

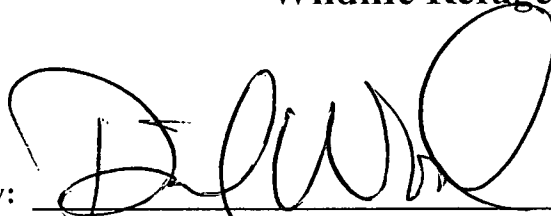
NUISANCE ANIMAL CONTROL PLAN



MUSCATATUCK NATIONAL WILDLIFE REFUGE

Nuisance Animal Control Plan for Muscatatuck National
Wildlife Refuge


Prepared by:


Wildlife Biologist, Muscatatuck NWR

Date:

9/17/10

Approved by:


Refuge Manager, Muscatatuck NWR

Date:

9-17-10

Approved by:


Area 2 Refuge Supervisor

Date:

9/24/10

Table of Contents

Introduction.....	5
I. Beaver.....	6
A. Description.....	6
B. Control Methods and Alternatives.....	6
1. Control Methods.....	6
2. Alternatives.....	7
C. Justification of Pest Control.....	7
II. Muskrat.....	7
A. Description.....	7
B. Control Methods and Alternatives.....	8
1. Control Methods.....	8
2. Alternatives.....	9
C. Justification of Pest Control.....	9
III. Mute Swan.....	9
A. Description.....	9
B. Control Methods and Alternatives.....	10
1. Control Methods.....	10
2. Alternatives.....	10
C. Justification of Pest Control.....	11
IV. Feral Cat.....	11
A. Description.....	11

B. Control Methods and Alternatives.....	11
1. Control Methods.....	11
2. Alternatives.....	12
C. Justification of Pest Control.....	12

Nuisance Animal Control Plan

Muscatatuck National Wildlife Refuge

Introduction:

This Control Plan will cover control of invasive and nuisance animal species on Muscatatuck National Wildlife Refuge. The four species covered within this plan are beaver, muskrat, Mute Swan, and feral cat and all cause significant damage to habitat and/or wildlife populations. Control efforts will be primarily conducted by refuge staff although volunteers will likely assist in the efforts. Any individual using a firearm during control efforts must have (1) Attended and completed a hunter safety course and (2) undergo annual refresher training with a FWS Law enforcement officer..

Beaver are native to the refuge, but cause problems by girdling and felling trees, impeding drainage by constructing dams within waterways, culverts, and water control structures, and by negatively impacting the structural integrity of dikes and levees by burrowing activities. Beaver activity has caused deterioration and loss of bottomland hardwood trees on the refuge. Although beavers do provide beneficial wetland habitat on the refuge, it is necessary to conduct monitoring and control of the population to reduce negative impacts on wetland units and wetland forest habitats. Control efforts will be essential in ensuring the protection of bottomland hardwood forests and minimizing drainage problems associated with draw-downs of moist soil units, green tree reservoirs, marshes, and ditches.

Muskrat, also native to the refuge, cause similar problems like that of the beaver. Muskrat, along with beaver, burrow into dike banks reducing overall structural integrity. Weakened structures become problematic after caving in and causing surface damage that may encumber travel and prevent maintenance efforts. Weakened structures also cause direct seepage or leaks in dikes or do so indirectly by creating open sites that erode.

Mute Swans are an introduced species from Europe and Asia that aggressively compete with native waterfowl. They use vegetation found on the edges of lakes to build large mounds to nest on, which they become extremely territorial about. Due to their territorial behavior, native waterfowl ducks and geese are displaced from their usual nesting areas. Mute Swans may also be aggressive towards people, which is a safety concern for the 185,000 annual visitors.

Feral cats are free-roaming cats often born in the wild. They naturally prey on native birds, reptiles, amphibians, and small mammals. Feral cats hunt instinctively rather than out of a need for food (Liberg 1984, Warner 1985). This predatory drive presents problematic competition with native predators like foxes. Their predation on native small rodents also presents a threat to the overall

ecosystem by opening niches for exotic rodents. (Crooks and Soule 1999, Hawkins et al. 1999, Kays and DeWan 2004).

I. Beaver

A. Description

The beaver (*Castor canadensis*) is the largest North American rodent. Adults usually weigh between 30 and 40 pounds, but may weigh over 60 pounds. Beaver are semi-aquatic mammals that feed only on vegetation consisting primarily of bark, twigs, and leaves of hardwood trees and the stems and roots of herbaceous aquatic plants. Beavers cause substantial damage to natural resources on Muscatatuck National Wildlife Refuge. Direct damage (i.e. cutting and girdling) of desirable tree species and flooding of timber behind dams negatively effects both young and mature stands of bottomland hardwood forest.

B. Control Methods Recommended

1. Control Methods

Methods of control proposed for use on Muscatatuck National Wildlife Refuge are those which have been proven effective in other areas and under a variety of circumstances and which have been proven to be species specific. The main method will be free shooting in areas that have heavy beaver activity which could pose a threat to timber health and survival. All free shooting will be conducted by refuge staff and/or qualified staff from other agencies and usually occur during nighttime hours after the refuge is closed to public entry. Instances may arise where there is a need to conduct efforts during normal "open" hours; during these efforts public safety and perception will be considered. All shooting will be conducted in a safe manner away from public view when feasible. This will prevent the conflicts that are inherent with these types of operations and public safety and perception. If necessary, trapping will be implemented in these same areas, but will be a last resort. Trapping may be authorized by Special Use Permit to outside sources if needed. Beavers will be shot on sight by authorized personnel and disposed of when accessible and feasible. Retrieved carcasses will be left in the forest. This will allow predators, scavengers, and other opportunistic carnivores to use the remains. Refuge personnel may take advantage of incidental shooting opportunities during routine visits to the beaver dam areas. Refuge personnel will remove dams and make sure water is not being held on timber.

Incidental control will be conducted by authorized refuge personnel in accordance with 50 CFR 30.11, 50 CFR 31.14, and 7 RM 14.9.

The policy of the Service is to engage in the control of wildlife within the National Wildlife Refuge System to assure balanced wildlife and fish populations consistent with the optimum management of refuge habitat. The objective of

animal control management is to prevent substantial damage to refuge resources.

Title 50 CFR governs authorization of control practices, Part 31, Section 14:

(a) Animal species which are surplus or detrimental to the management program of a wildlife area may be taken in accordance with Federal and State laws and regulations by Federal or State personnel or by permit issued to private individuals.

(b) Animal species which are damaging or destroying Federal property within a wildlife refuge area may be taken or destroyed by Federal personnel.

2. Alternatives

One of the objectives of Muscatatuck National Wildlife Refuge is to provide protection of fish and wildlife and provide habitat for migratory birds. A no action alternative would result in unacceptable levels of damage to natural resources on the refuge and adjacent private property. Free shooting is the most effective method due to time, cost, and the effects of the traps on other aquatic mammals such as otters.

C. Justification of Pest Control

One of the objectives of Muscatatuck National Wildlife Refuge is to provide habitat and protection of migratory birds, fish and wildlife. The bottomland hardwood forest habitat on the refuge provides the habitat base needed to achieve this objective. Beavers are known for constructing dams in brakes/sloughs, which hold water in these low areas causing timber to be stressed and/or die. During the early 1900's, beaver populations in Indiana became rare due to the great demand of their fur. In the 1940's once demand dropped, a breeding pair of beavers was introduced from Wisconsin, and the population has been thriving ever since. The prices of beaver pelts are still so low that local trappers have no interest in trapping them. Beavers have important ecological value, but populations need to be managed to regulate damage to timber.

II. Muskrat

A. Description

The muskrat (*Ondatra zibethicus*) is a medium-sized, semi-aquatic rodent native to Indiana and throughout North America. They weigh about 3 pounds with small eyes and large hind feet with coarse hairs between the toes to aid in swimming. Muskrats in Indiana are most numerous in areas of abundant shallow water. They prefer to place nest chambers above the water level in burrows entered from the water. In marshes and lakes, they use cattails and other aquatic plants to construct houses resembling small haystacks. Although usually strictly vegetarian, with cattails being their main food source, muskrats will feed on carcasses of fish,

frogs, and other muskrats if not enough plant material is available. Throughout winter, they continue eating on the bulbs and root systems of aquatic plants causing the exposed parts of the plants to die come spring. This large quantity of dead plant matter causes biochemical changes in the water and soil and may prevent vegetation growth for several years if little water flows through. The greatest management concern regarding muskrat is the damage they cause to levees and dikes. Dikes are commonly jeopardized by the burrowing activities of these animals. The network of tunnels honeycombing a dike reduces the structural integrity of the dike and often leads to cave-ins, increased erosion, and seepage. In some instances water seeping through a muskrat burrow can lead to a complete blow out of the dike which can undermine overall moist soil management or other wetland management goals by reducing feeding, nesting, or resting habitat for migratory birds, decrease seed production, or lead to less than optimal vegetative development within a unit.

B. Control Methods Recommended

1. Control Methods

Methods of control proposed for use on Muscatatuck National Wildlife Refuge are those which have been proven effective in other areas and under a variety of circumstances and which have been proven to be species specific. The main method will be free shooting in areas that have heavy muskrat activity which could pose a threat to timber health and survival or the integrity of refuge infrastructure. Most free shooting will be conducted by refuge staff and/or qualified staff from other agencies during nighttime hours after the refuge is closed to public entry. This will prevent the conflicts that are inherent with these types of operations and public safety and perception. If necessary, trapping will be implemented in these same areas, but will be a last resort. Muskrat will be shot on sight by authorized personnel and disposed of by leaving carcasses in the forest. This will allow predators, scavengers, and other opportunistic carnivores to use the remains. Refuge personnel may take advantage of incidental shooting opportunities during routine visits to moist soil units, other wetlands, and beaver dam areas. Refuge personnel will remove dams and make sure water is not being held on timber.

Incidental control will be conducted by authorized refuge personnel in accordance with 50 CFR 30.11, 50 CFR 31.14, and 7 RM 14.9.

The policy of the Service is to engage in the control of wildlife within the National Wildlife Refuge System to assure balanced wildlife and fish populations consistent with the optimum management of refuge habitat. The objective of animal control management is to prevent substantial damage to refuge resources.

Title 50 CFR governs authorization of control practices, Part 31, Section 14:

(a) Animal species which are surplus or detrimental to the management program

of a wildlife area may be taken in accordance with Federal and State laws and regulations by Federal or State personnel or by permit issued to private individuals.

(b) Animal species which are damaging or destroying Federal property within a wildlife refuge area may be taken or destroyed by Federal personnel.

2. Alternatives

One of the objectives of Muscatatuck National Wildlife Refuge is to provide protection of fish and wildlife and provide habitat for migratory birds. A no action alternative would result in unacceptable levels of damage to natural resources on the refuge and adjacent private property. Trapping is difficult due to time, cost, and the effects of the traps on other aquatic animals such as turtles. Habitat modification or removal would be counterproductive since they share the same habitat with multiple native species. Free shooting is most effective method although cage type family traps may be used in the future.

C. Justification of Pest Control

One of the objectives of Muscatatuck National Wildlife Refuge is to provide habitat and protection of migratory birds, fish and wildlife. The bottomland hardwood forest habitat on the refuge provides the habitat base needed to achieve this objective. Muskrats are known for constructing dams in brakes/sloughs, which hold water in these low areas causing timber to be stressed and/or die. Muskrat have important ecological value, but populations need to be managed to regulate damage to timber, dikes, and levees.

III. Mute Swan

A. Description

The Mute Swan (*Cygnus olor*) is one of three species of swan found throughout Indiana. Unlike their native relatives, the tundra and trumpeter swans, Mute swans are nonnative and breed in Indiana. The Mute Swan's orange bill makes it easy to distinguish from the two other species. It is the only species found in Indiana during the summer and usually carries its neck in a strongly curved S-shape while swimming. The Mute Swan was introduced to North America in the late 1800's as an ornamental species; native waterbirds have a hard time coexisting with such a dominant species. Mute Swans require about eight pounds of aquatic vegetation for food daily and can damage significant acreages while feeding and nesting. They eat higher quality plants both under the water and along the water's edge destroying both food and cover for native waterfowl and leaving only aquatic weeds.

B. Control Methods Recommended

1. Control Methods

Methods of control proposed for use on Muscatatuck National Wildlife Refuge are those which have been proven effective in other areas and under a variety of circumstances and which have been proven to be species specific. The main method will be free shooting. All free shooting will be conducted by refuge staff and/or qualified staff from other agencies using discretion and after hours if possible. This will prevent the conflicts that are inherent with these types of operations and public safety and perception. Bodies will be removed and buried in an area closed to the public when feasible.

Incidental control will be conducted by authorized refuge personnel in accordance with 50 CFR 30.11, 50 CFR 31.14, and 7 RM 14.9.

The policy of the Service is to engage in the control of wildlife within the National Wildlife Refuge System to assure balanced wildlife and fish populations consistent with the optimum management of refuge habitat. The objective of animal control management is to prevent substantial damage to refuge resources.

Title 50 CFR governs authorization of control practices, Part 31, Section 14:

(a) Animal species which are surplus or detrimental to the management program of a wildlife area may be taken in accordance with Federal and State laws and regulations by Federal or State personnel or by permit issued to private individuals.

(b) Animal species which are damaging or destroying Federal property within a wildlife refuge area may be taken or destroyed by Federal personnel.

2. Alternatives

One of the objectives of Muscatatuck National Wildlife Refuge is to provide protection of fish and wildlife and provide habitat for migratory birds. A no action alternative would result in unacceptable levels of damage to natural resources on the refuge and adjacent private property. Free shooting is the most effective method due to time, cost, and the effects of the traps on other aquatic mammals such as otters.

C. Justification of Pest Control

One of the objectives of Muscatatuck National Wildlife Refuge is to provide habitat and protection of migratory birds, fish and wildlife. Mute Swans are an aggressive species that chase resident and migratory birds and waterfowl away. They also consume and use a large portion of nutritional underwater and wetland plants. This leaves the other waterfowl with a lesser variety of nutritional plants they would normally have if the Mute Swans were not present. By controlling the

Mute Swans on the refuge, we are also helping with the Mute Swan problem on a national scale since they are not resident species at the refuge. Mute Swans have also been known to attack humans and small children. With the refuge open to visitors 365 days a year, it is better to be proactive than reactive.

IV. Feral Cat

A. Description

For the purpose of this control plan, a feral cat is any free roaming individual found within the boundaries of the refuge. Feral cats (*Felis catus*) are the same species as a domestic cat but are born or have strayed into the wild. Domestic cats were introduced approximately 200 years ago to control rodents on the east coast. Although the number of feral cats in the United States is unknown, human-subsidized cats can reach densities over several hundred cats/km² (Liberg et al. 2000). Feral cats pose a threat to the local ecosystem because they kill native birds and mammals, compete with native predators, and carry diseases. A study in Wisconsin shows that cats are killing millions of birds each year throughout the state with similar numbers across the Midwest (Coleman and Temple 1993). Feral cats also feed on rodents and small mammals causing fierce competition for native predators and raptors such as raccoons, fox, red tailed hawks, and owls especially during winter months (George 1974). Feral cats have spread feline leukemia virus to mountain lions (Jessup et al. 1993) can also carry and transmit diseases, such as rabies and toxoplasmosis, to humans (Warfield and Gay 1986).

B. Control Methods Recommended

1. Control Methods

Methods of control proposed for use on Muscatatuck National Wildlife Refuge are those which have been proven effective in other areas and under a variety of circumstances and which have been proven to be species specific. The main method will be live trapping of any individual found on the refuge.

Control will be conducted by authorized refuge personnel in accordance with 50 CFR 30.11, 50 CFR 31.14, and 7 RM 14.9.

The policy of the Service is to engage in the control of wildlife within the National Wildlife Refuge System to assure balanced wildlife and fish populations consistent with the optimum management of refuge habitat. The objective of animal control management is to prevent substantial damage to refuge resources.

Title 50 CFR governs authorization of control practices, Part 31, Section 14:
(a) Animal species which are surplus or detrimental to the management program of a wildlife area may be taken in accordance with Federal and State laws and regulations by Federal or State personnel or by permit issued to private

individuals.

(b) Animal species which are damaging or destroying Federal property within a wildlife refuge area may be taken or destroyed by Federal personnel.

2. Alternatives

One of the objectives of Muscatatuck National Wildlife Refuge is to provide protection of fish and wildlife. A no action alternative would result in a higher population of feral cats, which would be detrimental to populations of native birds and predators. Another alternative would be a trap, neuter and return (TNR) method. This method would require collecting the feral cat, sterilizing it, and then adopting it out or returning it to the wild. While this alternative is more publicly acceptable, the cost and time required is prohibitive for the refuge. Also, TNR would not decrease the amount of problems the cats cause because they would still be present and feeding on the refuge. The feral cat population is open and constantly changing and the methods of control should be reevaluated periodically if it is determined that trapping alone cannot reduce populations significantly.

C. Justification of Pest Control

One of the objectives of Muscatatuck National Wildlife Refuge is to support the maximum sustainable breeding and post-breeding populations of waterfowl and migratory birds along with a diverse population of other resident species. In order to maintain large, diverse populations, feral cats will need to be controlled. They kill a large number of native birds and rodents outcompeting native predators and raptors. Muscatatuck National Wildlife Refuge is open to the public 365 days a year, with some visitors bringing pet dogs. Feral cats may carry diseases that could easily be transferred to a human or his/her pet.

Literature Cited

- Coleman, J.S., and S.A. Temple. 1993. Rural residents' free-ranging domestic cats: a survey. *Wildlife Society Bulletin* 21:381-390
- Crooks, K. R. and M. E. Soule. 1999. Mesopredator release and avifaunal extinctions in a fragmented system. *Nature* 400:563-566.
- George, W. G. 1974. Domestic cats as predators and factors in winter shortages of raptor prey. *Wilson Bulletin* 86:384-396.
- Hawkins, C. C., W. E. Grant, and M. T. Longnecker. 1999. Effect of subsidized housecats on California birds and rodents. *Transactions of the Western Section of the Wildlife Society* 5:29-33
- Jessup, D.A., K.C. Pettan, L.J. Lowenstine and N.C. Pedersen. 1993. Feline leukemia virus infection and renal spirochetosis in free-ranging cougar (*Felis concolor*). *Journal of Zoo and Wildlife Medicine* 24:73-79
- Kays, R. W. and A. A. DeWan. 2004. Ecological impact of inside/outside house cats around a suburban nature preserve. *Animal Conservation* 7:273-283
- Liberg, O. 1984. Food habits and prey impact by feral and house-based domestic cats in a rural area in southern Sweden. *Journal of Mammalogy* 65:424-432
- Liberg, O., M. Sandell, D. Pontier, and E. Natoli. 2000. Density, spatial organization and reproductive tactics in the domestic cat and other felids. 119-147. in *The domestic cat: the biology of its behaviour*. Turner, D. C. and P. Bateson. eds. Cambridge University Press. Cambridge, United Kingdom.
- Warner, R. E. 1985. Demography and movements of free-ranging domestic cats in rural Illinois. *Journal of Wildlife Management* 49:340-346.
- Warfield, M.S. and W.I. Gay. 1986. The cat as a research subject. Pp. 41-54. In: W.I. Gay (ed.) *Health Benefits of Animal Research*. Foundation for Biomedical Research, Washington, DC.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Bishop Henry Whipple Federal Building
1 Federal Drive
Fort Snelling MN 55111-4056

September 24, 2010

In reply refer to:
RFS2/Muscatatuck NWR

Memorandum

To: Wildlife Refuge Manager, Muscatatuck NWR

From: Area 2 Refuge Supervisor *Matt D Sprenger*

Subject: Nuisance Animal Control Plan, Muscatatuck NWR

Enclosed please find a signed copy of the Nuisance Animal Control Plan for Muscatatuck NWR. I am pleased to see that the refuge is addressing habitat and infrastructure damages which can occur when populations of certain species, such as beaver and muskrat, exceed healthy levels. While I am signing the cover page for the plan, I am asking that several items, listed below, be addressed in an updated version.

Use of non-toxic shot and bullets: The plan should state that all control activities conducted with firearms will be conducted using non-toxic shot and bullets.

Firearm use by non-LE personnel: Currently there is no FWS policy regarding firearm use by non-LE personnel (with the exception for bear protection in Alaska). Because national policy does not exist, the station will need to formulate a policy regarding firearm use by non-LE employees. I suggest that all non-LE employees that utilize firearms are 1) full-time staff members, 2) complete a state certified firearms safety training course, and 3) receive an annual firearms safety refresher by a FWS LE Officer.

Feral cat control: The plan specifies that the "main" method for control will be live trapping. Please modify the feral cat section to clearly articulate that shooting is not a control option. Since station NEPA documentation only covers live trapping, other techniques are not approved and would require NEPA documentation and an amendment to the Nuisance Animal Control Plan.

Mute swan control: While I am not requesting modifications to this plan regarding mute swans, threshold levels for mute swan control must be developed prior to incorporating control efforts. I recommend incorporating objectives for mute swans into your habitat management plan.