No. 90

September, 1967

RESOURCE MANAGEMENT REPORT

ONTARIO

DEPARTMENT OF LANDS AND FORESTS

HON.RENE BRUNELLE
Minister

G.H.U. BAYLY
Deputy Minister

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FISH AND WILDLIFE BRANCH

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RESOURCE MANAGEMENT REPORT

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WATERFOWL MANAGEMENT OUTLINE
SWASTIKA FOREST DISTRICT
OPERATIONAL PERIOD - 1967 - 1972

by
J.F. Gardner

Introduction

During the summer of 1965, the first steps were taken in the compilation and recording of data on waterfowl and their use of Swastika District wetlands. This program continued last summer on several fronts, including wetlands inventory, production and harvest surveys, a habitat improvement program and banding operations. In order to co-ordinate these various aspects of waterfowl management into a consolidated and full-scale program, it is necessary at this time to formulate an over-all management plan on a District basis.

Major Objectives

This, then, will be the purpose of this outline, and it is hoped that it will fulfill the following objectives:

1) To inform all field staff whether directly or indirectly involved, as well as all other interested parties as to the procedures involved, information required and ultimate objectives of waterfowl management within the Swastika District.

2) To bring together information from all phases of the waterfowl management program in order to present a strong case for the principal objective, to preserve and where possible, improve the lot of waterfowl in this area so as to benefit not only local hunters and conservationists but to add our own small contribution to the management of this international resource.

3) To act as a basis for the setting up on annual work programs as well as for the budgeting of required monies for improvement projects, etc.

4) To facilitate the interchange of waterfowl data among the Northern Districts, so as to more rapidly develop a backlog of the required background data.

5) To standardize the recording and reporting of waterfowl information across the District so that all data is significant and valid no matter from which area or who the investigator might be.

Background

In order to properly establish the present status of waterfowl management in the Swastika District, the various tasks carried out during the past two field seasons are here presented in chronological order.

Date	Activity	Record
July 1965	Preliminary Investigation of Ghost River Marshes	Report - file - D.O.
July-Aug. /65	Wetlands Inventory - Six small areas	Wetlands forms - file - D.O.
Aug.-Sept. /65	Duck Banding - Hill Lake	Report - file - D.O.
Sept. 15/65	Bag Check - Ghost River	Report - file - D.O.
Sept.-Oct. /65	175 Duck Wings Collected	Added to Prov. sample
Feb. /66	Wetlands Inventory Outline written & form revised	File - D.O.
Apr. /66	Canada Goose Migration Study	2 yrs. raw data - file - D.O.
May /66	Habitat Improvement Project - Phase I - Ghost River	Report - file - D.O.
July-Aug. /66	Wetlands Inventory - Abitibi Lake Marshes & other areas	Wetlands forms - D.O.
Aug. /66	W/F Banding - Moose Lake, Bond Twp. & Mountain Lake, James Twp. with U.S. Airboat	See W/F product and harvest report - file - D.O.
Aug. /66	Bait Trap and Banding - Hill Lake	See W/F product and harvest report - D.O.
Sept. 15/66	Bag Checks - Ghost, Moose Lake, Mountain Lake, Long Lake	See W/F product and harvest report - D.O.

Date	Activity	Record
Sept.-Oct.- Nov./66	240 Duck Wings Collected	Part of Provincial sample - Maple
Nov. /66	Compilation of District W/F product and harvest report	Report - file - D.O.

The management outline from this point on will include details of all phases of the program under their respective section headings. Detailed outlines of individual projects to be carried out as part of any annual work program will be added to this five year plan as an appendix, i.e. - see appendix I - Wetlands Inventory Outline - 1966, such detailed specific plans will include such items as cost analysis, time and personnel allotments and necessary equipment.

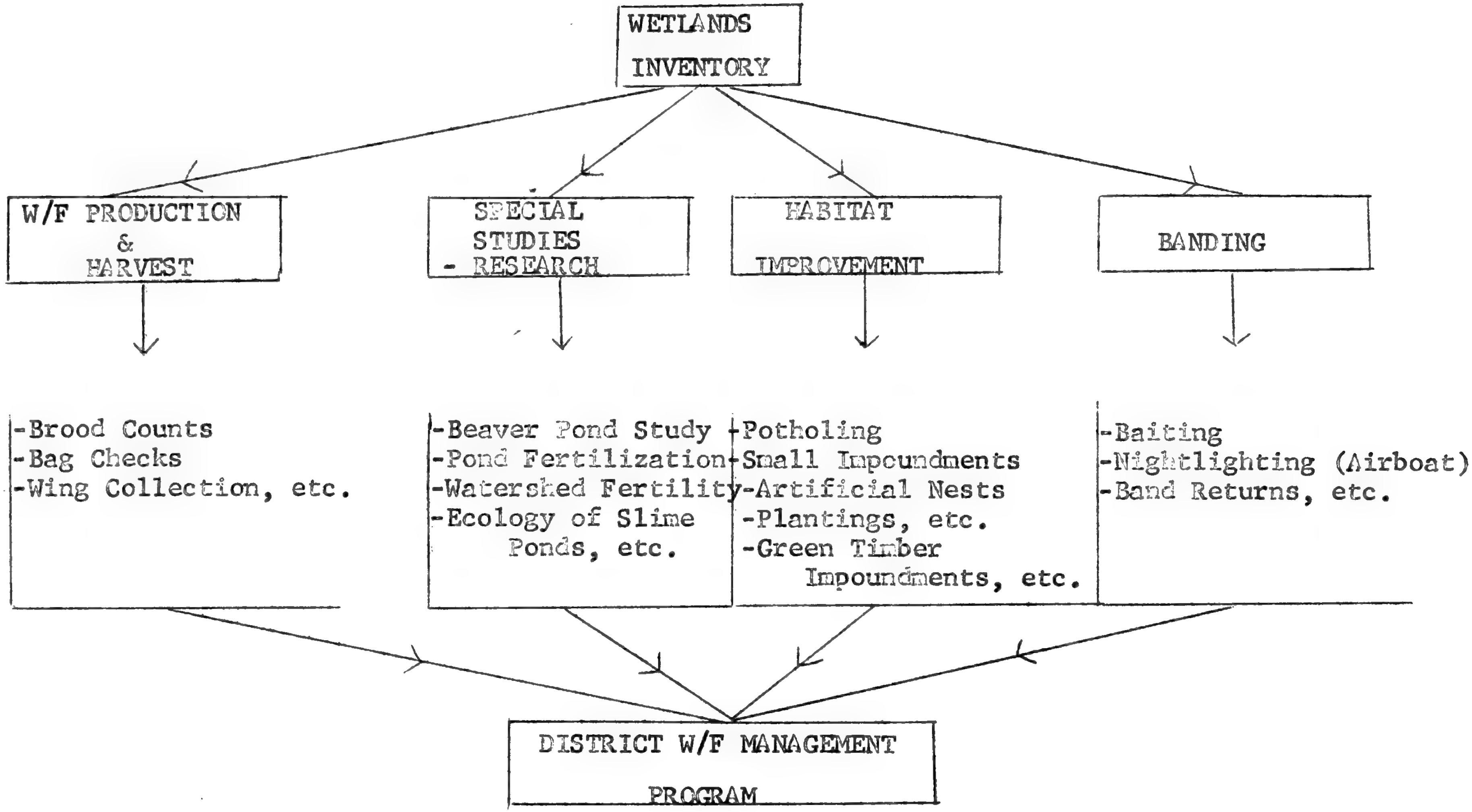
Each section will include, Objectives, Requirements, Procedure and Methods and Recording Procedure. Logically it would be most advantageous to have predetermined wildlife management units to which specific reference could be made, however, since this is not possible at present, reference to such units can be made in specific work plans. This outline will be of a flexible nature in most cases in order to fit all situations when these wildlife units are developed. It should be understood that this outline is subject to change at short notice as dictated by current limiting factors at any stage of the five year period.

Figure I illustrates diagrammatically the various stages of the district waterfowl management plan, their interrelationships and the manner in which they will funnel together to form the district program.

FIG. I - DIAGRAMATIC W/F MANAGEMENT OUTLINE

SWASTIKA FOREST DISTRICT

1967-1972



SECTION A - WETLANDS INVENTORY

Objectives

1) To locate and do preliminary investigational work on all significant wetlands offering waterfowl use potential of any type within the Swastika Forest District.

2) To gather such specific data, as local nesting species and type of waterfowl use, as well as the following data indicated on the Wetlands Inventory form,

    1) Land disposition

    2) Acreage

    3) Acquatics - distribution, frequency relative density

    4) Watershed fertility

    5) Water chemistry

N.B. - see Waterfowl Management - Form I - Wetlands Inventory Form (revised July 17/66).

3) To act as a foundation of information in which will be based all other phases of waterfowl management throughout the District. This then will be the initial and for the time being, the most important step in waterfowl management.

4) To tie in data obtained on wetlands with such existing plans as the Eastern Canada Land Inventory, the Swastika District Multiple Land Use Plan and the A.R.D.A. program of Recreational Land Use Capability Ratings.

Requirements

Basic requirements of wetland investigations will include all data as outlined in Form I and any other data which is deemed pertinent at the time of survey to the evaluation of a particular wetland. It will very possibly be necessary to revise this Form once again as more experience is gained in the assessment of wetlands.

Procedure

The procedure to be followed is set out in "Wetland Inventory Outline - Swastika District - 1966" presented in this plan as Appendix I.

Method

Prior to departure on the field stage of this work, the following references should be consulted concerning various aspects of the area in question; F.R.I. maps, topographic sheets, aerial photographs, the District soils map and geological maps of the area. This will facilitate field operations by offering available outline maps as well as to indicate watershed fertility, general topography, etc.

Whenever possible, field operations will involve a two man crew travelling by car, motor boat, canoe or on foot. Operations should be set up so as to take advantage of the close proximity and common access points of many wetland areas.

Recording

Each wetland examined will be completely recorded on Form I - Wetlands Inventory Form and filed at the District Office together with appropriate maps indicating physical features, land disposition, acquatic vegetation densities, etc.

In addition, any available aerial photographs, or additional information concerning the area in question will be placed on the file.

A master map indicating watersheds throughout the District and indicating the locations of significant wetland areas will be maintained at the District Office.

Records from the O.W.R.C. concerning water chemistry as well as soil test results will be included in the individual file.

As individual management plans are formed and commenced on certain specific areas, a detailed resume of activities and results obtained will be included with the inventory file.

Eventually it will be necessary to institute a number or coding system as an index of wetlands within the District, however this will not be necessary during this five year operational phase. ('67 - '72).

(Revised July 17/66) Form W/F I

DEPARTMENT OF LANDS & FORESTS

SWASTIKA DISTRICT

WETLANDS INVENTORY FORM

Name of Area: ______________________ Date: ______________

Mgte. Unit: ______________________ Landscape Unit: ______________

Site Region:

Twp. ______________________ Lot __________ Con. __________

Area ______________ (acres - at high water level)

Land Disposition: Private - ______%

Crown - ______%

Leased - ______%

Access: Public Road - ______________________

Private Road (Timber, etc.) - ______________________

Trail - ______________________

Navigable Waterway - ______________________

No Access - ______________________

WATER CONDITIONS: Watershed - ______________________

I Feeder Streams - Permanent - ______________________

Temporary - ______________________

Springs - ______________________

II Water Colour - ______________________

III Undissolved Organic Matter - ______________________

IV Silt Content - ______________________

V Temperature - ______________________

VI Light Penetration - ____________________

VII Maximum Depth - ____________ Mean Depth - ____________

VIII Rate of Flow - ________ ft./sec.

IX pH - ____________

X Percentage Open Water - ____________________

XI Percentage Flooded Timber - ____________________

XII Water Level Fluctuation - ____________________

____

____

TERRESTRIAL VEGETATION: ____________________

____

SHORE ZONE VEGETATION: ____________________

____

ACQUATIC VEGETATION

Emergents	Abundance - (A - Abundant) (C - Common) (O - Occurring)	Distribution

Submergents	Abundance	Distribution

NOTE - PREFERRED W/F. FOOD SPP.

WATERFOWL USE:

Species Observed:

Specie	Broods	Yg.	Sing. Males	Sing. Fem.

NOTES -

WETLAND-TYPE CLASSIFICATION: ______________________________

RECOMMENDED W/F. MANAGEMENT RATING:

(a) Brood Production (by species) - ______________________________

____

____

____

(b) Mustering Area - Locals - ______________________________

____

(c) Mustering Area - Locals & Migrants - ______________________________

____

(d) Moulting Area - ______________________________

POSSIBLE INFLUENTIAL FACTORS: ______________________________

____

____

____

RECOMMENDED MANAGEMENT PROCEDURE: ______________________________

____

____

____

OTHER WILDLIFE FORMS: ______________________________

____

____

Assessment by - ______________________________

SECTION B - DISTRICT WATERFOWL PRODUCTION AND HARVEST

Objectives

1) To provide information concerning the prevailing local nesting conditions, hatching success and relative abundance of waterfowl on an annual comparable basis.

2) To provide background information on the distribution, nesting and brooding of specific species of waterfowl within the District. This data will permit the detection of shifts of populations which could eventually change the species composition in an area. It will also provide knowledge to facilitate the updating of the Provincial distribution of various species.

3) Data from this source will delineate areas of significant waterfowl production and hence will dictate suitable specific management procedures for such wetlands, especially in regards to preservation, maintenance and improvement of habitat.

4) Through a system of opening day and spot bag checks as well as contact through correspondence with known waterfowlers, it is hoped to establish the status of local duck hunting to include most important areas, degree of hunter exploitation, and the success rate of hunters. Bag check information during the September 15th to October 1st period in addition to wing collections during this period will supplement reproductive data from brood count information.

5) It is apparent that brood data together with chemical and physical properties of an individual wetland may lead to the possibility of applying a productivity index which will permit an eventual rating of all brooding areas as to waterfowl production potential.

Procedure - Brood Counts

All brood observations will be collected from two principal sources, 1) The wetlands inventory crew, 2) Conservation Officers in the performance of their regular duties. Generally, a full scale brood count program will not be undertaken due to personnel shortages and the lack of sufficient time. However, an effort should be made to gather several years comparable brood data on the larger marshes having high production potential, i.e. - the Abitibi marshes - Ghost, Lightning and Mattawasaga Rivers, as well as Moose Lake, Bond Township, and the Blanche River watershed.

Brood counts will be conducted during all wetlands investigations in conjunction with the analysis work, as well as in conjunction with all programs included under the special studies section.

Field Officers will be supplied with Waterfowl Form 2, (see example) on which broods observed during the performance of other duties will be recorded. Whenever possible, broods observed in the field should be aged according to the techniques outlined by Gollop and Marshall, 1954. Complete broods should be recorded separately from incomplete broods as indicated in Form 2.

Form W/F - 2

SWASTIKA DISTRICT

WATERFOWL BROOD TALLY SHEET

DATE	TWP.	WETLAND	SPECIE	BROODS		BROOD AGE
				COM.	INC.	
				No. yg.	No. yg.	

Method

General brood counts during regular lake survey or other field work will not require specialized equipment other than field binoculars.

Counts carried out during wetlands inventory work should include intensive search methods using 7x50, 7x35 or 8x35 binoculars in conjunction with shoreline walking and canoe paddling. Records of brood incidence should include feigning or broody females even though the actual young are not observed.

Intensive examination of marshes selected for programs under the special studies section may require more elaborate methods of locating broods including flushing poles and ropes, observations on mated pairs, observations of territoriality and the construction of observation towers.

Waterfowl Nest - Records

In order to provide chronological nesting data on all locally breeding species, the following data should be collected from any nests discovered either accidentally or as the result of intensive search methods.

- date of discovery
- species of waterfowl
- location - township, lot and concession
- description of nest site, plant spp. etc.
- clutch size
- fate of nest, i.e. - hatched, predated, etc.
- wetland classification and name if any.

Form W/F - 3

SWASTIKA DISTRICT

WATERFOWL NESTING RECORD

Date of Discovery - ______________

Specie ______________

Location - Twp. _____ Lot ______ Con. ________

Wetland (if named) ________________________

Clutch size ____________________

Nest Site Description ____

____

____

____

Fate of Nest (predated, hatched etc.) ______________________________

____

____

____

Observer ________________________

____

This data will be recorded on waterfowl Form 3 (see example) and placed on file at the Swastika District Office.

Recording

The recording of data on broods and nests will be completed with the filing of Waterfowl Forms 2 and 3.

Procedure - Bag Checks

Due to the low density of waterfowl hunters active within the District at the present time, organized bag checks of hunters will only occur on selected marshes during the initial two days of the hunting season.

Areas receiving priority in this program during the five year operational period will include, -

1) Ghost River marshes - Lamplugh and Bond Townships

2) Moose Lake - Bond Township

3) Long Lake - Gross and Sharpe Townships

4) Hilliardton - Little Clay Belt area - Hilliard,
Brethour, Harley, Casey and Harris Twps.

5) Mountain Lake - James Township

Field Officers will contact hunters in these areas to obtain such information as total hunters, total man-hours effort, success rate, crippling loss, species composition of the kill, and sex and age ratios of the kill. This data can be obtained during the course of enforcement patrols either by motor vehicles in the case of the Little Clay Belt are or by boat on the larger bodies of water. Whenever possible, ducks checked in the field should be sexed and aged by the cloacal examination method if the Officer is familiar with this technique.

Form W/F 4

WATERFOWL BAG CENSUS FORM

SWASTIKA FOREST DISTRICT

DATE: __________ LOCATION: _______________

NO. HUNTERS ______ NO. HRS. HUNTED __________

DOG USED - YES ___ CRIPPLES __________

NO ___

BAG BY SPECIES

SPECIES	NO

TOTAL _______

REMARKS ____

Wing Collections

Duck wing collections have been made in the Swastika District for the past two years. These samples are forwarded to Fish and Wildlife Branch, Maple, for inclusion in the Province wide sample. This program will be continued for the next two years at which point it will be taken over by the Canadian Wildlife Service. This District should aim at obtaining at least 350 wings in each of the 1967 and 1968 hunting seasons in order to contribute significantly to the sample. For this purpose a list of hunter co-operators has been appended to this outline.

One complete wing should be severed from each duck checked, making sure that the tertials are intact, labelled with the date and location as well as sex and age from cloacal examination if known and placed in an envelope supplied for the purpose. Wings should be frozen as quickly as possible to prevent drying in a folded position. Information gained from this source provides data on reproductive success of various species and is valuable in determining bag limits, seasons, etc.

Recording - Bag Check Data

Bag check data will be recorded initially on Waterfowl Form 4 (see sample) for later analysis and inclusion in the District waterfowl production and harvest report. This report will constitute an annual summary of brood count and bag check data, and a resume of banding activities, etc.

SECTION C - SPECIAL STUDIES

This section will deal with all programs of a functional research nature which will have as their main aim the outlining of techniques to be employed under the Habitat Improvement Section. In addition, this section will cover all programs of a purely investigational nature having indirect application to the programs of the management sections. Each project is hereby presented as an outline only and it should be understood at this point that they are subject to change or modification on short notice.

Program I - Beaver Impoundment Study

Introduction

It is generally recognized that the majority of waterfowl production in the Swastika District is either directly or indirectly affected by the water impoundments of beaver. For a number of years this District has contained a high beaver population in most areas.

This factor coupled with the absence of any number of large reproductive marsh areas, means that there exists an intricate relationship between local beaver and locally breeding waterfowl. Concrete information concerning this relationship is not available in this area and is extremely sparse from all quarters. The examination of this phenomena and all of its ramifications will be the long term objective of this program.

Objectives

The long term objectives of this program are hereby presented in point form.

1) To determine the relevant factors both physical and chemical that dictate the ability of a beaver impoundment to produce waterfowl.

2) To examine the relationship between age of beaver impoundments and their relative productivity for waterfowl.

3) To catagorize beaver ponds into form and type so as to develop a production index for each to be generally applicable in all areas of the district.

4) To compare relative productivity of beaver ponds located in water sheds of varying soil fertility.

5) To investigate methods of increasing the productivity of small beaver impoundments through such procedures as fertilizer applications, small dam construction, etc.

Procedure

The study will be conducted on a sample of beaver ponds selected on the following basis.

- 2 recent dams in infertile watershed.
- 2 "old" dams in infertile watershed.
- 2 recent dams in semi-fertile watershed.
- 2 "old" dams in semi-fertile watershed.
- 2 recent dams in fertile watershed.
- 2 "old" dams in fertile watershed.

N.B. - An "old" dam is one constructed in excess of two years before the spring of 1967.

At this point, due to the complex nature of the program, it will be broken down into phases in order to facilitate the formulation of annual work programs.

Phase I - Selection and Survey of Study Ponds

1) Selection of ponds will involve examination of available aerial photographs, soils and geological maps of the areas under study.

2) Fertile ponds will probably be chosen in the Little Clay Belt area.

3) Upon selection each pond will receive a standard wetlands inventory type survey, to include in addition: -
    a) detailed outline and vegetation maps.
    b) careful surface area measurement.
    c) examination of upstream watershed.
    d) ageing of pond, -aerial photos, contact with trappers, etc.

4) Bottom samples taken, numbers depending on size and diversity of pond.
    - bottom samples to be taken from surrounding water shed.
    - these samples can be mixed and forwarded to O.A.C. Guelph for complete analysis.

5) Water samples - one from the pond.
    - one from feeder stream(s).
    - to be forwarded to O.W.R.C. for complete analysis
        - total dis. solids
        - ph
        - alkalinity
        - Oz
        - minerals, etc.

6) Detailed acquatic growth analysis - frequency, density, spp.
    - unidentified samples to be kept for laboratory identification and inclusion in the herbarium.

7) Preliminary investigation of waterfowl use
    - mated pairs counts
    - brood counts - to be conducted in the early morning and evening hours.

8) Invertebrate population - analysis - spp., density, etc.

Phase II --

1) Detailed data on waterfowl use
   - breeding pair counts to begin with clearing of ice cover.
   - complete (100%) brood counts on each pond.

2) Determine shoreline development factor.

3) Analysis of nesting cover available for various species.

Phase III -

1) Attempted applications of various management techniques to improve ponds of low productivity.
   a) fertilization
   b) drainage and fallowing of old ponds with reflooding one year later.

2) Final development of a Productivity Factor for each pond category and final report on the completed program.

Period of Operation

This complete program will probably require three field seasons beginning in May of 1967.

Due to the degree of difficulty of obtaining typical undisturbed study ponds, the first field season will be taken up with the operations covered nn Phase I.

Recording

Preliminary reports will be filed at the end of each field season followed by a final project report at the completion of the program.

PROGRAM II - CANADA GOOSE MIGRATION STUDY

Objectives

The purpose of this program will be twofold; -

1) It will provide some degree of protection through enforcement procedures during the stop-over period in April and early May of a segment population of Canada Geese in the Little Clay Belt area of Harris and Casey Townships, Temiskaming District.

2) Field observations of geese will provide data on total segment population, areas of maximum utilization and segment size trends from one year to another. Eventually it is hoped to establish a hunting and refuge area complex in this location and such information will be imperative in establishing a sound background of goose use in the area.

Procedure

The study area has been divided into units on a map, scale 1.25 inches = 1 mile. Vehicle patrols will be made at intervals, depending on existing conditions during which time total counts of geese active in each of these sectors will be recorded. Generally, the period April 14th to May 1st encompasses the main build-up and ebbing of the flock. However, prevailing conditions of weather may speed up or slow down this occurrence from one year to another.

Counts should be made either at mid-morning or early evening in order to take advantage of field feeding practices as geese come off Lake Temiskaming. It is possible in all sectors to observe geese with binoculars from the concession roads. Counts of geese should be made at two day intervals during the build-up and in some cases may be done in conjunction with enforcement patrols. Data will be recorded on Waterfowl form 5 (see example), provided for this purpose.

Enforcement

This phase of the program is most important and should receive consideration when budget estimates are being made. Such an annual concentration of geese is a rather unique circumstance in Northern Ontario, and presents this District with an obligation to insure the safe passage of these birds to their northern breeding grounds. Since the major expense is travel, a budget of $150.00 minimum should be included in the estimate of the Conservation Officer at Englehart for this purpose annually.

Arrangements will be made with the Kirkland Lake detachment of the R.C.M.P. to insure adequate enforcement patrols during the critical period.

Records of Migration Data

Two year's data has been collected to the present time and with the completion of observations this year, a report will be prepared on this subject.

During the 1967 migration an effort should be made to collect two specimens of the small phase of these geese for taxonic classification by the Department's Research Branch at Maple. In addition, representation will be made to the Fish and Wildlife Branch, Maple, to have personnel from the Land Acquisition section inspect the area during the peak build-up in 1967.

Form W/F 5

CANADA GOOSE MIGRATION REPORT

DATE -

TIME -

TOTAL MILES DRIVEN -

TOTAL GEESE -

AREA -

TOTAL DUCKS -

UNIT	GEESE	TIME		UNIT	GEESE	TIME		
		FROM	TO			FROM	TO	
1				7				
2				8				
3				9				
4				10				
5				11				
6				12				

TOTAL -

TOTAL -

WEATHER CONDITIONS -

OTHER SPECIES -

COMMENTS -

OBSERVERS -

PROGRAM III - ECOLOGY OF PONDS AND LAKES INFLUENCED BY MINE TAILINGS

Introduction

Extensive mine operations in this area have resulted in the inadvertent formation of apparently prime waterfowl habitat in several cases, i.e. - Teck Hughes - Lakeshore Properties and the Adams Mine - Boston Township. There appear to be a number of chemical and physical properties of such areas which directly affect waterfowl use and it will be the purpose of this program to determine these factors.

Procedure

Due to the pure research nature of this program it will receive rather low priority under this section.

The prime objectives of such a study would be;

1) To determine the chemical and physical factors resulting from the modifying action of mine waste materials on permanent water areas.

2) To assess these factors as to their ability to alter the flora and fauna of such areas. The emphasis here of course would be in the determination of the effects that such factors have on various waterfowl uses.

SECTION D - HABITAT IMPROVEMENT

All actual management operations concerning waterfowl habitat will come under this section. For the most part these will include all programs of habitat manipulation, improvement and preservation.

The following general outlines are presented for all projects currently in the planning or operational stages.

Program #1 - Ghost River Marsh Habitat Reclamation

Objectives

1) To evaluate the ammonium-nitrate-fuel oil mixture as a suitable blasting agent for use in reclamation of waterfowl habitat suffering from advanced bog succession.

2) To retard plant succession and increase waterfowl use capability of the Ghost river marshes through the blasting of potholes and channels to increase open water areas.

Procedure - Phase I -

This phase of the program was completed in May 1966 with the blasting of twenty potholes on the south marsh of the Ghost river in Lamplugh Township. Pre-packaged "Amex II" put out by C.I.L. in fifty pound bags was used throughout with very favourable results. A detailed report of this project is on file at the District Office - Swastika.

Phase II -

The second phase of the Ghost River program will be completed in May of 1967. It will include the following objectives;

1) To further test the efficiency of Ammonium-nitrate-fuel oil by using it to blow larger potholes with shots varying from three to seven and detonated with a blasting generator.

2) To determine the effectiveness of ditching powder in the sedge meadow - blasting site #1 and the surface clay area - blasting site #4. This will include tests on the most effective charge depth for ditching under the two conditions.

3) To construct a number of potholes in the north marsh of the Ghost River located in Rand Township.

Procedure

The general procedure involved will be virtually the same as outlined in the 1966 report

Other similar projects

Upon completion of the Ghost river program, it is expected that further operations of a like nature could be applied in other wetland areas of the District, i.e. - Moose Lake, Bond Township. Such projects will be outlined and addended to this general outline as they come up for priority.

Program II - Artificial Nesting Structures

Introduction

In recent years developments in this field have resulted in the possibility of using artificial nesting structures for several species including Wood-ducks, Mallards, Blacks and Goldeneyes.

Experiments in other areas have shown a willingness on the part of Goldeneyes to accept such nesting accommodations, hence our initial program in this line will be confined to this species. Due to the prominence of breeding Goldeneyes on the Ghost river, a number of nest boxes will be set up along the watercourse in early May of 1967.

Objectives

1) The principal objective during 1967 will be to assess the acceptability of artificial nesting structures to breeding Goldeneyes in this area.

2) Eventually, acceptance of these boxes will permit determinations of clutch size, and hatching success, and will possibly shed some light on the reasons for the low mean brood size for this species in the Swastika District.

Procedures

1) Structures will be constructed of slabs, weathered one inch boards or sections of hollow cedar.

2) Approximate measurements will be 8"x8"x24" with a 2-1/2" square entrance hole 2/3 of the way from the bottom.

3) Duff in the form of excelsior and dead cattail will be placed inside each box.

4) Boxes will be erected preferably on predetermined locations during the late winter period.

5) Boxes will be erected in sheltered areas, over water at a height of 10 - 15 feet and facing away from the prevailing wind.

6) Boxes will be checked during the month of June to determine acceptance.

As more detailed information is obtained on prime breeding areas, artificial nest structures will be attempted for Blacks, Mallards and Goldeneyes.

Program III - Small Impoundment Improvements

Introduction and Objectives

As the wetlands inventory progresses, information will be documented on many small District wetlands which could have their

waterfowl use capability greatly increased at minor expense involving small construction projects using materials immediately at hand. This will involve such operations as the following: -

1) Damming - earth works, log spillways, designed to raise water levels in old beaver pond basins, meadows, etc.

2) Potholing or ditching - using limited amounts of explosives to restore small woodland potholes.

3) Fertilization - to increase desired acquatic growth in small wetlands.

4) Draining and fallowing - of small stale impoundments whose productive potential has decreased with age. This operation would be followed by reflooding and possibly fertilizing.

5) Planting - of desired food and cover plants.

Procedure

1) Following the completion of the field operations of each year's wetlands program, certain data will be available on small impoundments that would be benefited by this improvement program. Two or three of these should be considered for the work program of the following field season each year and budgeted for accordingly.

2) Materials - in many cases, materials will be natural (timber, rock, etc.) and immediately at hand.

3) Labour - the Junior Ranger work force should receive consideration when the site of operations is within driving distance of their camp Headquarters. Students hired for the summer by Fish and Wildlife Branch as well as short-term casuals may also be used, with the program supervised by personnel of the Fish and Wildlife Branch.

Budgeting

Budget estimates should be detailed for each project and include casual salaries, Junior Ranger costs, maintenance, equipment rental, travel and A.E.

SECTION E - WATERFOWL BANDING

Introduction

During the past two summers (1965 and 1966) attempts at banding waterfowl in this District have met with limited success. Bait trapping has been attempted twice at Hill Lake in Bryce Township and once at Lower Kirkland Lake in Teck Township. During August of 1966 an Airboat operated by Leo Badger, United States Game Management Agent from West Virginia, was employed to band ducks at various sites in North Eastern Ontario. This method appears to hold the most promise in the banding of northern birds. The following recommendations concerning procedure are set forth as follows:

Bait Trapping

1) Discontinuation of Hill Lake banding due to low returns for effort expended.

2) Investigation of the Adams Mine impoundment and Moose Lake - Bond Township as possible baiting sites.

3) No bait sites will be operated unless there is a build-up of at least 200 waterfowl during late summer in addition to the requirement of easy access to the area.

"Night lighting" - Airboat

It is anticipated that the airboat will return to this District late in the summer of 1967 and the following procedure is recommended.

1) The airboat and its crew need not be in this area until August 15th, 1967 at the earliest.

2) Areas such as Lillabelle and Porcupine Lakes in the Cochrane District and the Grassy River in the Gogama District should be worked prior to the Abitibi marshes.

3) The Ghost river should be run not earlier than the first week of September.

4) If time permits, a week should be spent on the Nepawa Island and boundary marshes in Quebec and if access is possible, the Teddy Bear marsh in Swastika District.

Recording

All waterfowl banded in the Swastika District will be noted in a ledger indicating species, sex, age, location, date, method of capture, and return, if any.

It is most important that arrangements be made to have a copy of the returns on ducks banded by United States banders for District files. Preferably this would include birds banded in the Gogama, Cochrane, and Abitibi - Quebec Districts as well as our own District.

OUTLINE - SWASTIKA DISTRICT WETLANDS INVENTORY - 1966

Introduction

This year marks the commencement of two vast undertakings which will have a direct effect upon this forest district. These are the Eastern Canada Wetlands Inventory to be undertaken co-operatively between the Federal and Provincial conservation agencies, and the Recreational Land Use Classification for the District to be undertaken by two members of our District staff. Hence, it is apparent that information concerning the various forms of wetlands found within our borders must be obtained as quickly as possible, if the needs of waterfowl are to be recognized in these plans. The purpose of this outline then will be to acquaint all involved and interested parties with the procedure by which we hope to obtain this information.

Background

At present, information on wetlands in this District is extremely limited. A thorough search of all available files revealed only spot observations and opinions. We have been able, in the past two summers, to gather together limited data on the following wetlands:

Ghost River Marshes - Lamplugh Township

Waterhen Lake - Ossian Township

Crooked Creek Marsh - Eby Township

Hill Lake - Bryce Township

Tamarack Creek - Tudhope Township

Grenfell Marsh - Grenfell Township

Columbus Lake - Arnold Township

This list is obviously very brief and can hardly be considered representative of wetland types throughout the entire District.

Requirements

We require a method of documenting the various types or forms of wetlands which make up our District compliment. Before considering this aspect any further, it would be well to keep in mind the following definition of wetlands taken from the minutes of the Eastern Canada Wetlands Inventory Seminar, held at Sackville, New Brunswick, October, 1964, "Wetlands means any land covered with water at any time of year and capable or potentially capable of supporting waterfowl." This

definition should form a basis for all future considerations concerning wetlands and waterfowl.

Procedure

In order to obtain as much information as possible in a short span of time, all wetland areas in the District will be classified as to form and type. In this manner, a number of representative or key wetlands of each type can be surveyed on the basis of their capability to produce waterfowl. It is hoped that a form of "production index" will evolve which is representative of each type and can be applied to other unsurveyed areas falling within that type throughout the District. Naturally, it will seem that this will be an over generalization and will not fit specific areas, however, this method will be necessary in order for the data as obtained to be included in the District Recreational Use Capability Survey. Eventually, it is our aim to inventory all productive wetlands in the District, but for the first two years of the program this "type sample" system will be followed.

Type Classifications

The following classifications will be applied according to their definition to each of the key wetlands concerned:

Classification	Definition
I - Bogs	- 2 Types - a) open water, surrounded by typical bog veget. b) Closed bog - no open water - surface ground water level.
Ex. - Columbus L. - Arnold Sausage L. - Clifford	
II - Wooded Swamps	- Areas of flooded timber both new and old caused either by man-made or natural water impoundments.
Ex. - Lake #13 - Gross Hilliardton Swamp - Hilliard	
III - Beaver Impoundments	- All acreages of water either ponds, or widenings of streams formed as the result of beaver dams either new or old.
Ex. - Grenfell Marsh - Grenfell	

IV - Shallow Eutrophic Lakes - 20% or more of surface area featuring acquatic growth. Usually warm water and overall depth less than 20'.

Ex. Moose Lake - Bond
Mudpack L. - Yarrow

V - River Marshes - Usually formed as widenings of a river or from marshy shoreline and featuring typical cattail vegetative association.

Ex. - Ghost River - Lamplugh
Driftwood R.- Bond

VI - Creek Marshes - Same situation as River Marsh, except main water course classified as creek rather than river. Cattail may not be in evidence.

Ex. - Crooked Creek - Eby
Sharpe Creek - Hearst

VII - Seasonal Flood Areas - Areas inundated for short periods of time, usually in spring as result of break-up, run-off or precipitation.

Ex. - Judge Agricultural Area

VIII- Shrub Swamps - Soil normally water-logged during growing season may be water covered, Veget. - aldar, willow, dogwood, etc.

N.B. - It may be necessary to add classifications as work progresses, however, the number of types should be kept to a minimum for sake of simplicity and analysis of data.

Information Required

The information required on each wetland is basically outlined in the form entitled "Wetlands Inventory Form" currently in use, a copy of which is attached. Two additions, namely "Type Classification" and "Recreational Use Capability", have been made this year. This form could, no doubt, stand some revision, however, it will suffice for use during this year's operations.

Maps

A complete set of sketch maps indicating land disposition, acquatic growth species and distribution, flood basin size and all other pertinent data will accompany each completed inventory form.

Secondary Interests

Although the primary interest in the wetlands inventory will be a rating based on waterfowl use, information on secondary resources will also be included in individual reports. These secondary resources will include species familiar to wetland habitat including muskrats, other fur bearers, snipe, woodcock, and in certain instances, game fish species.

Influential Factors

The measurement of the waterfowl use capability of a wetland will depend on several key factors including the evaluation of the following:

1) Soil type and composition.

2) Acquatic vegetation type and extent.

3) Water chemistry.

4) Bottom composition.

5) Water level fluctuation.

6) Nest cover type.

7) Open water area and depth.

The sample of key wetlands which will receive initial consideration will be based, as nearly as possible, on presently existing "Landscape Units" as the basic inventory unit. Whenever possible, marshes will be chosen as being representative of varying landforms within these "Landscape Units". The division of this District into Landscape Units for use in the Land Use Plan should be completed by the Research Branch this summer.

Brood Production

Since waterfowl brood counts are at present our only means of determining present waterfowl production on existing marshes, a survey of this type will be carried out in conjunction with the proposed survey work on all wetlands under scrutiny. In addition, field staff

will be requested to record duck broods observed during routine field work in all areas whether or not they form part of the wetlands inventory.

The appended list of wetlands will be considered a "master list" from which the inventory sample will be drawn to represent the aforementioned classifications. Additions will be made to this list, as suitable wetlands are brought to light and conversely deletions may be made if warranted.

WETLANDS MASTER LIST

TYPE CLASSIFICATION	WETLAND	TOWNSHIP
V	Ghost River Marshes	Lamplugh
V	Lightning River	Frecheville
I	(Makwa) Bear Creek	Lamplugh
V	Kechewaig Creek	Rand
V	Teddy Bear Marsh	Stoughton
IV	Moose Lake	Bond
V	Driftwood Creek	Bond
IV	Waterhen Lake	Ossian
VI	Mist Creek	Ossian
VI	Wawagoshe Creek	Ossian
VI	Sharpe Creek	Hearst
VI	Benson Creek	Hearst
IV	Grassy Lake	McElroy
V	Misema River	McElroy
IV	Victoria Lake	Gauthier
I	Columbus Lake	Arnold
I	Campbell Lake	Clifford
I	Little Boy Lake	Clifford
I	Vanier Lake	Clifford
I	Seahorse Lake	Clifford
I	Sausage Lake	Clifford
I	Motherwell Lake	Clifford
I	Langley Lake	Clifford

TYPE CLASSIFICATION	WETLAND	TOWNSHIP
I	Lahaie Lake	Clifford
I	Mud Lake	Lebel
III	Grenfell Marsh	Grenfell
IV	Lower Kirkland Lake	Teck
IV	Wolfe Lake	Maisonville
V	White Clay River	Maisonville
I	Dunmore Lake	Dunmore
II	#13 Lake	Gross
I	#8 Lake	Davidson
I	#11 Lake	Gross
VI	Crooked Creek	Eby
IV	Hough Lake	Savard
III	Tamarac Creek	Tudhope
VI	Sunday Creek	Bryce
II	Hilliardton Swamp	Hilliard
	Blanche R. Delta	Harris
VI	Sutton Creek	
III	Well's Pond (Priv.)	Bryce
VI	Cleaver Creek	Rankin - Morel
	Upper Obushkong Lake	Rankin
	Penassi Lake	Van Hise
IV	Mudpack Lake	Yarrow

DEER MARKING, PEMBROKE DISTRICT
1966-67

by
L.L. Trodd & M.L. Wilton
(Photographs illustrating this article
available for inspection in the
Fish and Wildlife Library)

Introduction

An apparent decline in the Pembroke district deer herd during the past several years has indicated that there is an immediate need for an intensive deer yard improvement program.

The Pembroke district is unique in that over 50 percent of it is composed of Algonquin Park in which the deer season is never open.

Therefore before an efficient deer yard improvement program may be embarked upon, it will be necessary to determine which wintering areas are contributing most significantly to the huntable (or outside Park) population. It is these areas which should receive the highest priority in the deer yard improvement program.

It was therefore decided during the winter of 1966-67 to test as many different deer tagging methods as possible, in order that an intensive tagging program could be commenced in 1967-68.

A review of tagging in the district discloses that in 1964 two deer were successfully tagged, using snare type, woven plastic collars.

Using the same method in 1965, eleven deer were tagged. Of these, one return has been recorded.

Although one return is almost insignificant, it does show that if sufficient numbers were tagged important knowledge of herd movement to and from wintering areas and also, in yard movements, could be gained.

Part I - Tagging with Collars

As was previously mentioned tagging projects were carried out in this district in 1964 and 1965 using woven plastic snare-type collars. Two main factors however appeared to limit the effectiveness of this type of collar; its bright appearance and heavy anchor wire made it difficult to camouflage the snare so that deer would readily lead into it, and, its non-elastic nature made proper attachment

difficult and possibly harmful in the case of deer with larger necks than the collar circumference.

With this in mind, neck circumference measurements were taken from a random sample of deer passing through the Arnprior Deer Check Station in November of 1966. These measurements are tabulated in Table "A". All measurements were made at the base of the skull where the neck is smallest.

Table A - Neck Circumference Measurements

Circumference In Inches	Occurrence (Units)
11.0 - 11.9	XX
12.0 - 12.9	XXXXXXXXX
13.0 - 13.9	XXXXX
14.0 - 14.9	XXXXXXXXX
15.0 - 15.9	XXXXXXXX
16.0 - 16.9	XXXX
17.0 - 17.9	XX
18.0 - 18.9	X
19.0 - 19.9	X
20.0 - 20.9	XXXX
21.0 - 21.9	X
22.0 - 22.9	XXX
23.0 - 23.9	XX
24.0 - 24.9	X

It would appear from Table "A" that a non-elastic collar could not only be lost from small deer but could cause severe breathing restrictions to large deer. The plastic woven collars have a maximum circumference of approximately 20.5 inches.

For these reasons it was decided to attempt the development of a rubber snare-type collar which could then have a smaller circumference and yet stretch in the case of larger deer.

Such a collar was designed late in the winter of 1966-67 using black "Surgical Rubber Tubing" (Fisher Scientific Company), and a different catch mechanism. A small number of these collars were constructed, with a circumference of 19.5 inches, for field testing.

A set made on a deer runway is illustrated in Plate "2". The use of 20 pound test monofilament to complete the snare circle greatly increases the ability to camouflage this collar.

Unfortunately time did not permit complete assessment of this design. The following facts however will be useful in further testing the rubber collar during the winter of 1967-68:

(1) Number 60 cotton thread dipped in pure strength javel water for one hour provides an ideal agent for positioning the snare in the runway, and does not inhibit the action of the snare since it breaks easily with very little pressure from a deer.

(2) It is felt that for best results the snare should be set in a 10 inch square. This sized square allows free passage of the deer's head, but insures tightening on the smaller portions of the deer's neck, thereby allowing proper function of the catch mechanism before the monofilament breaks.

(3) A half-hitch in the monofilament close to the collar attachment insures breaking at this point.

(4) The catch mechanism appears to function quite satisfactorily with little pressure.

(5) There appears to be no hesitation on the part of deer to lead through this snare if some camouflaging precautions are taken.

Recommendations

It is felt that this design warrants further investigation, and it is therefore recommended that adequate funds be made available for the assembling of a sufficient number of the rubber collars to conduct meaningful field tests during the winter of 1967-68.

Acknowledgements

Sincerest thanks to the members of the Mechanical Research Section, Ontario Department of Lands and Forests, Maple, for their assistance and suggestions in the designing and assembling of the rubber collars.

Part II - Tagging by Immobilization

The second method of tagging attempted was the use of succinylcholine chloride, an immobilizing drug, administered by an automatic projectile type syringe dart, and two styles of rifles.

Equipment

Guns - The two rifles used were, (a) a capchur gun, a gas powered CO^2 type weapon, and (b) a 32 calibre shotgun using a light load, powder shell. (a) was found to have a very limited range and to be very dependant on air temperature. Within its range this is a fairly accurate weapon, delivering an accurate missile, with low velocity. It has the advantage of being very quiet, and the report does little to startle the animal stalked.

This weapon does not deliver a constant velocity, and it is difficult to load the gas cartridges.

This weapon is practical from ranges of 15 to 30 yards.

The CO^2 gun is made by the Capchur Manufacturing, a branch of Palmer Chemicals, U.S.A.

(b) was found to be of much higher velocity, easily loaded, consistently propelling the dart, with a higher velocity over a longer range with a relatively flat trajectory thus maintaining a better degree of accuracy.

The report, though more sharp than the gas gun, does not alarm the animal to any noticeable degree.

A few words of caution may be injected here, that is, to warn users to select animals beyond a range of 25 yards, unless the animals are of larger stature than deer.

A well muscled portion of the animal must be hit, i.e. (shoulder, or ham). This weapon is practical with the noted caution, from 25 to 70 yards.

Darts - The dart was the automatic projectile type, fired by a 22 calibre shell, which in turn was triggered by the dart striking a solid object, thus driving the rubber plunger forward forcing the drug through the syringe.

This piece of equipment worked without one single failure. If one could direct the dart over the distance and strike the deer there was no malfunction with the components of the dart. A light smear of vaseline was applied to the rubber stopper to prevent sticking to the inside wall of the dart. This was found to occur if darts were left with drug removed on an overnight basis.

It is recommended darts be completely disassembled at the completion of each day's tagging activities, and darts that have fired should be cleaned thoroughly. After darts are loaded it was found that dipping the syringe in a jar of vaseline prevented the drug from leaking out the tip.

Drugs - The drug used was succinycholine chloride, (Anectine) this is a muscle immobilizer, rendering the animal unable to command any control of legs, neck and other voluntary muscles.

An overdose is readily seen in the animal in the form of respiratory paralysis and varying degrees of shock.

Much has been written on this drug, but information on dosages as applied to animals in their wild state is far too varied to arrive at a final set of rules. Experience and data are as yet too limited to suggest positive dosages and their effects.

It was decided to start with a generally accepted dosage of 2 c.c. No animals were killed with an overdose, but the dosage was immediately cut to half after the first animal was hit.

The area on the body of the animal where the drug was absorbed appears to govern immobilization time. It is felt that a minimum effective and tolerant dose to wintering deer would be 1 c.c. Large animals are not immobilized as long as smaller ones, but all animals were completely immobilized. Care should be taken approaching animals prior to total immobilization and the early stages of recovery as the hoofs will flail.

No maximum dose was administered but it is felt 2 c.c. is bordering on this area.

An antidote was carried at all times in 1 c.c. vials (prostigmin).

Approach Method

The first method used was to drive in the deer yards, and upon seeing a deer, the shooter would attempt to get out and stalk it. The opening of the doors and the movement of the shooter often startled the animal, however, and it would then jump or move farther out of range.

An attempt to hold the deer in a light at night was tried with no success. Inability to select target areas on the animal, along with mistaken ranges due to darkness made this a difficult method. Added to this, darts became lost in the snow and much time was needed to locate them.

The main problem was getting deer within the limited range of the gas gun, which was the only gun available until late winter.

As winter progressed, the deer gathered on the south facing slopes and it was possible to drive to a few areas with such slopes and shoot directly from the vehicle. This proved to be a good method, all deer successfully tagged were taken by this method.

A complete summary of activities after animals were hit appears in table "B".

Tags Used

It was agreed prior to tagging that a three (3) tag system would be used.

The first or common metal ear tag attached with special pliers is a proven permanent style.

The second tag attached to the ear tag would be a coloured plastic ribbon, four inches long and one inch wide, this material is of a high intensity colour. The purpose of this ribbon was to record colours, as seen at future times, and places, thereby removing the necessity of killing the animal to gain any record of movement.

The third system was to attach a newly designed rubber collar, in the event that any of the deer tagged this winter are taken during the next hunting season, it will then be possible to assess the durability of rubber collars.

Tagging Record

Table "B", Deer No. 1, C.O. 2 Gun

Date - March 31, 1967 Temp. - 10^{o}

Doe - Medium size, 3 years Dose - 2 c.c. (Anectine)

Range- 30 yards Time Shot - 2:40 p.m.

Place Hit - Low on gut forward on hind leg, left side.

Reaction Time - 30 seconds Distance Travelled - 45 feet.

The time it took the two men who were in the vehicle to walk to the animal, (not more than a minute and a half) it was apparent that the doe was in trouble. She could no longer hold her head upright and the tongue was visibly shading to blue, from pink.

The animal was immediately placed in a more natural position with its legs tucked under the body, the head was held by one man in an upright position to avoid choking on its own stomach content.

Natural breathing was now laboured, and the first of two antidotes were administered.

Artificial respiration was begun, forcing the air out of the lungs by pushing on the diaphram from the rear towards the lung, distinct sounds of air being expelled and taken in are to be heard. The man doing the respiration work had to be careful not to lean too heavily on the animal, unnecessarily, as it was apparent she was pregnant.

The tongue presented a problem inasmuch as it continually fell back into the throat and, the man holding the head had to reach in the mouth and take hold of the tongue and hold it well out of the mouth to allow air to pass freely. The deer could not bite the fingers during this process.

First indication of recovery came after the second antidote was given. The eyelids and the eyes came under control of the animal again, and, normal breathing was started. Tongue turned from blue back to pink. This was one hour and five minutes from the time she was shot.

The ear tag and colour marker were put in place, as was the rubber collar. The animal was now in control of the neck muscles and was labouringly holding its own head erect, attempting to watch our every move. The tail began to twitch very nervously and we retreated

to a small grove to watch and not cause further undue alarm. (One hour and ten minutes) One hour and thirty-five minutes after being hit she stood very shakely in front of us and slowly staggered away.

We remained in the area for a further two hours watching her. She lay down several times, and her last year's fawns teamed up with her again and all left the area.

The following day a large area was covered in anticipation of possible mortality due to unknown causes. The doe and twin fawns were seen via the ribbon ear tag and binoculars approximately one mile from the scene of tagging. All were browsing.

Observations

The animal appeared to be little alarmed at the report of the gun, nor, when the dart struck her. Reaction, as may be seen was very rapid and via an overdose passed beyond the voluntary muscles to affect the involuntary (diaphram). The heart beat remained very rapid during the entire operation. The animal drooled profusely, at no time was there any danger of being kicked from the legs or hoofs. The wound made by the dart was swabbed with disinfectant but was of a minor nature.

The drug will not penetrate the placental barrier to injure nor affect the embryo.

Recommendations

Reduce dose to 1 c.c. Never attempt to tag deer alone. Two men is a suitable arrangement, but if possible in the event of artificial resuscitation, three, would be ideal. This process involves considerable effort.

Keep a close watch on the animal, the tongue and eye pupils are very important gauges to the physical state of the animal. Small sharp sticks that may pierce the ear or eye of the floundering animal should be removed immediately from the head and neck area, on the ground.

Eyelashes and eyebrows indicate the drug is wearing off, the tail moves nervously and shortly thereafter some leg movement is possible. Do not overhandle when animal begins to stir, anxiety appears to be at its peak at this point and the less movement the better. Stand well back to allow animal freedom, preferably out of sight.

Table "B", Deer No. 2, C.O. 2 Gun

Date - April 3, 1967 Weather - Cloudy, overcast

Doe - Medium size, pregnant Dose - 1 c.c. (Anectine)

Range- 25 yards Time Shot - 2:00 p.m.

Place Hit - Low on hind quarter, left side

Reaction Time - 3 minutes 52 seconds

Distance Travelled - 150 to 200 yards.

This animal reacted very favourably, she jumped when hit with the dart and as the dart had fallen out immediately after impact she brought the leg forward and turned her head back and down to survey the area of the wound. She moved swiftly after looking at the vehicle for a few seconds. She lay down and was trailed rather easily in the snow. Some attempts at moving were made but complete immobility occurred as she was approached.

She never lost control of her neck and head, eyebrows, eyelashes and vision seemed well controlled and the tongue remained pinky in shade. The collar, eartag and plastic marker were attached, and we retreated some distance to allow her to relax as much as possible.

Thirty minutes after being shot she was on her feet and under way.

No antidote was given, wound was of minor nature and was swabbed.

Plates "4 - 5 - 6 - 7" illustrate the various stages of immobility.

Recommendations

Be aware of attempts to kick when not fully under the effects of the drug and when drug is wearing off. Dosage appears tolerable.

Table "B", Deer No. 3, C.O. 2 Gun

Date - April 3, 1967 Weather - Cloudy, overcast, cool

Doe - (Large animal) Dose - 1 c.c. (Anectine)

Range- 20 yards Time Shot - 3:50 p.m.

Place Hit - Back edge of right front shoulder

Reaction Time - 5 minutes Distance Travelled - 100 yards

Upon reaching this animal, having first crossed a swail and creek, we found her lying on a slight knoll with her head lower than her body. She was still able to swallow, consequently she had not choked on her own stomach content.

We immediately switched her end for end, and she seemed very relaxed, though having some difficulty holding her head erect she was given some support, and in a moment or two soon had control and was watching us.

The tags were attached and we returned across the swail where we stood and watched her get up and walk away.

No antidote was given and lapsed time was 30 minutes. Wound very minor in nature.

Recommendations

Had this animal lain down in the swail, she would have drowned before we were able to get to her.

Animals must be located as quickly as possible after a period of absorption has lapsed, 3-4 minutes, left any longer there is no movement possible for 10 to 12 minutes, and animal could be lost through asphyxiation, if not located while able to move.

Table "B", Deer No. 4, .32 Calibre Shotgun

Date - April 9, 1967 Weather - Cloudy, mild

Doe - Pregnant Dose - 1 c.c. (Anectine)

Time Shot - 2:30 p.m. Range - 18 yards

Place Hit - High, just forward of left hind quarter

Reaction Time - 2 minutes Distance Travelled - 40 yards

This animal was entering its death throws as we approached, the dart was visible protruding from the abdominal wall with arterial bleeding evident. Approximately one quarter of the dart was visible and the remaining portion had entered the body of the animal approximately one inch below the spinal column, breaking the artery with the syringe, causing profuse bleeding internally. This was aggravated by the movement of the deer.

Cause of death was established at the scene by Dr. Cashman, M.D. who was working with us on this, and other occasions.

The shooter was leading the animal very slightly as it walked broadside across a small opening and the intent was to hit the animal centrally in the ham.

This should cast no reflection on the potential of the gun but should serve as a rule governing the starting range of this weapon.

Again we will go on record as saying that this weapon should not be used on deer at ranges closer than 25 yards.

Miscellaneous

The deer seemed unconcerned with the plastic tags and rubber collars.

Darts are very hard to locate after missing the animals. Barbs on darts were removed as the darts have a more positive action over earlier models.

The average number of shots compared to animals hit now stands at about one hit for every eight attempts.

Recommendations

Findings to date would indicate that this is a practical method of tagging deer.

It is therefore recommended that funds be made available to purchase the necessary equipment to further this programme in 1967-68.

Further to this it is recommended that the program be carried out, in all deer yards outside Algonquin Park and, in all yards inside Algonquin Park adjacent to the Park Boundary.

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