

FURBEARER MANAGEMENT PLAN

CRAB ORCHARD NATIONAL WILDLIFE REFUGE

Carterville, Illinois

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Date: April 15, 1982

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Date: 4-15-82

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## Furbearer Management Plan

### Crab Orchard National Wildlife Refuge

#### I. Description of the Refuge

Crab Orchard Refuge is located in southern Illinois, 50 miles north-northeast of the confluence of the Mississippi and Ohio rivers. The 43,550-acre refuge was established in 1947 when Congress transferred the lands from the War Department and Resettlement Administration to the U. S. Department of the Interior, U. S. Fish and Wildlife Service. The Act specified that the refuge would be used for wildlife conservation, recreation, agriculture and industry.

Half of the Refuge (Area II - 21,506 acres) serves as a waterfowl refuge and is closed to the public. The other half (Areas I and III - 22,044 acres) (Exhibit 1) is open to the public for wildlife-oriented recreation. The refuge is quite diversified with 8,365 acres of agricultural lands, 23,629 acres of brush and timber lands, 9,423 acres of lakes and ponds, and 2,133 acres of administrative and industrial sites.

Twelve research natural areas representing various forest types of southern Illinois are scattered throughout the refuge. The only officially designated wilderness area in Illinois lies to the south of Little Grassy and Devils Kitchen lakes and covers approximately 4200 acres.

Habitat for aquatic furbearers (Exhibit 1) consists of several miles of intermittent streams, shorelines of three lakes covering nearly 9,000 acres and 93 small ponds ranging from 200 to 0.5 acres, seven beaver impoundments (Muir 1978), and three sewage lagoons. This habitat supports viable populations of beaver, muskrat and mink.

The diverse upland habitat on the refuge supports a respectable population of opossum, raccoon, skunk, weasel, fox and coyote. Bobcat sightings have been reported in the Grassy Lake area but were never confirmed.

#### II. Refuge Objectives These objectives are taken from the Refuge Master Plan completed in 1979.

##### A. Endangered Species Maintenance - Bald Eagle

The refuge provides nesting, roosting and feeding habitat for bald eagles. In 1981 the refuge supported one active nest that produced two young. A second nest was constructed in November five miles southwest of the first nest. The new nest was built in a dead tree over a beaver impoundment that was flooded about five years ago. The tree appears sound and should last for several years. The wintering eagle population may build to 40 birds, however during the summer months the nesting eagles are the only ones using the refuge.

#### B. Waterfowl Maintenance

The primary objective of the refuge is to provide migration and wintering habitat for 9.7 million goose use-days and 3.5 million duck use-days. Area II is set aside as a waterfowl refuge and is a critical element in accomplishing the objectives for waterfowl maintenance. Food for waterfowl is provided through the cooperative farming and grazing programs. The refuge also maintains 20 acres of moist soil units that are used heavily by ducks and geese.

#### C. Other Migratory Birds - Marsh/Water/ Shorebirds

The refuge is to provide habitat for 375,000 use-days by shorebirds and wading birds. Most of the use occurs along the shallow bays and shoreline of Crab Orchard Lake and the shoreline of the small impoundments. The moist soil units attract numerous shorebirds during spring drawdown. The beaver impoundments provide excellent habitat for wading birds.

#### D. Wood Duck Production

The refuge is to provide nesting habitat for the production of 280 wood ducks annually. Most of the production occurs in natural cavities along streams. The beaver ponds provide excellent habitat for rearing of wood duck broods. Raccoons may compete with wood ducks for nesting cavities and may prey on wood duck nests.

#### E. Wildlife/Wildlands Observation

The refuge anticipates 1.3 million activity hours from people watching wildlife and looking at scenery on the refuge. The Canada goose is the most popular animal with the wildlife observers during the fall and winter, and the deer is popular throughout the year. Refuge visitors sight fox and coyote occasionally. Generally, furbearers are inconspicuous and many move about at night and, therefore, are not seen often.

#### F. Waterfowl Hunting

The refuge is to support 45,000 hours of waterfowl hunting. Trapping and waterfowl hunters may be found in the same area at the same time along the lake shores. The refuge has received very few complaints along this line, and the problem is considered insignificant.

### III. Assessment of Trapping Desirability and Acceptability

#### A. Population Status

Brown and Yeager (1943) surveyed trappers to determine population status and resource value of furbearers in Illinois. Table 1 compares furbearer harvest in 1939-40 as estimated by Brown and Yeager with the furbearer harvest in 1979-80 as estimated by Hubert (1980).

Table 1. Furbearer harvest in Illinois for the 1939-40 and 1979-80 Seasons.

	<u>1939-40 Harvest</u>	<u>1979-80 Harvest</u>
Muskrat	664,831	474,179
Mink	45,254	23,587
Raccoon	34,577	141,588
Opossum	171,590	27,432
Red Fox	6,688	12,659
Gray Fox	4,889	5,875
Beaver	___Low population	8,918
Skunk	36,681	15,775
Weasel	8,796	346
Coyote	___Low population	7,318

Although the surveys used different techniques to arrive at the estimates, and the data may not be directly comparable, Table 1 shows that the species have sustained trapping pressure for 40 years and still yield a substantial harvest.

The beaver was extirpated from Illinois in the early 1900's (Mohr 1943) and was re-introduced to southern Illinois in 1935. Since that time the beaver population has expanded to most suitable habitat throughout Illinois and throughout the refuge. The five beaver ponds on the refuge are very beneficial to a wide variety of wildlife (Muir 1978). Large numbers of ducks and geese can be found on the impoundments at times, and raccoons, mink, herons, woodpeckers and swallows frequent the ponds. A pair of bald eagles recently constructed a nest in a tree killed by a beaver flooding. Although the beaver created nearly 100 acres of the best wildlife habitat on the refuge without an approved plan, EIS, 404 permit, archeological survey, and engineering plans and specifications, a few individual animals have created problems by plugging water control structures and culverts. Problem animals are exterminated in rare cases. Few local trappers are interested in trapping beaver because the pelts are of low quality and little value, and traps are expensive. One trapper remarked that the main reason he trapped beaver was for meat for his family.

Sanderson and Hubert (1980) analyzed 25 years of data on raccoon, and concluded that the population has remained relatively stable in spite of high harvests since the mid-seventies. The harvest rose from 52,866 in 1970 when pelt price was-\$1.35 to 381,006 in 1979 when pelt price was \$25.50. The authors observed no changes in sex ratios, age ratios or body weights during the past 25 years. An increase in the population in the early 1940's was accompanied by significant changes in sex and age ratios and average weight of females.

The muskrat is the most numerous of the furbearers and is found throughout Illinois as well as the refuge. Harnishfeger (1981) completed the field work of a three-year study of the life history and ecology of muskrats inhabiting ponds on Area II of the refuge. He found that survivorship of muskrats is so low (approximately 5 percent) that few animals survive to breed the following spring. Harnishfeger stated that trapping has no impact whatsoever on muskrat populations, and there is no way of overtrapping muskrat. In addition, he indicated that from his knowledge of furbearers there is no need to be concerned about the effects of trapping on opossum and raccoon. If good habitat is available, the animals will always be there.

Brown and Yeager (1943) found too few coyotes in fur harvests to make an accurate estimate from their sample. Since then the coyote population has increased to the point where numerous farmers were complaining about coyotes killing sheep and other domestic animals. The State responded to the complaints by changing the season on coyotes in 1979 to year-round hunting with unrestricted hunting hours and no limit. The coyote is common on the refuge and several litters are raised annually.

The fox populations appear to be relatively stable and are sustaining a continued harvest without problems. Scott (1955) concluded that the red fox has demonstrated a remarkable ability to survive in a hostile environment, and at times has become too numerous for its best interests.

The mink and skunk populations appear to be sustaining a respectable harvest without significant effects on the populations. The opossum and weasel harvests for 1979-80 are considerably lower than the harvest of 1939-40. The opossum population in Illinois is relatively high. Changes in harvest rates of opossum and weasel may be attributable to changes in pelt prices or hunter interest.

Twenty-six trappers reported taking 225 muskrats, 77 raccoons, 15 beaver, 9 mink, 20 opossum, 16 fox, and 2 coyotes during the first half of the 1981-82 trapping season on Crab Orchard Refuge.

#### B. Furbearers as Biological Controls

Coyote predation on white-tailed deer fawns is desirable in exercising biological control of the deer herd in Area II. The refuge presently administers a special deer hunt to maintain control of the herd. It is not likely that coyote predation alone would keep the herd depressed to the level needed, however predation is a significant mortality factor in the deer population (Wolf & Nelson 1981). The deer are vulnerable to the predators for a brief period after birth, however adult deer have no natural enemies on the refuge.

C. Furbearer Interaction with Refuge Objectives

The beaver population is highly desirable from a standpoint of development of wildlife habitat. The five impoundments constructed by the beaver have contributed to endangered species, waterfowl and wading bird maintenance objectives of the refuge. The beaver cause some problems by plugging water control structures and interfering with water level manipulation.

Muskrats burrow into pond dams and dikes of moist soil units and sewage lagoons on the refuge, thus increasing maintenance costs.

Raccoons compete with wood ducks for tree cavities and are efficient predators of waterfowl nests, however waterfowl nest predation is not a significant problem at Crab Orchard Refuge.

D. Damage by Furbearers

During periods of heavy rain, beavers have plugged culverts causing flooding and washing of refuge roads. They also plug water control structures when moist soil units are being drained. A concessionaire on the refuge complained that beaver were eating the pilings supporting the boat docks. Removal of woody vegetation by beavers along shorelines may contribute to shoreline erosion.

Muskrats burrow into pond dams and dikes around moist soil units and sewage lagoons causing considerable damage.

E. Transmissions of Diseases by Furbearers

Rabies is always a concern in southern Illinois. In 1979 a rabid dog was found in a school yard in Herrin a few miles north of the refuge. The Health Department questioned all the children in the school, and approximately 70 children admitting contact with the dog were given rabies shots (Bi-County Health Department 1981). No rabid animals have been found in Williamson County since then. Jackson County, to the west of the refuge, found 17 skunks, 1 dog, and 1 bat that tested positive for rabies the first six months of 1981. Skunks are thought to be the primary carriers of rabies in the area and transmit the virus to domestic animals. The red fox can also be an important vector of rabies (Scott 1955).

Wild canids are thought to be involved in the transmission of brucellosis from one cattle herd to another by dragging the after-birth from one pasture to another. One of the refuge neighbors reportedly had brucellosis in his cattle in 1981, however the herd was disposed of, and there is no other herd in the area known to harbor the disease.

Heartworm is a significant problem among domestic dogs in southern Illinois. Foxes, coyotes and feral dogs very likely serve as a reservoir for this parasite.

The refuge hosts an extremely high tick population. The furbearers, along with other mammals, help to support the tick population by providing the parasite with the blood meal needed to complete the reproductive process. Rocky Mountain spotted fever is prevalent in southern Illinois. Five cases were reported in Franklin and Williamson counties during fiscal year 1981, and one case resulted in the death of the individual (Bi-County Health Department 1981).

Diseases such as rabies, distemper, and mange in furbearers appear to be density dependent, and epizootics are common when individuals in a species become too plentiful (Allen 1962). Coyotes and foxes on the refuge have been observed with mange in the last two years. Allen suggested that lean, unthrifty, and mangy animals in a population offer the first index that an unhealthy population status has been reached.

Nearly all rabbit hunters are concerned about the possibility of acquiring Tularemia from the game they seek. There have been no reports of this disease in this area for a number of years (Bi-County Health Department 1981). Foxes and coyotes may reduce the disease potential in the rabbit population by killing and eating the sick and weakened rabbits.

#### F. Effects of Trapping on Threatened and Endangered Species

Up to 40 bald eagles winter on the refuge, along with numerous other raptors. Generally, the eagles are in the closed portion of the refuge (Area II) until after the waterfowl season closes. Then some move along with the waterfowl to the west end of Crab Orchard Lake in the open area (Area I) where the eagles could possibly come into contact with a trap. State statutes prohibit the use of bait closer than 30 feet from any trap unless buried and concealed, which reduces the chance of a raptor being caught accidentally.

The Illinois Department of Conservation (Hubert 1981) plans to begin trapper instruction courses prior to the 1982 season. The refuge will hold a course for trappers in this area in cooperation with the state. All persons wishing to trap on the refuge will be required to successfully complete the course. Techniques for setting traps to avoid the capture of raptors and other non-target species will be emphasized.

The bobcat is on the Illinois threatened species list and may not be taken by trappers and hunters. Thorn (1981) found no records of the bobcat in Williamson County, however the refuge has received unconfirmed reports of bobcat sightings around Little Grassy Lake. Brown



and Yeager (1943) noted that the bobcat population was decimated rapidly after 1910 following logging of cypress swamps which destroyed the last good bobcat range in Illinois. The authors stated that the bobcat will not regain its former range in Illinois because of lack of suitable habitat. In a recent study by Woolf (1981) of the status of the bobcat, there were no confirmed sightings on the refuge. Woolf stated that it is possible, but very unlikely, that a bobcat would be trapped on the refuge.

The rice rat, another threatened mammal in Illinois, occurs in Williamson County, and according to Roseberry (1981) probably occurs on the refuge. Roseberry stated that rice rats are not likely to be caught in a conibear or leg-hold trap. One would have to use snap traps to catch the rice rat.

#### G. Public Interest in Trapping

Trapping of furbearers has been allowed on Areas I and III of the refuge since 1947. The refuge issued permits for trapping for the first time for the 1980-81 season. Thirty-five permits were issued to trappers for Areas I and III which covers 22,000 acres. Hunting and trapping have been popular outdoor activities in this area for decades and are accepted by the public. There would be considerable controversy if Areas I and III were closed to trapping.

#### H. Conclusion

Considering the harvestable surplus available in most furbearer populations, the value of this renewable natural resource, possible disease outbreaks in unharvested furbearer populations, and the public interest and opportunity for a wildlife oriented recreational experience, trapping on Areas I and III of the refuge appears to be compatible with refuge objectives and will not endanger any furbearer or other wildlife population. Trapping is acceptable on refuges given these conditions (Environmental Statement - National Wildlife Refuges).

Area II is closed and serves as a refuge for migrating waterfowl and wintering geese and eagles. Beavers and muskrats damage some dikes and pond dams and interfere with water level manipulation. Specific problem animals may be trapped by refuge personnel, however opening Area II to trapping by the public would create a tremendous disturbance problem to waterfowl and eagles using the refuge. This would be in direct conflict with refuge objectives. It is recommended that Area II remain closed to trapping.

#### IV. Description of Trapping Program

##### A. Type of Trapping

A permit trapping program will be conducted on Areas I and III of the refuge in accordance with Federal and State laws and State seasons and limits. A fee of ten dollars will be charged to cover the cost of issuing the permits.

The refuge is currently limiting the number of permits to 50. The trapping program will be reviewed annually. If data indicate drastic population declines, severe conflicts between trappers and other users, excessive capture of non-target species, or excessive economic returns to the trappers, an amendment will be submitted to implement corrective measures in the trapping program.

##### B. Species to be Taken

Trappers may take the following species:

raccoon	muskrat
opossum	beaver
skunk	red fox
weasel	gray fox
mink	coyote

##### C. Methods of Taking

Furbearers may be taken with leghold or body gripping traps. The following is the recommended trap size for various species.

<u>TRAP SIZE</u>	<u>SPECIES</u>
<u>Leghold</u>	
1 - 1½	Muskrat
1½ - 2	Mink, fox, raccoon, opossum, skunk
3 - 4	Beaver
<u>Conibear</u>	
110	Muskrat
220-330	Beaver (water set only)

Traps with sawteeth, spikes, or toothed jaws are prohibited.

On land trappers must not set traps closer than ten feet from any hole or den that might be occupied by an animal. When bait is used, it must be at least 30 feet from any trap unless the bait is buried or concealed. These regulations should eliminate or at least substantially reduce trapping of non-target species.

D. Special Conditions

In addition to complying with the general conditions on the reverse side of the trapping permit (Exhibit 2), the trappers will comply with the following special conditions:

1. Trappers shall not molest or disturb any muskrat house, beaver house, or beaver dam.
2. The trapper desiring to check his trapline during hours of darkness must so state and this provision typed on the permit.
3. The trapper will have no traps set after close of the season; all traps shall be removed from the refuge within 24 hours after close of the season.
4. All non-target animals found dead or seriously injured in traps will be taken to refuge headquarters for instructions as to disposition.
5. Traps must be so marked that ownership may be readily ascertained.
6. Within ten days of the end of trapping season, all trappers will report the number and size of traps used, number of days trapped, furbearers taken, non-target animals trapped and released or found dead, and any conflicts with other trappers, hunters, or other public visitors.

E. Consultation and Coordination

Refuge personnel talked to several trappers in the spring and fall of 1981 to obtain their thoughts on trapper density, conflicts with other users, the proposed trapping plan, etc. In addition, the trappers are asked to report any problems or conflicts they encounter and provide recommendations for program improvement. Initial contacts indicated that there is some interaction among trappers and other users but nothing of a serious nature.

In addition to the trappers, the following persons were consulted during preparation of this plan:

<u>Name</u>	<u>Affiliation</u>	<u>Position</u>
Larry Castrale	Franklin-Williamson Co. Dept. of Public Health	Director
David Charles	Illinois DOC	Conservation Officer
Ralph Harnishfeger	Southern Illinois University	Researcher

<u>Name</u>	<u>Affiliation</u>	<u>Position</u>
George Hubert	Illinois DOC	Furbearer Biologist
Tom Nelson	Southern Illinois University	Researcher
Ron Ogden	U.S. Fish & Wildlife Service	Animal Damage Control
John Roseberry	Southern Illinois University	Researcher
Mike Sweet	Illinois DOC	Endangered Species Coordinator.
Dr. Alan Woolf	Southern Illinois University	Professor -Wildlife Science.

Results of the trapping program will be sent to the Furbearer Biologist for the Illinois Department of Conservation.

F. Control and Enforcement

The refuge Park Technicians, Special Agents, and the Illinois Department of Conservation officers have the authority to enforce the appropriate state and federal regulations in the furbearer program. The refuge has received excellent cooperation from special agents and conservation officers in the past. The cooperative approach to law enforcement has been productive in the past, and is expected to continue.

G. Permit Processing

A news release will be mailed to the local media on October 1, outlining permit requirements, application procedures, fees, trapper qualification requirements, etc. Applications will be accepted at the refuge headquarters from October 1 through November 1, and must be accompanied by a cashier's check or money order for ten dollars, payable to the U. S. Fish and Wildlife Service. The fee will be returned to unsuccessful applicants. All applicants will be notified by mail before November 15, advising them of action taken on their applications.

To qualify for a permit, applicants must have two years' experience and must have successfully completed the trapper education course to qualify for a permit. Inexperienced trappers will be encouraged to serve an apprenticeship for two years under an experienced trapper. A trapper course will be offered at the refuge prior to the 1982-83 trapping season.

The refuge is currently limiting the number of permits to 50. If data become available indicating drastic population declines, severe conflicts between trappers and other users, or other significant problems, the number of permits may be further reduced or the number of traps a trapper may use may be limited.

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IN REPLY REFER TO:

# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Crab Orchard National Wildlife Refuge  
P.O. Box J  
Carterville, Illinois 62918



September 29, 1993

To: Regional Director, Region 3 (WAM2)  
From: Refuge Manager, Crab Orchard National Wildlife Refuge  
Subject: 1993-1994 Annual Trapping Proposal

A review of the trapping program over the last five years at Crab Orchard National Wildlife Refuge (Refuge) has shown a steady decline in interest and participation. The estimated populations of furbearer species on the Refuge are considered to be stable with no sign of over or under population.

Crab Orchard Refuge proposes to permit trapping in the OPEN AREA (public use portion) of the Refuge without the need of a Refuge trapping permit and subsequent report at the end of the season. Trappers will be required to possess a trapping license, habitat stamp, and an annual refuge entrance pass. All trapping of furbearers on the Refuge will be in accordance with Illinois state season, laws and limits.

*Richard F. Berry*

APPROVED: *[Signature]* DIV. BIOLOGIST

APPROVED: *[Signature]* 11-2-93 WILDLIFE ASSOCIATE MANAGER  
(WAM 2)

*William Hutchinson* 11/10/93  
*AWAM 2*

## memorandum

DATE: October 17, 1989

REPLY TO  
ATTN OF: Project Manager, Crab Orchard NWR, Carterville, IL

SUBJECT: Annual Trapping Proposal

TO: Regional Director, Twin Cities, MN (WAM-2)

1. Trapping Desirability: Trapping on Crab Orchard Refuge has been a popular wildlife oriented recreational pursuit since the establishment of the Refuge in 1947. The trapping program provides for utilization of renewable resource and is a source of extra income for the trappers' families.

2. Population and Habitat Conditions: Water levels of the lakes, ponds, and streams on Crab Orchard Refuge were normal during the winter and spring of 1988 and 1989. Precipitation during July and August was normal, leaving most ponds and all three lakes slightly below spillway level. In September Crab Orchard Lake was drawn down due to the dam construction 4' below spillway level. The lower water levels of the lake will probably decrease trapping success. We anticipate that most muskrat and beaver will migrate from the lake to small ponds. Many of the ponds are in the closed part of the Refuge not open to trapping.

Trapping harvest for the 1988-89 season in comparison to the 1987-88 season was way down. The number of trappers were the same at 13, but they used less traps and trapped nearly 50% less. The 13 permittees trapped 177 days with 129 traps. They caught 8 beaver, 5 red fox, 8 gray fox, 101 muskrat, 27 coon, 5 opossum and 3 mink. All permittees reported their harvest. There was a considerable decline in the number of beaver, muskrat, coon and mink trapped in 1988. The only reasonable explanation for this decline is the fur price and the lack of interest from trappers. There is nothing to indicate the beaver, coon, mink and muskrat are under any undue stress.

Even though water levels are well below normal, weather conditions are not expected to cause any serious concern for the 1989-90 season.

All trappers of furbearers on the Refuge will be required to possess a trapping permit. Applications for the permit will be accepted at Refuge headquarters between October 1 and November 8. Applications must be accompanied by a cashier's check or money order for ten-dollars. The fee will be returned to all unsuccessful applicants. All applicants will be notified by November 15, advising them of action taken on their applications.

An eight-hour training session will be offered in October at Refuge headquarters. The training is not mandatory, but all Refuge trappers will be encouraged to attend. Illinois State Department of Conservation personnel will conduct the training.

A News Release will be mailed to the local news media in October, outlining permit requirements, application procedures, fees, trapper qualification requirements and etc. The Refuge will issue up to 35 trapping permits. If excess applications are received, permittee will be selected by drawing.

All permittee are required to report their success no later than March 30, 1990 to Refuge headquarters. Those not reporting will be subject to fine and not permitted to trap the following year. All trappers reported their success in 1988-89.

Annual costs for administering the program, including enforcement, are estimated at \$1,000. Income from the fees will not exceed \$1,000.

Submitted by: Norrel Wallace Date: 10-18-89  
Norrel F. Wallace  
Project Manager  
Crab Orchard NWR

Reviewed By: Jim McH5507 Date: 11-13-89  
Division Biologist 2

Reviewed By: William H. Hutchinson Date: 10-26-89  
Assistant Wildlife Associate Manager 2

Approved: William H. Hutchinson Date: 11-16-89  
Wildlife Associate Manager 2

Acting