APPENDIX A

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# Factors Affecting the Distribution of Mink from Contaminated Habitats

New York State Department of Environmental Conservation
Hale Creek Field Station
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Gloversville, New York 12078

Report of Research Activity for 1993-1994

Factors Affecting the Distribution of Mink from Contaminated Habitats

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# Factors Affecting the Distribution of Mink from Contaminated Habitats

## Introduction

The objective of this study is to determine if the relative occurrence of mink is related to the distribution of organochlorine contaminants within New York State. This project will measure the occurrence of mink in areas of New York State contaminated by organochlorine compounds. The potential impact of contaminants on mink occurrence will be determined by comparing the occurrence of mink in contaminated areas with occurrence in areas free of contamination.

Prior to the 1991-92 field season, a survey technique based on observation of mink sign at stream-road intersections (SRI) in areas with appropriate mink habitat was employed as a measure of mink occurrence. Specific areas for survey based on degree of contamination and suitability of habitat for mink were identified during 1990-91. Surveys were conducted during 1990-91 and 1991-92 field seasons. The efficacy of the SRI survey technique was evaluated using these data (see 1992-1993 Performance Report). The results of this evaluation suggest that this survey technique is not applicable to the current study.

The goal of research conducted this year (1993-94) was to identify and assess the feasibility of a alternative approach for addressing the main objective of the study. An alternative methodology using data based on catch per unit effort for assessing mink occurrence was outlined. This method relies on catch and trapping effort data provided by recreational trappers. As part of the assessment of the feasibility of this approach, the practicality of using recreational trappers as sources of data and to identify variables necessary to evaluate trapping efficiency was explored during the 1993-94 trapping season.

## Summary of 1993-94 Research

A pilot study exploring the potential for acquiring data on take and trapping effort from recreational trappers was conducted. Based on information on catch rates and trapping activity from local trappers, five watersheds were selected for use in the study. Local trappers likely to trap mink in one or more of five designated watersheds were contacted. Trappers were interviewed, asked to maintain records of mink trapping effort and take, and a small subset of these trappers accompanied on trap lines during the 1993-94 trapping season. Additional trappers were interviewed in the field or at fur sales for potential future involvement in the study.

## Proposed Research for 1994-95

A pilot study that examines the utility of assessing mink occurrence using recreational trappers as a source of data will be continued. The five watersheds utilized during the 1993-94 trapping season will be used again as study areas. Trappers that trap in these watersheds and were not contacted during the 1993-94 season will be contacted and asked to participate in the study. During the spring and summer, trappers that participated last year will be contacted and additional information on their trapping activities will be obtained. Information obtained during the 1993-94 trapping season will be evaluated. Variables necessary to evaluate trap efficiency will be identified. Methods for recording data and coordinating trapping effort among recreational trappers in study areas will be reviewed and modified. A trapping diary that is convenient in the field will be designed for use by recreational trappers. Participating trappers will be asked to use this diary during the 1994-95 trapping season. This method of data collection will be evaluated for analytical and field problems.

Studies Conducted During 1993-94

# Progress Toward the Development of an Alternative Methodology for Determining Mink Occurrence

## Introduction

Trapping records and trappers have been a source of qualitative and semi-quantitative data applicable to the determination of mink abundance and occurrence. However, indexes of mink abundance derived from trapping records are difficult to adjust for factors such as fur prices of mink or other species that may influence trapping effort and, consequently, abundance estimates based on these records. Although trappers may have a wealth of information due to their extensive time in the field and many field observations, information gathered by interviews of trappers is generally qualitative in nature and subject to personal biases. Trappers and trapping organizations have often cooperated in supplying information and data to support management efforts affecting furbearers. Because of their willingness to cooperate and extensive time in the field, trappers may be a significant source of data if their data collection activities are properly supervised and coordinated to support an adequate study design.

The objective of this work was to determine the feasibility of using recreational trappers to provide data based on catch per unit effort that is applicable to determining the occurrence of mink in selected watersheds.

## Materials and Methods

Information on trapping effort from a recreational obtained from a recreational trapper proficient in mink trapping during the spring of 1993 season was used to select five study watersheds. Watersheds were selected that exhibited a high trapping effort, relatively high take, relatively easy access to trapping sites throughout the watershed, and a potential to serve as "control" watersheds in an expanded study.

Trappers that were likely to trap in the selected study watersheds were located through inquires to local trapping organizations, fur buyers, and other local trappers. Trappers were contacted initially by phone to determine if they would be willing to participate in the pilot study. Of the approximately 22 trappers contacted initially, 16 trappers indicated that they would be trapping in one or more of the study watersheds and were willing to participate in the study. These trappers were sent materials for recording trapping effort and take.

Trappers were sent 1) maps; 2) forms and instructions for recording descriptions of sets, and results of trap checks and take, and their impressions of mink abundance in the study watersheds; and 3) materials and postage for return of maps and forms prior to the beginning of the mink trapping season (October 30, 1993).

Twelve original U.S.G.S. topographic maps (7.5 minute series) comprised the set of maps sent to trappers (Appendix I). The study watershed borders were outlined in red marker and streams within the watersheds were marked with transparent blue marker. Trappers were asked to record on the maps locations of sets made within the study watersheds and return the maps at the end of the trapping season.

Each trapper was sent a letter indicating their role and the objectives of the study and sets of recording forms (Appendix II). Recording forms in a sufficient number for the season were bound in two plastic loose-leaf binders. One binder contained forms for the description of sets used at each location; the other binder contained forms for the results of trap checks and impressions of mink abundance in the study watersheds. Each binder contained a set of instructions for recording data.

Of the 16 trappers sent materials, 3 were accompanied on trap lines. First-hand information was recorded on trapping techniques, trap efficiency, mink habitat, set locations, and factors affecting trapper participation in data collection. In conducting field work, locations commonly used for sets were investigated for sets made by trappers not previously contacted or not participating in the study. A fur sale held in Queensbury, N. Y., on December 12, 1993 was attended to find additional trappers that may be trapping in study watersheds.

Bureau of Wildlife NYS DEC personnel were consulted for information on past projects involving trapper participation and examples of trapper diaries. In addition, the NYS DEC Bureau of Wildlife was asked to retain the names and phone numbers of trappers who trapped mink (whether successful or not) obtained during the 1993-94 small game-trapper phone survey. This information was requested for counties that have watersheds potentially suitable for a contaminant study (Appendix III).

## Results

Currently, 6 of the 16 trappers initially participating in the study have returned forms and maps. Information has not been compiled for the returned materials at this time. Trappers that have not returned forms will be contacted by phone to ask for the return of maps and forms.

It is expected that a number of trappers will provide little or no information. Some trappers that initially agreed to participate in this study, did not trap due to weather and/or health conditions. Approximately half the trappers sent materials trap mink only incidentally with other target species and, consequently, have only minimal trapping effort for mink. A number of trappers found participation in the study more demanding than expected and failed to fully record requested information. Traps from one of the non-participating trapper appeared to be lost or abandoned. Consequently, useable information is expected from only 6 to 8 of the participating trappers.

Sets made by at least 4 trappers that had not been previously contacted or were contacted but not participating in the study were observed in the study watersheds. Information for contact of these trappers was recorded from trap tags. Several additional trappers not previously contacted but who had apparently trapped in the study area were located at the fur sale.

## Discussion

Although the amount of information acquired from trappers during the 1993-94 season is expected to be limited, it should be sufficient for the design of a prototype trapping diary suitable for estimating trapping effort and take for mink. The data collected during this season will be reviewed for its relevance to assessing trapping effort (trap nights), trap efficiency (water level, trap type, use of bait, type of set, number of sets per location etc.), and quantification and description of take. In order to encourage full participation in data collection by trappers, an attempt will be made to minimize the number of data categories and the amount of data requested and to develop a recording format that is convenient to use in the field.

The trapping diary developed during the spring and summer of 1994 will be evaluated during the 1994-95 trapping season. Trappers that participated in the 1993-94 study as well as trappers newly contacted trappers will be asked to participate in the evaluation of the diary design. As during the 1993-94 season, trappers will be sent maps and diaries and asked to keep records of trapping effort and take. A limited number of trappers will be accompanied in the field to evaluate field use of the diary. At the end of the 1994-95 season, trapping records will be reviewed as well as trapper commentary on the design of the trapping diary.

Appendix I. List of U.S.G.S. Topographic Quadrants Sent to Trappers Participating in a Pilot Study Assessing the Feasibility of Using Recreational Trapping as a Source of Data on Mink Abundance.

7.5 minute quadrants for 1993 mink survey

| Watershed | Quadrants |
|---|---|
| Kayaderosseras | Porter Corners<br>Middle Grove<br>Corinth<br>Saratoga Springs |
| Fish Ponds | Baker's Mills |
| Bird Pond | Schroon Lake<br>North Creek |
| Glen Creek | The Glen<br>Johnsburgh |
| North Creek | North Creek<br>Baker's Mills<br>Johnsburgh<br>Thirteenth Lake |

Appendix II. Letter and Forms Sent to Trappers Participating in a Pilot Study Assessing the Feasibility of Using Recreational Trapping as a Source of Data on Mink Abundance.

HALE CREEK FIELD STATION
182 STEELE AVENUE EXTENSION
GLOVERSVILLE, NY 12078
[518] 773-7318
[518] 773-7319 FAX

October 27, 1993

Dear Mr.

As indicated in our recent phone conversation, I have sent materials to be used in recording trapping effort and take for mink in specific watersheds during the 1993-1994 trapping season. Enclosed are the following materials:

1) A "description of set diary" for descriptions of sets for mink with instructions for recording data.

2) A "trap-check diary" for recording information when checking sets and recording take. Instructions for recording data are included. A "Personal Observations on Mink Abundance" form to be completed at the end of the season is also included in the diary.

3) A pre-paid postage and labeled envelope for return of materials at the end of the trapping season.

4) My business card. If you encounter other mink trappers that may be trapping in the areas outlined on the maps, please give them my card and ask them to call or write me.

Sent separately are the following:

1) 7.5 minute series topographic maps that have marked the streams and watersheds for which data should be recorded. The "watersheds" are outlined in red marker; the streams within the watersheds are highlighted in blue. Your trapping sites within the outlined watersheds should be marked on these maps.

2) A pre-paid postage and labeled mailing tube for return of maps at the end of the trapping season.

In participating in this study, you should go about your normal trapping activities. You do not have to trap in all the watersheds or for the entire season. It is important that data be recorded as accurately as possible and as soon as possible after making sets or checking traps. ALL INFORMATION WILL REMAIN CONFIDENTIAL. Information from this study will be reported in a summary manner only so that specific information and trappers providing that information cannot be linked. Information on mink abundance will also be presented in a summary manner so that mink abundance or take for specific watersheds cannot be identified.

The study in which you are participating is a small "pilot" study. The purpose of this study is to examine the feasibility of determining mink abundance using catch and trapping-effort data provided by recreational trappers. If this method can successfully measure mink abundance, it will be used to evaluate the effects of environmental contaminants (PCB's and mercury) on mink abundance in potentially contaminated areas.

From this pilot study I hope to determine the following:

1) The size watershed necessary to accurately measure mink abundance. This will ultimately depend on the number mink taken, overall trapping effort, and distribution of trapping effort in the watershed.

2) The variability in mink abundance among different watersheds. This is important for determining the number of watersheds that should be included in the contaminant study.

3) Factors that affect trap efficiency. These factors need to be included in the evaluation of trapping effort.

4) A diary system for trappers that is convenient to use in the field. Suggestions as to format, size, and information that should be included in a diary are welcome. I hope to update into a more convenient form the current loose-leaf binders that you are using this year.

For your records, I will return the maps and diaries that you provide prior to the next trapping season. If questions arise regarding the recording of information for this study or if additional diary forms are needed, please write or call me at the office (518 773-7318, 8 AM to 4 PM) or at home 518 899 6410.

This study, in addition to ultimately providing information about the effects of contaminants on mink, should also provide basic information on mink abundance that may be applicable to the management of this resource. I and the Department appreciate your help in the collection of data and your suggestions for improving this study.

Sincerely,

David T. Mayack
Conservation Biologist

Enclosures

1993 Survey of Trapping Effort and Take for Mink

INSTRUCTIONS FOR COMPLETING FORM FOR DESCRIPTION OF SET:

Fill out one DESCRIPTION OF SET form for each trap and set. If two or more traps are used in a set, fill out a form for each trap. In order to insure that data is accurate and not biased by a lapse in memory, please fill out as soon as possible after making set. You need only record information for sets made specifically for mink; however, if a set is made for another target species and there is a good possibility that the set will take mink as well (for example, some muskrat sets), information on the set should be recorded.

DATE - include month, day, and year that set was made.

SITE NUMBER - You may number trapping sites in any way that is convenient provided that each site has a unique number. This number should be recorded at the site location on the topographic maps as well as on the data forms.

TRAP NUMBER - If more than one trap is located at each trapping site, the traps at that specific site should be identified by a unique number or letter. This number should be recorded on the form. You may wish to record this number or letter on the topographic map in addition to the site number.

NUMBER OF TRAPS AT THIS SITE - Record the total number of traps set at this trapping site.

SET INFORMATION:

SPECIES - Indicate the species for which the set was intended only if the target species was not mink.

TYPE OF SET - water or land, mark the appropriate type of set. A "water" set is one that is potentially affected by water level. If the trap is likely to affected by water level to a point that it will no longer be effective in taking mink, indicate a "water" set. Indicate a "land" set if the set is made away from water and will not be affected by water fluctuations.

TYPE OF TRAP - Indicate the trap used for the set. Some examples of traps commonly used are given on the form.

SIZE OF TRAP - Indicate size of trap.

DESCRIPTION OF SET - Provide a brief description of set construction. Commonly used sets can be described in a word or two. (Examples are given on the form). Provide a more detailed description only if an unusual or uncommon set is used.

SET SELECTIVE FOR MALE OR FEMALE - Circle "male" if you attempted to make the set selective for male mink. Circle "female" if you attempted to make the set selective for female mink. Circle "non selective" if you did not make any attempt to make the set selective for male or female.

SET SELECTIVE FOR SIZE - Circle "selective for size" if you attempted to make the set selective larger mink. Circle "not selective for size" if you did not attempt to make the set selective for size.

IF BAIT IS USED, TYPE OF BAIT - If a baited set is used, please indicate the bait used in the set.

SPECIFIC LOCATION OF SET - Indicate the location of the set within the trapping location. Use a brief description (a few words) for locations commonly used for mink sets. (Examples are given on the form.) For land sets, estimate distance from water. Provide a more detailed description only for unusual or uncommon locations.

OBSERVATION OF SIGN:

SPECIES - Indicate the species producing the observed sign.

SIGN OBSERVED - Indicate the type of sign observed. Include observations made during scouting trips as well as those made during making a set.

REMARKS:

Indicate any other information that you think is might be important in evaluating the potential of this set to take mink. Your input in identifying additional factors that affect trap efficiency is important in evaluating take per unit of trapping effort.

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INSTRUCTIONS FOR COMPLETING TRAP-CHECK RECORD

Fill out TRAP-CHECK RECORD when checking previously established sets. One data column (three on a sheet) should be used for each trap checked. Please enter data as soon as possible after checking trap to avoid errors due to a lapse in memory.

TRAP NUMBER - Enter the specific number of the trap at the site being checked.

SITE NUMBER - Enter the unique trapping site number. This should have been recorded on the topographic map when the set was initially made.

DATE CHECKED - Enter month, day, and year that trap check was made.

RESULTS OF TRAP CHECK:

1) ANIMAL TAKEN
SPECIES - Indicate the species taken in the trap.

RELEASED? - Circle "yes" if the animal was released and returned to the wild. Circle "no" if you kept the animal.

SEX - If the animal trapped was a mink, indicate the sex by circling "m" for male and "f" for female.

2) TRAP OPERATIVE? - In your opinion, was the trap as you found it operative and able to be sprung by a mink? Circle "yes" or "no".

If your answer was "no" to the above question, please answer the following:

SPRUNG? - Was the trap sprung or closed? Circle "yes" or "no."

BY MINK? - If the trap was sprung, was there any evidence (mink sign) that the trap was sprung by a mink? Circle "yes" or "no."

FROZEN? - In your opinion, was the trap not operative due to freezing? This applies to sets made on land as well as those in water. Circle "yes" or "no."

WATER LEVEL? - For sets made in water, in your opinion, was a mink unable or unlikely to spring the trap due to a change in water level? Circle "yes" or "no."

DEPTH OVER TRAP - If water levels have risen, estimate the

depth of the water over the trap or, if water levels have dropped, estimate the drop in water level.

OTHER REASON? - Please indicate any other reason why this trap is not operative (lost, stolen, damaged etc.)

3) ADJUSTMENTS MADE TO TRAP OR SET - Please circle:
   1) "operative, no adjustment" If the trap and set appeared to be in good condition and, in your opinion, able to be sprung by mink without further adjustment.

   2) "reset sprung trap" If trap was sprung by animal and reset.

   3) "trap made operative" If trap was found in an inoperative condition and reset or returned to an operative condition.

   4) "trap left inoperative" If trap was found, in your opinion, in an inoperative condition and left as you found it.

   5) "trap pulled" If trap was removed to terminate trapping at the location of the set.

   Please indicate any other adjustments made to the set. Minor changes in location of the set or in set construction can be described as "adjustments."

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DESCRIPTION OF SET:
FILL OUT FOR EACH TRAP AT EACH SITE WHEN A NEW SET IS MADE

DATE_____(month/day/year)
SITE NUMBER_____(from map)
TRAP NUMBER_____ NUMBER OF TRAPS AT THIS SITE_____

---

SET INFORMATION:
SPECIES_____ (indicate species if set is made for species other than mink)
TYPE OF SET water land
TYPE OF TRAP_____(long spring leghold, coil leghold, conibear, padded leghold etc.)
SIZE OF TRAP_____
DESCRIPTION OF SET_____
_____
_____
_____
(blind, cubby, tunnel, bank etc.)
SELECTIVE FOR MALE OR FEMALE male female non-selective
SELECTIVE FOR SIZE selective for size not selective for size
IF BAIT USED, TYPE OF BAIT_____
SPECIFIC LOCATION OF SET _____
_____
_____
(next to bridge or culvert, on bank located upstream or downstream from bridge etc., land sets; distance from stream)

---

OBSERVATION OF SIGN:
(fill out if sign of mink or other species was observed in vicinity of set)
SPECIES_____
OBSERVED SIGN_____
_____
(tracks, scat, cuttings, remains of prey, etc.)

---

REMARKS:_____
_____
_____

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TRAP-CHECK RECORD:

TRAP NUMBER_____

SITE NUMBER_____
(from map)
DATE CHECKED_____
(mm/dd/yy)

RESULTS OF TRAP CHECK:
ANIMAL IN TRAP
SPECIES_____
RELEASED? yes no
SEX m f (if mink)
IF NO ANIMAL IN TRAP
TRAP OPERATIVE? yes no
(IF NO)
SPRUNG? yes no
BY MINK? yes no
FROZEN? yes no
WATER LEVEL? yes no
RISE_____
DROP_____
(estimate)
OTHER REASON?_____
_____
(lost, stolen, etc.)
ADJUSTMENTS MADE TO TRAP
OR SET
operative, no adjustments
reset sprung trap
trap made operative
trap left inoperative
trap pulled
other adjustments:_____
_____
_____

TRAP NUMBER_____

SITE NUMBER_____
(from map)
DATE CHECKED_____
(mm/dd/yy)

RESULTS OF TRAP CHECK:
ANIMAL IN TRAP
SPECIES_____
RELEASED? yes no
SEX m f (if mink)
IF NO ANIMAL IN TRAP
TRAP OPERATIVE? yes no
(IF NO)
SPRUNG? yes no
BY MINK? yes no
FROZEN? yes no
WATER LEVEL? yes no
RISE_____
DROP_____
(estimate)
OTHER REASON?_____
_____
(lost, stolen, etc.)
ADJUSTMENTS MADE TO TRAP
OR SET
operative, no adjustments
reset sprung trap
trap made operative
trap left inoperative
trap pulled
other adjustments:_____
_____
_____

TRAP NUMBER_____

SITE NUMBER_____
(from map)
DATE CHECKED_____
(mm/dd/yy)

RESULTS OF TRAP CHECK:
ANIMAL IN TRAP
SPECIES_____
RELEASED? yes no
SEX m f (if mink)
IF NO ANIMAL IN TRAP
TRAP OPERATIVE? yes no
(IF NO)
SPRUNG? yes no
BY MINK? yes no
FROZEN? yes no
WATER LEVEL? yes no
RISE_____
DROP_____
(estimate)
OTHER REASON?_____
_____
(lost, stolen, etc.)
ADJUSTMENTS MADE TO TRAP
OR SET
operative, no adjustments
reset sprung trap
trap made operative
trap left inoperative
trap pulled
other adjustments:_____
_____
_____

1993 Survey of Trapping Effort and Take for Mink

PERSONAL OBSERVATIONS ON MINK ABUNDANCE

At the end of your trapping season, for each watershed indicate by putting a X in the appropriate box what is, in your opinion, the status of the mink population. Please indicate by circling "yes" or "no" whether or not you trapped in the indicated watershed.

1) To the best of your knowledge, what is the population level.

| WATERSHED | TRAPPED? | ABUNDANT | COMMON | RARE | ABSENT | NO OPINION |
|---|---|---|---|---|---|---|
| Kayaderosseras | yes no | | | | | |
| Fish Ponds | yes no | | | | | |
| Bird Pond | yes no | | | | | |
| Glen Creek | yes no | | | | | |
| North Creek | yes no | | | | | |

2) To the best of your knowledge, what is the population trend.

| WATERSHED | TRAPPED? | INCREASING | STABLE | DECREASING | NO OPINION |
|---|---|---|---|---|---|
| Kayaderosseras | yes no | | | | |
| Fish Ponds | yes no | | | | |
| Bird Pond | yes no | | | | |
| Glen Creek | yes no | | | | |
| North Creek | yes no | | | | |

NOTES: _____

Appendix III. Regions and Counties Included in Mink Trapper List Requested from the NYS DEC Bureau of Wildlife for Proposed Contaminant Study.

Regions and counties included in the request for names and phone numbers of trappers who trapped mink (whether successful or not); information to be obtained from 1993-94 NYS DEC Bureau of Wildlife Small Game-Trapper Survey.

| Region 3 | Region 4 | Region 5 |
|---|---|---|
| Putnam | Columbia | Saratoga |
| Dutchess | Schenectady | Warren |
| Ulster | Rensselaer | Washington |
| Orange | Albany | |
| | Greene | |