

ENVIRONMENTAL ASSESSMENT
FOR
MUSKRAT & RACCOON TRAPPING PROGRAM
MUSCATATUCK NATIONAL WILDLIFE REFUGE
U.S. FISH AND WILDLIFE SERVICE
SEYMOUR, INDIANA

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I. PURPOSE OF ACTION

A. General

The purpose of this action is to 1) maintain muskrat populations at levels compatible with refuge wetland habitat and with refuge waterfowl objectives, 2) to minimize muskrat damage to physical facilities, 3) to minimize the occurrence of high raccoon population densities which have the potential to transmit contagious diseases to humans, among the raccoon population, other wildlife species or domestic animals, 4) and at the same time to provide authorized individuals with quality wildlife oriented recreational experiences, educational opportunities and opportunities to utilize a renewable natural resource.

The main objective of Muscatatuck National Wildlife Refuge is to provide food and cover for migratory birds primarily waterfowl, while emphasizing a particular interest in wood duck production. Developing and maintaining optimum marsh and water habitat is one goal in achieving this primary waterfowl objective.

B. Habitat

Regarding purpose #1, the muskrat population at Muscatatuck NWR plays an important role in the management of marsh and water areas to provide nesting, resting and feeding areas for migrating waterfowl. The management of these marshes for this purpose dictates that water levels be maintained at 12" to 24" in depth and that about a 50:50 ratio of emergent vegetation to open water be strived for in each marsh. Since muskrats are basically vegetarians, their presence in the marsh ensures that the emergent vegetation does not grow so dense that it eliminates the necessary open water.

However, an uncontrolled muskrat population can expand until most of the emergent vegetation is removed. This removes practically all of the food and protective cover for waterfowl and the desirability of the habitat is reduced.

Young wood duck and goose broods use these marshes where muskrats are found. The survival of ducklings and goslings on these marsh areas is enhanced if there is sufficient brood cover for escape from various avian and mammalian predators. Emergent vegetation, when interspersed with open water, provides excellent brood/escape cover for these broods.

In order to maintain the marsh interspersion, it is necessary to limit the population of muskrats to that number which will allow a proper balance between the amount of emergent vegetation and the amount of open water.

C. Facilities

Regarding purpose #2, an uncontrolled muskrat population in a marsh or pond can also result in extensive damage to earthen dikes and water control structures. As an alternative to building a house out in a marsh or pond, muskrats tend to tunnel into banks bordering the impoundment. This tunnelling can cause dikes to fail with eventual loss of the dike. The capability of the refuge to manage water levels for optimum waterfowl habitat depends upon maintaining the integrity and function of the many dikes on the refuge. Protecting these dikes from erosion and from washing out requires a major management effort.

Also related to the waterfowl management program and the protection of the dikes is a necessity for access around the various marsh units to conduct waterfowl population surveys. Most of the dikes are wide enough to permit vehicle access for official purposes. This access is used by refuge personnel to survey and record the usage of these various marsh units by waterfowl for management reporting and planning. Without sound and protected dikes to permit this access, such information on waterfowl usage cannot be gathered economically.

The refuge's law enforcement program is also directly related to the control of muskrats, particularly as that control relates to the protection of the various refuge dikes from damage. The bulk of the refuge law enforcement program involves patrol of the various refuge units. Effective patrol requires access around and through these units via the roads established on the tops of the dikes. Should dike damage from the muskrat tunnelling go unchecked, many of these dikes would wash out. The result would be a severe limitation on the accessibility of much of these refuge units to patrol activities and would thus seriously hamper law enforcement operations.

D. Disease

Regarding purpose #3, raccoons have become very abundant over recent years. They are often seen conspicuously during daylight hours and sign is heavy. A side effect of a high population of raccoons is additional stress causing starvation, predation and disease. Several cases of distemper in raccoons were observed recently on the refuge.

E. Recreation/Education

Purpose #4 relates to the recreational and educational opportunities of a trapping program. These opportunities are considered legitimate activities, however, trapping will not be conducted solely for recreational or educational reasons without a biological basis to do so.

II. PROPOSED ACTION AND ALTERNATIVES

A. The Proposed Action

The U.S. Fish and Wildlife Service proposes to initiate the harvest by trapping of muskrats and raccoons on the Muscatatuck National Wildlife Refuge as part of the refuge's fur management program. The harvest of these animals will be accomplished through a trapping program utilizing permittee trappers determined through a sealed bid system and to a limited degree, through a lottery system for a youth trapping program.

1. Trapping Units

The refuge will be divided into five trapping units. These units are separated by either natural or man-made boundaries and one of these units will be designated Youth Trapping. Bids will be accepted on four of the units and permittee trappers determined based on the highest bid for a given unit. A public drawing from names of youth applicants, ages 12-17, will select youth permittee trappers for the remaining fifth unit. (Exhibit I)

Table I below shows the approximate wetland acres and the total acres in each of the five trapping units.

Table I. Wetland Acres and Total Acres in Trapping Units - Muscatatuck NWR

<u>Trapping Unit</u>	<u>Wetland Acres</u>	<u>Total Acres</u>
Youth	100	575
Unit 1	240	1,860
Unit 2	140	1,750
Unit 3	650	2,079
Unit 4	170 + 1/2 river	1,460
	1,300 + 1/2 river	7,724 acres

2. Applicants

Prior to awarding a bid or selecting a youth trapper, applicants will be screened to insure that they meet certain standards of experience. Those applicants who do not meet these standards will be rejected.

Each permittee trapper and each youth trapper will be authorized to personally select a partner, subject to the refuge manager's approval. Trappers will retain 100% of the muskrats and raccoons they harvest.

3. Species to be Taken

Target species in the trapping program are muskrats and raccoons. All non-target species accidentally trapped will be released and unharmed or be turned over to the refuge manager if found dead or injured.

4. Methods of Taking

Methods of taking muskrats and raccoons will be done in compliance with State of Indiana Trapping Regulations and will be further restricted by general and special conditions of the refuge Trapping Permit. Both the permittee trapper and any authorized partner must comply with these regulations and conditions.

No firearms or dogs will be allowed and the use of double traps (two sets), exposed baits or upland trap sets will be prohibited. Only species of brush or timber considered abundant on the refuge will be used in trap sets.

Trapping will be restricted to wetland only, including permanent or seasonally flooded waters and intermittent streams. At least a portion of the trap itself must be set beneath water. Drown sets will be required where possible.

5. Regulation Compliance

To insure compliance with Federal regulations, including but not limited to general and special trapping conditions and with state regulations, the refuge manager or his designated representative shall make at least one unannounced spot check of the trap lines of each permittee every trapping season by accompanying the permittee on previously set trap lines.

During routine refuge work and during special patrols, the activities of permittees and partners will be observed and any suspected illegal activity will be investigated by law enforcement personnel.

Statements of daily traptake of both target and nontarget species, which are required to be submitted to the refuge manager each Monday of the refuge trapping season, will be reviewed to ascertain if the written record indicates a reasonable account of actual species and numbers taken.

6. Timing

The removal of muskrats and raccoons from the refuge will occur annually during the winter months. The period during which trapping will be permitted will coincide with the State of Indiana's trapping seasons. In the past, the muskrat and raccoon season have extended from November 15 to January 31.

7. Publicity

In an attempt to lessen the impact of the trapping program upon the social and cultural values of private citizens, publicity originating from the refuge regarding the trapping program will contain, to the extent possible, pertinent facts regarding the program, its purposes and successes and its impact upon the target animals. This publicity will not be aimed at camouflaging or distorting the facts regarding the trapping program but rather will be geared toward an explanation of what the muskrat and raccoon trapping program involves and why it is needed.

B. Alternatives to the Proposed Action

1. No Action

As an alternative to the proposed trapping program, trapping operations would not be initiated on the Muscatatuck NWR. The result of this action would be that muskrat populations would consume most of the emergent vegetation found in the refuge wetlands. At that point when food supply would become scarce, severe stress would be placed on the population due to overcrowding conditions and malnutrition. Both muskrat and raccoon populations would become highly susceptible to disease epidemics and to other mortality. Winter kill of these animals could be expected to increase markedly. Parasitism among the populations would also become more predatory in nature and begin to kill and feed upon other animal like, including members of their own population, especially the young.

Undoubtedly, the situation which would develop with an overpopulation would result in a substantial emigration of the animals of both species away from the crowded wetland environment. In addition, reproductive capability and success would probably be greatly reduced and with increased levels of mortality, the populations would exhibit a substantial decline.

During the periods of high population, muskrat damage to the dikes through tunnelling activity would be greatly accelerated. Dikes would probably become so riddled with tunnels and passageways that a severe flood could conceivably wash out entire sections of dike.

There are some beneficial impacts of this alternative. One of these would be the outward impression that the muskrats and raccoons were not harmed by man and were thus safe on the refuge. This impression might serve as a moral reward or source of encouragement to certain individuals who are not fully informed of the ultimate impact on the population in the absence of controls.

Another beneficial impact might be to the social conviction that nature should be made to act in its own way on a wildlife refuge without interference from man. Those people who view the population explosion and subsequent declines as a reflection of natural processes might be pleased with the no action alternative.

2. Environmental Manipulation

There are two types of environmental manipulation which could possibly be used as alternatives to trapping muskrats. One of these involves the drowning of muskrats by increasing the water levels in the refuge impoundments. The other alternative involves dewatering the marsh units during the wintertime and freezing some of the animals to death.

The first method would be geared primarily at the destruction of a few young which are still retained in the muskrat houses and unable to swim for themselves. Raising the water levels would bring water up inside the muskrat houses and drown the young muskrats. The second method involves dropping water levels to the point where the entrances of the muskrat houses are exposed to subzero temperatures during the wintertime. Water levels of a static nature have an insulating effect within the muskrat houses. By removing this water from the entrance ways, cold air would enter the muskrat houses and freeze some of the muskrats inside.

With either of these methods, the magnitude of the kill would be difficult to control. It would be extremely difficult to determine when too many or too few muskrats survived these manipulation methods.

Using either of these two methods would eliminate the economic gain to fur trappers and fur buyers. While the adverse impact of these alternatives would not be significant on the local economy, those few fur trappers which would be selected each year to remove muskrats from the refuge would be adversely affected.

Another adverse impact would be the condemnation by some segments of the public for what they would view as a waste of a natural resource which could be utilized by others. Their views would be that as long as we are killing a certain number of muskrats in these marshes, why not permit a few trappers to harvest them so that they could be utilized by man.

Both of these methods would conflict to a certain extent with the waterfowl habitat management objectives of the refuge. Flooding of the impoundments during the spring, summer and fall months might render a portion of the aquatic food supply unavailable to nesting and migrating waterfowl. In addition, high water levels in these impoundments coupled with strong winds could cause severe wave erosion to the dikes.

3. Live Trapping

This alternative would involve the capture of live muskrats and raccoons and transporting them to another off-refuge environment where they would be released unharmed. This alternative presumes that a sufficient number of animals could be trapped alive to maintain stable populations on the refuge. Also presumed is that there is sufficient alternative off-refuge areas within transporting distance which are presently unoccupied by these animals and which could accommodate the live trapped muskrats and raccoons from the refuge in the foreseeable future.

Actually, it would be very difficult to remove a sufficient number of animals by live trapping to maintain the necessary controls on the populations. Most suitable muskrat habitat within economical transporting distance from the Muscatatuck Refuge already supports muskrat populations and could not accept additional animals without the initiation of certain controls at the new locations. The same is true for raccoons but to a lesser degree. It would not be prudent to transport live animals from the refuge to other areas only to have them trapped and killed at the new locations.

Another factor to consider in the live trapping and transplanting alternative is the high cost involved with live trapping animals. Trappers would have to be contracted and paid with Government funds to do the trapping. Because of the low catch rate of live traps, particularly on muskrats, the trapping would have to continue over an extended period of time with a large number of trappers. The program would be annual in nature and so the cost would have to be repeated each year.

A principle beneficial impact of this alternative might be the satisfaction of the moral issue of killing animals on a national wildlife refuge. This alternative would insure that the animals which left the refuge were in a healthy condition. The probability that these animals would have to be retrapped and killed at another location might not be a factor in this issue.

Another beneficial impact of this alternative might be the impact upon the local economy. In all probability, the trappers would make more money by being paid by the Government to live trap animals than they would get from trapping and killing the animals and selling their pelts. Thus, this alternative would result in a larger amount of money being placed in the local economy than would the proposed action.

4. Use of Poisons

This alternative could be accomplished by placing poisoned baits inside of muskrat houses and dike dens and raccoon dens with the expectation that the target animals would eat the poisoned bait and die.

One of the principle adverse impacts of this alternative would be that it might be received with as much opposition as does the use of steel traps. Large segments of the population are opposed to use of poisons to control wildlife populations. Another adverse impact would be the high cost involved with implementing this alternative.

Although not considered an adverse impact, the use of this alternative would require special concurrences and approval by the Fish and Wildlife Service since the use of any poisons on a wildlife refuge are specifically prohibited by Federal and State laws and regulations except in the cases of special exceptions.

Since this practice would probably be carried out by refuge personnel, the impact upon the local economy would be detrimental to a limited extent. Local fur trappers would be denied the revenues they would gain from trapping and selling the pelts from the refuge.

An additional adverse impact of this technique would be the greater risk involved in the killing of nontarget species. Although poisons could be developed that were quite selective in nature and techniques could be refined to minimize the loss of nontarget species, it is still likely that a certain number of animals other than muskrats and raccoons would be killed.

III. DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. General

The 7,724 acre Muscatatuck NWR, established in 1966, is located in south central Indiana in Jackson and Jennings Counties, approximately two miles east of the city of Seymour. (Exhibit II) It is administered by the U.S. Fish and Wildlife Service. The majority of the refuge was originally farmland and forestland. Additional wetland habitat was developed through the early 1970's. The majority of present water management facilities (dikes, dams, water control structures) were built within the past seven years and created an additional 1,000 acres of impounded water. Refuge habitat includes some 1,300 acres of wetland, 3,000 acres of forestland and 3,400 of open upland.

There are three lakes on the refuge. (Exhibit III) These are Moss Lake, 430 acres, Stanfield Lake, 125 acres and Richart Lake, 90 acres. In addition, approximately 65 smaller ponds are scattered throughout the refuge. Nine of these are open to public fishing. Thirteen moist soil units and green tree reservoirs are manipulated on an alternate drawdown system to fulfill the needs of various species of waterfowl, especially the wood duck.

B. Refuge Objectives

The two primary refuge objectives set for the Muscatatuck NWR are (1) to provide for the production and maintenance of migratory birds, primarily waterfowl and (2) to provide the public an opportunity to experience and appreciate the refuge resources. Developing and maintaining optimum habitat to achieve the refuge wildlife objectives holds the highest priority. This is followed by allowing the maximum utilization by the public when this is compatible with meeting wildlife objectives.

C. Land Use

Primary land use programs include water management and cropland-grassland management.

Moist soil units are drained in late spring and summer to allow germination of lowland vegetation as natural food sources. This is most beneficial for duck and geese maintenance. Drainage ditches within the units are usually not drained. These units are reflooded in late fall to allow waterfowl access. Some are flooded during the growing season to prevent plant succession. Greentree reservoirs are impoundments of lowland hardwoods which are flooded in the fall and winter. Moist soil units and greentree reservoirs provide excellent feeding and loafing areas for migratory waterfowl nesting cavities for local wood duck populations and wetland habitat for muskrat and raccoons.

Managed wetlands are deep and shallow marsh habitats occurring in the major impoundments to a water depth of three feet. The largest of these areas are located in Moss Lake, Richart Lake, Stanfield Lake and Endicott Marsh and are managed by water control structures. These provide wetlands for the production and/or maintenance of ducks, geese and marsh birds. A variety of resident wildlife, especially muskrats and raccoons utilize these marshes.

Open water (areas deeper than three feet) are most important for maintenance of ducks and geese. These also provide limited use for marsh birds and resident wildlife. Most provide a fishery.

Cropland management emphasizes the production of cereal grain (corn and soybeans) and green browse (winter wheat and hayland) to supplement the natural food supply in years when natural production is low. Hayfields provide habitat for maintenance of geese, some ducks, raptors, sandhill cranes and small upland mammals. Cooperating farmers put in all the crops, harvest 3/4 as their share and leave 1/4 for wildlife use.

Lowland hardwoods, primarily located in the floodplain of the Muscatatuck Refuge, include many of the same species as the greentree reservoirs. Upland hardwood areas are scattered on the higher ground. Both of these woodland types provide suitable habitat for wood ducks, raptors and other diverse woodland species, especially raccoons.

Diversified wildlife habitat include areas of cropland or grassland which are allowed to enter stages of woodland succession. These areas provide excellent habitat for resident wildlife species such as deer, raccoon, ruffed grouse, rabbits, quail, fox and coyotes.

D. Wildlife Use

The refuge serves as a feeding and resting area for migrating waterfowl in spring and fall. During these periods 20 different species of waterfowl utilize the refuge (15,000 ducks and 2,000 geese). The most common of these are mallards (6,500), ring-neck ducks (4,000), blue-wing teal (2,500) and wood ducks (2,500). Black ducks and redheads reach relatively high numbers as well at 1,500 and 1,200 respectively.

Great blue herons have established a rookery of several nests on the refuge. Coots visit Muscatatuck often reaching up to 1,500 birds. Bald eagles have been sighted occasionally and ospreys are seen frequently in the spring.

Muskrats and raccoons are common as well as rabbit, quail and deer. Turkeys have been reintroduced and established a healthy population of about 75 birds. Two hundred different species of songbirds have been observed on the refuge.

Muscatatuck is important as a wood duck production area. Production to flight stage is estimated at about 1,500 birds, all produced without artificial nesting boxes. A 2 1/2 year research study was recently completed on the wood duck's habitat preferences and mortality factors.

No eagle nests occur on the refuge and only infrequently does this endangered species visit the refuge. One or two bald eagles have recently visited the refuge. The threatened peregrine falcon also rarely visits the refuge.

E. Public Use

Wildlife observation is the most popular type of public use. Ninety percent (some 7,000 acres) of the refuge is open to foot traffic. Wildlife is also observed from vehicles driven on the nine miles of interior public roads. Fishing is the second most popular activity and occurs year-round in some areas and seasonally in others. Seasonal hunting for rabbit and quail is held, as well as a primitive weapons deer hunt. There are 2 1/2 miles of walking trails utilized by hikers, birdwatchers and photographers. The Visitor Information Center hosts school groups, clubs and special interest group meetings.

IV. ENVIRONMENTAL CONSEQUENCES

A. Animal Populations

The impact upon the individual muskrat or raccoon which is trapped is terminal in nature. The specific animals which are trapped are either killed by the trap itself, drowned shortly thereafter or killed by the trapper. This impact is adverse only insofar as the animal is concerned and is irreversible.

The impact upon the muskrat populations will be a reduction in the number of animals. This impact is adverse in the short term but a positive impact in the long term because removing animals from a high population of muskrats and raccoons should allow the remaining animals to be healthier and more robust.

It is expected that a small number of nontarget animals will be captured in traps set for muskrats and raccoons. While precautions will be taken to minimize this nontarget trapping, it is improbable that the capture of nontarget animals will be entirely eliminated.

B. Wildlife Habitat

The trapping of muskrats will beneficially affect the availability of waterfowl habitat in the refuge wetland areas. This trapping will facilitate the proper interspersion of emergent vegetation and surface water so that the optimum utilization by waterfowl can be achieved.

The increased protection of the dike system afforded by trapping muskrats will aid in protecting the marsh environments from flooding or drainage through breaks in the dikes. These unbroken dikes will provide the means to impound water for waterfowl and will permit vehicle access for habitat and wildlife monitoring purposes. The trampling of vegetation and causing waters to become turbid during trapline setting and inspection by the trapper will be adverse yet minimal. A dozen or less trappers will be permitted to trap each year.

C. Local Economics

This proposal will have a minor but beneficial impact upon the economy of the area in the vicinity of the refuge. Opening up these 7,724 acres of refuge to trapping will add revenue to the local economy through increased sales of trapping equipment and supplies and increased number of pelts sold.

D. Social Values

Probably the most traumatic and adverse impact of the muskrat and raccoon trapping program is the effect it has on the social values and the cultural attitudes of some private citizens. A segment of the public views the use of steel traps to capture animals as unduly harsh and cruel to the animals affected. While some individuals question the very need to control animal populations, especially on a wildlife refuge, others simply protest the use of certain devices in accomplishing what they understand to be a legitimate and necessary control program. These citizens are of sufficient conviction that they can probably not be expected to concur with this proposal regardless of its biological justification.

V. CONSULTATION AND COORDINATION WITH OTHERS

Development of a proposed Fur Management Plan for Muscatatuck National Wildlife Refuge and the preparation of this Environmental Assessment were coordinated with Indiana Department of Natural Resources, Indiana State Trappers Association, Inc., several state and local conservation groups and interested local citizens.

Comments and concerns voiced at a September 25, 1986 public meeting were addressed in both the Plan and this EA. Personal consultations with Larry E. Lehman, State Furbearer Biologist, were also made. (Exhibit IV)

No further organized public participation is contemplated.

Approved: See "Finding of No Significant Impact" dated Oct 22, 1986 signed by Harvey K. Nelson

Date: _____

OCT 12 1993

FWS/ARW-WAM2

Memorandum

To: Refuge Manager, Muscatatuck National Wildlife Refuge
From: Wildlife Associate Manager (WAM2)
Subject: 1993-94 Annual Trapping Proposal

Your 1993-1994 Annual Trapping Proposal has been approved. Please add the number of units or trappers to this proposal and provide us that number.

Thanks.

Matthias A. Kerschbaum

Matthias A. Kerschbaum

WAM2:WHutchinson:hc:3702:10/08/93:A:annttrap.msc

Memorandum

August 24, 1993

To: Wildlife Associate Manager 2 (WAM-2)
From: Refuge Manager, Muscatatuck National Wildlife Refuge
Subject: 1993-1994 Annual Trapping Proposal

It is recommended that trapping be authorized on the Muscatatuck NWR as follows:

Muskrat - From 8:00 a.m. November 15, 1993 till noon on January 31, 1994

Beaver - From 8:00 a.m. November 15, 1993 till noon on March 15, 1994

Trapping will be permitted from sunrise to sunset throughout the above periods.

This refuge trapping program will be conducted per the 1986 Management Plan and is concurrent with the Indiana Department of Natural Resources trapping seasons for these two species.

The purposes for trapping these species are discussed in the Fur Management Plan and the 1986 Environmental Assessment for trapping muskrats and beaver.

Population estimates for muskrats are approximately 2,000 animals. Abundant rainfall this year has produced good habitat for muskrats and population is increasing after several low-water years. Raccoon trapping has taken place on the refuge in previous years but the raccoon population has been hit hard by disease and it is not believed that raccoon trapping is needed this year. The elimination of raccoon trapping should almost eliminate the accidental taking of non-target wildlife species. The size of the beaver population is unknown but estimated at about 100 animals. Beaver occasionally cause problems at the water control structures and the trapping of these nuisance animals is desirable.

Administrative costs to operate the program this year are estimated at about \$1,000. Nearly all of this is manpower involved in selecting trappers by the closed bid system and doing compliance checks. Revenue to be realized from the bidding system is expected to be in the range of \$500-\$1,000.

Your concurrence is requested..

Susan M. Knowles

Susan M. Knowles
Acting

Reviewed by:

[Signature]
Regional Biologist

Date:

9-27-93

Reviewed by:

[Signature]
AWAM-2

Date:

10/7/93

Approved by:

[Signature]
WAM-2

Date:

10-8-93