination			Outcomes:
Inputs:	Outputs:		TE: %
17 1260 funds (\$K)	# of acres affected	200	WF: %
Other funds (\$K)	% of effort for uplands	70	OMB: 60%
17 Total funds (\$K)	% of effort for wetlands	30	HEC: 10%
65 1260 Staff Days	% of effort for deepwater/riverine		IAF: %
Other Staff Days	# activities that did not involve habitat issues		SDA: %
65 Total Staff Days			RW: 10%
Volunteer Hours			PED: 10%
			PRC: 10%
			FAR: %
5.b. Tribal Coordination			Outcomes:
Inputs:	Outputs:		TE: ?%
1260 funds (\$K)	# of acres affected		WF: ?%
Other funds (\$K)	% of effort for uplands	?	OMB: ?%
Total funds (\$K)	% of effort for wetlands	?	HEC: ?%
1260 Staff Days	% of effort for deepwater/riverine	?	IAF: ?%
Other Staff Days			SDA: ?%
Total Staff Days			RW: ?%
Volunteer Hours			PED: ?%
			PRC: ?%
			FAR: ?%
5.c. Private Land Activities (excluding restoration)			Outcomes:
Inputs:	Outputs:		TE: 10%
23 1260 funds (\$K)	# landowners assisted	50	WF: 30%
16 Other funds (\$K)	# acres affected	410	OMB: 20%
39 Total funds (\$K)	% effort for uplands	70	HEC: 10%
90 1260 Staff Days	% effort for wetlands	30	IAF: %
Other Staff Days	% effort for deepwater/riverine		SDA: %
90 Total Staff Days			RW: 10%
Volunteer Hours			PED: 10%
			PRC: 10%
			FAR: %

RESOURCE PROTECTION

6.a. Law Enforcement			Outcomes:
Inputs:	Outputs:		TE: %
3 1260 funds (\$K)	# NOV's & State citations issued	29	WF: %
Other funds (\$K)	# other incidents documented		OMB: %
3 Total funds (\$K)	# cases assisted	15	HEC: %
10 1260 Staff Days	# written warnings issued	15	IAF: %
Other Staff Days	# other public contacts	15	SDA: 25%
10 Total Staff Days			RW: 50%
Volunteer Hours			PED: %
			PRC: 25%
			FAR: %

6.b. Permits & Economic Use Management			Outcomes:
Inputs:	Outputs:		TE: %
3 1260 funds (\$K)	# of permits issued	12	WF: %
Other funds (\$K)			OMB: 50 %
3 Total funds (\$K)	# of special uses reviewed		HEC: %
			IAF: %
4 1260 Staff Days			SDA: %
Other Staff Days			RW: %
4 Total Staff Days			PED: 25 %
Volunteer Hours			PRC: 25 %
			FAR: %
6.c. Contaminant Investigations			Outcomes:
Inputs:	Outputs:		TE: 10 %
43 1260 funds (\$K)	# of investigations underway	3	WF: 10 %
Other funds (\$K)			OMB: 10 %
43 Total funds (\$K)	# of investigations completed	1	HEC: 30 %
	# of water quality studies underway	2	IAF: %
50 1260 Staff Days	# of air quality studies underway		SDA: 10 %
Other Staff Days			RW: 10 %
50 Total Staff Days			PED: 10 %
150 Volunteer Hours			PRC: 10 %
			FAR: %
6.d. Contaminant Cleanup			Outcomes:
Inputs:	Outputs:		TE: ? %
1260 funds (\$K)	# of cleanups underway		WF: ? %
Other funds (\$K)			OMB: ? %
Total funds (\$K)	# of cleanups completed		HEC: ? %
	# of spills responded to		IAF: ? %
1260 Staff Days			SDA: ? %
Other Staff Days			RW: ? %
Total Staff Days			PED: ? %
Volunteer Hours			PRC: ? %
			FAR: ? %
6.e. Water Rights Management			Outcomes:
Inputs:	Outputs:		TE: 10 %
15 1260 funds (\$K)	# water rights supported/protected	1	WF: 60 %
Other funds (\$K)			OMB: 10 %
15 Total funds (\$K)	% effort for identification	30	HEC: 10 %
	% effort for quantification	40	IAF: %
55 1260 Staff Days	% effort for adjudication	30	SDA: %
Other Staff Days			RW: 10 %
55 Total Staff Days			PED: %
5 Volunteer Hours			PRC: %
			FAR: %

6.f. Cultural Resource Management		Outcomes:
Inputs:	Outputs:	TE: %
15 1260 funds (\$K)	# of investigations conducted	WF: %
Other funds (\$K)	# of sites documented	OMB: %
15 Total funds (\$K)	# of sites managed/protected	HEC: %
55 1260 Staff Days	# of museum property items maint.	IAF: %
Other Staff Days		SDA: 50%
55 Total Staff Days		RW: %
60 Volunteer Hours		PED: 50%
		PRC: %
		FAR: %

6.g. Land Ownership Support		Outcomes:
Inputs:	Outputs:	TE: ?%
1260 funds (\$K)	# of tracts involved	WF: ?%
Other funds (\$K)	# of acres involved	OMB: ?%
Total funds (\$K)	# of miles of posted/maintained	HEC: ?%
1260 Staff Days		IAF: ?%
Other Staff Days		SDA: ?%
Total Staff Days		RW: ?%
Volunteer Hours		PED: ?%
		PRC: ?%
		FAR: ?%

PUBLIC EDUCATION AND RECREATION

7.a. Provide Visitor Services		Outcomes:
Inputs:	Outputs:	TE: 5%
222	% of effort for hunting 10	WF: 10%
Other funds (\$K)	% of effort for fishing 15	OMB: 10%
222 Total funds (\$K)	% of effort for wildlife obs/photog. 30	HEC: 5%
400 1260 Staff Days	% of effort for education/interpretation 35	IAF: %
Other Staff Days	% of effort for non-priority use 10	SDA: %
400 Total Staff Days		RW: 10%
6,000 Volunteer Hours		PED: 30%
		PRC: 30%
		FAR: %
7.b. Outreach		Outcomes:
Inputs:	Outputs:	TE: 10%
132 1260 funds (\$K)	# of participants (groups) 1,500	WF: 20%
Other funds (\$K)	# of people viewing off-site exhibits 150,000	OMB: 10%
132 Total funds (\$K)	# of news releases issued 50	HEC: 10%
281 1260 Staff Days	# of TV/radio spots 10	IAF: %
Other Staff Days	# of other special events 10	SDA: 10%
281 Total Staff Days		RW: 10%
800 Volunteer Hours		PED: 15%
		PRC: 15%
		FAR: %

PLANNING

8.a. Comprehensive Conservation Planning			Outcomes:
Inputs:			TE: 10%
1260 funds (\$K)	% of CCP completed this year	4	WF: %
30 Other funds (\$K)	% completion overall	85	OMB: 10%
30 Total funds (\$K)	# of stations covered	1	HEC: 10%
100 1260 Staff Days			IAF: %
Other Staff Days			SDA: 10%
100 Total Staff Days			RW: 10%
Volunteer Hours			PED: 15%
			PRC: 15%
			FAR: %

PROVISIONS UNIQUE TO ALASKA

9.a. Subsistence			Outcomes:
Inputs:	Outputs:		TE: ??%
1260 funds (\$K)	# of programs/projects		WF: ??%
Other funds (\$K)	# of people affected		OMB: ??%
Total funds (\$K)			HEC: ??%
1260 Staff Days			IAF: ??%
Other Staff Days			SDA: ??%
Total Staff Days			RW: ??%
Volunteer Hours			PED: ??%
			PRC: ??%
			FAR: ??%
9.b. Public Access			Outcomes:
Inputs:	Outputs:		TE: ??%
1260 funds (\$K)	# of use days supported		WF: ??%
Other funds (\$K)			OMB: ??%
Total funds (\$K)			HEC: ??%
1260 Staff Days			IAF: ??%
Other Staff Days			SDA: ??%
Total Staff Days			RW: ??%
Volunteer Hours			PED: ??%
			PRC: ??%
			FAR: ??%

9.c. Manage Commercial & Subsistence Fisheries		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	# of runs managed	WF: ??%
Other funds (\$K)	# of projects	OMB: ??%
Total funds (\$K)		HEC: ??%
1260 Staff Days		IAF: ??%
Other Staff Days		SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

9.d. Manage Private Lands		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	# of land units involved	WF: ??%
Other funds (\$K)	# of projects	OMB: ??%
Total funds (\$K)		HEC: ??%
1260 Staff Days		IAF: ??%
Other Staff Days		SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

9.e. Navigability Determinations		Outcomes:
Inputs:	Outputs:	TE: ??%
1260 funds (\$K)	# determinations made	WF: ??%
Other funds (\$K)	# documentations made	OMB: ??%
Total funds (\$K)		HEC: ??%
1260 Staff Days		IAF: ??%
Other Staff Days		SDA: ??%
Total Staff Days		RW: ??%
Volunteer Hours		PED: ??%
		PRC: ??%
		FAR: ??%

TOTALS:			
Inputs:	1,820	1260 Staff Days	Staff FTEs Used 7.0
786 1260 (\$K)		Other Staff Days	
19 Other (\$K)	1,820	Total Staff Days	Volunteer FTEs Used 6.4
805 Total (\$K)	13,334	Volunteer Hours	