



**BIG GRASS MARSH
BANDING**

1971

SUBMITTED TO

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INTRODUCTION

Big Grass Marsh is located 2 miles north and 2 miles east of Gladstone, Manitoba. It extends north for approximately 18 miles and varies from 1 to 5 miles in width, covering nearly 45 square miles. The marsh is utilized by waterfowl for both breeding and moulting as well as being a major staging area for fall migration.

Almost dry at one time, Big Grass Marsh became the first Ducks Unlimited project in Canada in 1938. D.U. stabilized the water levels by constructing a dam at the outlet. Banding of waterfowl has been conducted by D.U. in years gone by, but these banding programs were terminated after the summer of 1970.

In determining the waterfowl bag limits and the hunting season for 1971, federal and provincial governments decided to divide the previous "south of the 53rd" zone into two zones at approximately the 51st parallel. To measure the effects of this decision it was necessary to gather data from areas both north and south of the new dividing line. The Manitoba Wildlife Branch of the Department of Mines, Resources and Environmental Management banded ducks at Dauphin Lake and D.U. continued banding at the Libau-Netley Marshes. Mr. G. Townsend of the Canadian Wildlife Service decided that this sample was unrepresentative of the southern zone. Because of the previous data gathered from Big Grass Marsh by D.U. and the need for a sample from this area, he planned to continue banding operations at Big Grass Marsh.

THE MARSH

In the area where we banded, Big Grass Marsh is the epitome of the ideal waterfowl marsh. Much of the marsh was no more than 6" deep and there was an abundance of open water pools where ducks congregated. Submergent, aquatic plants formed a dense mat of vegetation in the water throughout the marsh. The water was clear except in the drainage ditches leading to the marsh and in areas where carp were feeding. Out in the marsh proper there were large areas of open water up to 6' in depth where diving ducks such as Redheads, Canvasback, Ringnecks, Lesser Scaup, and Ruddy Ducks were commonly viewed. Other "deep marsh" birds were: Coots, Horned Grebes, Pied-Billed Grebes, and numerous gulls and terns. In the shallow marsh Mallards, Blue-Wing Teal, Green-Wing Teal, Pintail, Black Ducks, Widgeons, Gadwall, Shoveller and Wood Ducks were seen as well as, Bitterns, Night-Herons, Sandhill Cranes, and various shore birds and black birds. The great variety of birds is understandable due to the variety of habitats which the different plant 'zones' produce.

The first zone is a dry land zone around the periphery of the marsh. It is composed of a thick stand of Reed Canary Grass (Phalaris arundinacea), a plant which was introduced into the area many years ago because of its value for hay. It forms a wall of 6' tall vegetation around much of the marsh and along the edges of the drainage ditches (see Photo 1 and 6). In some areas this zone has been eliminated by plowing. The next zone, a "shallow marsh" belt of sedges (Carex sp.), Torrey's Rush (Juncus Torreyi), and interspersed with Cattail (Typha latifolia) extends for some 30 yards into the marsh. Where previous years plowing has destroyed this zone, there appears

to be a secondary succession of very different plants not common to the natural marsh. These areas varied depending on the number of years since they were last plowed. In the first year after plowing, little vegetation had grown. Small stands of Alkali Bulrush (Scirpus paludosis), some Torrey's Rush, sedges, Slough Grass (Beckmannia syzigachne), and small stands of Cattail, were the predominant vegetation patterns. We were only able to see areas where plowing was known to be one or two years old. Therefore we were unable to know what the next stage of succession would be, although, we assumed it would be the natural zone described previously.

The third zone is largely Cattail and sedge with some Hard Stem Bulrush (Scirpus acutus). In the area where we banded, plowing in previous years had changed this pattern. In this area, Slough Grass was the dominant emergent with small stands of Cattail and sedges being very common. Also, there were many open pools in which the submergent aquatic, Canada Waterweed (Anacharis canadensis), matted the mud bottom. The dabbling ducks found these areas very attractive, possibly because of the ripe Slough Grass. This may have been one of the reasons our traps did not catch during late July and early August. Many of the ducks at this time were moulting, and this could have made them more hesitant in approaching the "strange" traps.

Next was a zone of Hard Stem Bulrush intermixed with sedges and Whitetop (Scolochloa festuacea), which extended into the marsh up to a mile in some places. This served as an excellent cover for flightless ducks. The water in this zone was no more than 12" deep and submergents were plentiful.

Finally, bordering the open water of the deep marsh, a band of Giant Reed Grass (Phragmites communis) interspersed with Cattail formed the last of the emergent zones (see Photo 2). Wherever the marsh was shallow (for example around islands or ditches), Cattail and sedge were the common emer-

gents.

The large spans of open water in the center of the marsh contained clumps of Hard Stem Bulrush emerging from the water (see Photo 3). This open water was rich in aquatic growth. Various Pondweeds such as Sago (Potamogeton pectinalus), Claspingleaf (P. richardsonii), Various Leaved (P. gramineus), Widgeon Grass (P. vaginatus), as well as, Smart Weed (Polygonum nataus), Bladder wort (Utricularia vulgaris), Water Miffoil (Myriophyllum exalbescens) were all common submergents of the deeper marsh. Photo 4 shows the dense growth of Claspingleaf Pondweed and Widgeon Grass, typical of the area. Bladder wort (see Photo 5), was more common in the murky shallow pools which were isolated from the larger water bodies. Algal growths were often associated with these plants.

A few drawbacks marred the perfection of this marsh for waterfowl. Carp, although only in small numbers, tended to stir the bottom mud, and on occasion the crystal clear water common to most of the marsh, was non-existent. Predators, such as Red Fox, Mink, Raccoon and Striped Skunk were present in large numbers and could possibly have the effect of lowering the potential duck production in the area. In addition, gulls and Northern Pike may take some eggs and young. The unbroken banks of the drainage ditches are well worn with paths of Red Fox and Raccoon, who are enabled to travel deep within the marsh for their meal. Beaver are present in the drainage ditches and were spotted as we travelled to and from the marsh. These beaver could be a nuisance in the future.

However, as a staging area this marsh is among the best in Manitoba. Big Grass Marsh provides protection and ample food for all species of waterfowl on their southern flight.

RECOMMENDATIONS

1. Measures should be taken to prevent Carp from becoming firmly established in the marsh.

2. The banks of the drainage ditches should be broken at numerous points along its length to prevent predators from easily penetrating the marsh during their food foraging.

STATION

The "home base" of the banding operations at Big Grass Marsh was located on Township: 17 ; Range: 11; Section: 22. The land is owned by an American named Mr. Kenner and is operated by a Mr. Neville Skanderbeg, a farmer from Gladstone, Manitoba. Mr. Skanderbeg was contracted to supply this C.W.S. project with grain, hydro power and any extra help that would be required. The grain purchased was barley at \$.90 a bushel regardless of the quality. Hydro power was estimated at \$25.00 for the six week period. Unfortunately, Mr. Skanderbeg had too much work running the farm to be of much assistance during the later part of our programme. Nevertheless, he proved to be very helpful in locating trap sites and suggested changes in our set up (see map for banding sites etc.).

This farm proved to be an appropriate location for a base where all the traps were located within a two mile radius. Four of the five traps were within riding distance, and one of the traps which was located deep in the marsh was accessible by motor canoe. The canoe was beached on the banks of the nearby drainage ditch. This drainage ditch led to the marsh. The roads in the immediate area were not gravel covered until the last week in August. If more than an inch of rain fell, the gravel disappeared and the road became part of the marsh. A four wheel drive vehicle would have been of benefit in wet weather, and a tractor even better. During bad weather, we used the assistance of Mr. Skanderbeg's tractor to allow us to get to the traps.

In the future it would be advisable to have the home base less dependent on an electrical outlet. An alternative would be to have a propane refrigeration, heat and lighting system. Therefore parking on government land would bring the cost down. In addition this would not restrict the

the banding operation and if the need arose, a move would be much easier to some other part of the marsh.

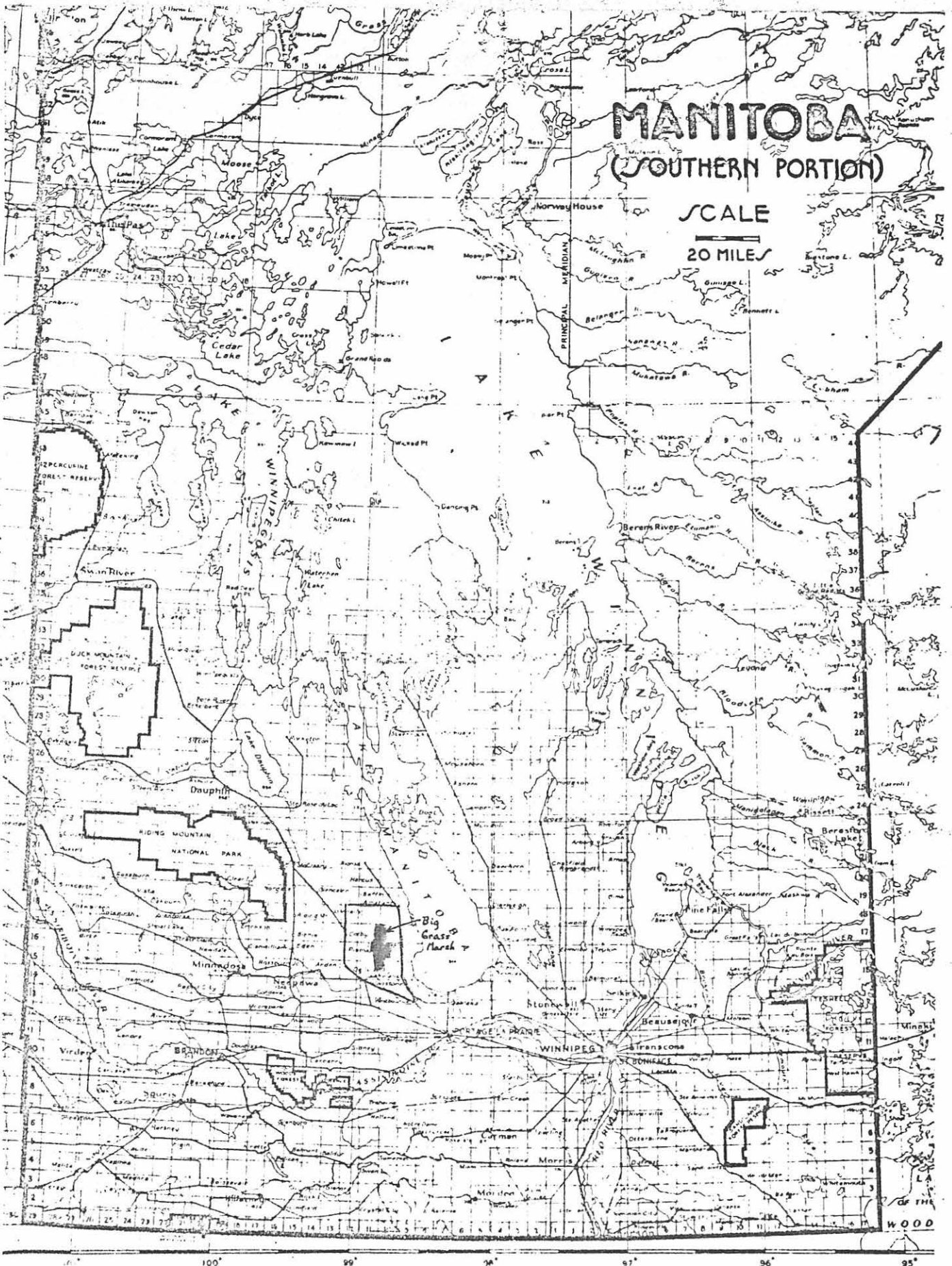
RECOMMENDATIONS

1. A more versatile trailer, preferably one equipped with a propane refrigerator, heater, and propane lighting would enable banding operations to move to alternate locations of the marsh.

2. A four-wheel drive vehicle would be of advantage to this type of an operation, where driving is primarily on mud roads.

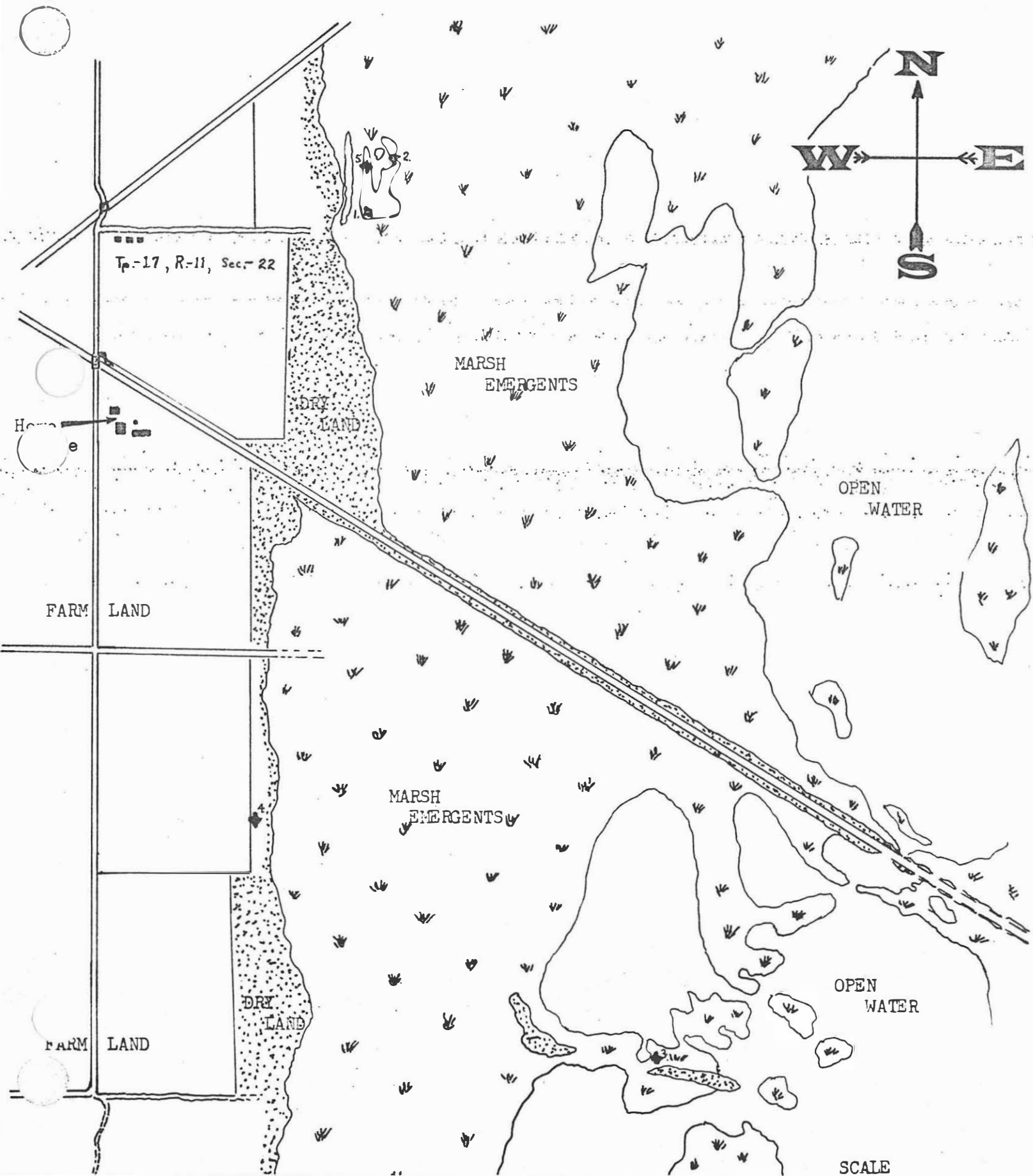
MANITOBA (SOUTHERN PORTION)

SCALE
20 MILES



100° 99° 98° 97° 96° 95°

BANDING LOCATION AT BIG GRASS MARSH



TRAPS

The traps constructed at Big Grass Marsh were felt to need several features. Primarily they had to be secure, escape proof enclosures. They must be easily discovered, and entered by the waterfowl; simply constructed, erected and receiving a minimum of maintenance. The birds were positively reinforced upon entering the traps. Secondly, the traps must be inexpensive and relatively comfortable to work in (See Photo 7).

The area used for banding was scouted. The traps were located in relatively heavily populated areas where activities such as feeding, loafing, etc. were noticed. The traps were specifically located in shallow (6"-1') open water and preferably sheltered from strong winds by surrounding vegetation (e.g. a small bay). It was also important that the area would not become dry over the banding period. This would have provided a natural path for predators. Natural channels and pathways determined the location of the trap doors.

The spacing of the traps in one area was dependent on the distribution of birds. For example, an area of several acres was able to support two or three different traps or perhaps only 1 trap (see map). The number of traps used in the operation was restricted to the number of members in the banding crew, the methods of transportation to the traps, and the distance and ease of transportation between traps. In our particular operation there were two banders. A truck, a canoe and feet were used for transportation - five traps were set up. Of the five traps, only two were consistently heavy catches. If all five traps had been heavy catches, it would have been nigh impossible for two banders, using the transportation available

to do an adequate job.

General Construction:

The average trap was constructed using approximately 50' lengths of $4\frac{1}{2}$ ' wide stucco wire, 2- 15' lengths of 6' wide chicken wire, and 18- 6' lengths of $\frac{3}{8}$ " aluminum poles. The stucco wire was used for the walls. Chicken wire was used for the roofing. Any securing or joining was done with stove-pipe wire. The walls and roofing were pre-cut at the home base and erected at the chosen sites (see Diagram 1).

First the area was cleared of vegetation. Trap shape was optional, but an oblong shape (see Diagram 2) was deemed most effective and sturdy. At the trap sites, the walls were rolled out in the desired shape. The poles were woven through the stucco wire at approximately 3' intervals and pushed into the mud to a depth of 1 to $1\frac{1}{2}$ '. At the areas where doors were to be located, the walls were folded inward (see Diagram 2). The ends of the walls were joined with stove-pipe wire. The two pieces of chicken wire were then laid lengthwise across the top, joined together with stove-pipe wire, and wired to the walls at 4" intervals. A large door was cut in the side of the trap to enable the banders to enter the trap. The trap doors were then completed, and an aluminum pole was placed in the middle of the trap to support the roof. Finally, the trap walls were pushed as far as possible into the mud.

Door Construction:

A trap is only as good as its doors. They must be readily accessible and must prevent escape. The doors were constructed in two steps: a.) pre-cutting and, b.) funnel construction.

a.) Precutting:

At the home base the desired door location was determined and pre-cut in the stucco wire wall:

i.) one 4' horizontal cut was made 6" from one edge of the stucco wire,

ii.) 2- 5' above this a similar cut was made,

iii.) the two cuts were bisected and jointed with a verticle cut (see Diagram 1).

b.) Funnel Construction:

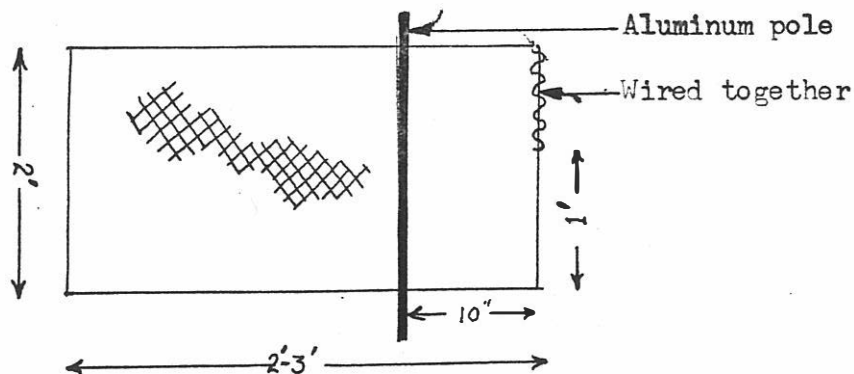
At the site where the trap was to be located, the trap walls were folded inward where the doors were to be located (see Diagram 2).

The pre-cut door flaps were folded inwards and served as baffles. These baffles prevented ducks from putting pressure on the weaker chicken wire.

A 2' long tapered funnel of chicken wire was constructed. The dimensions follow:

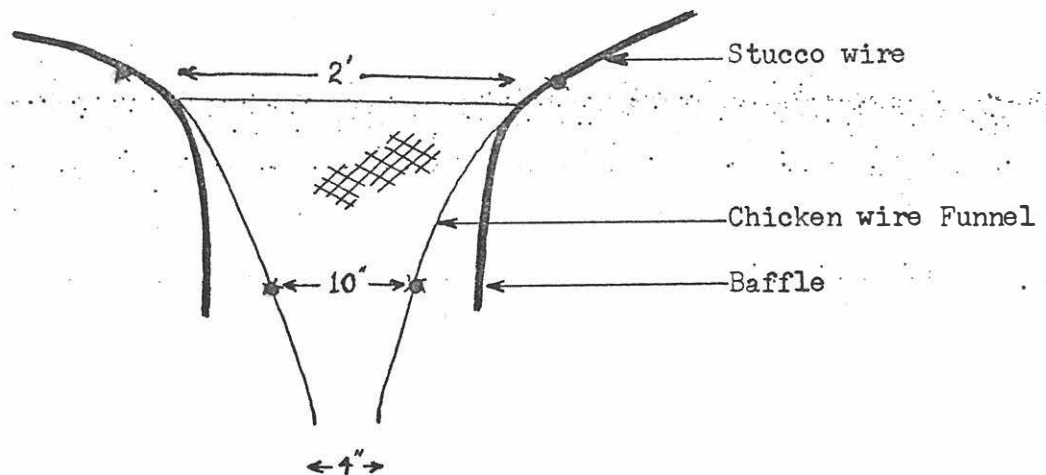
i.) outside width 2'; height 2- 2.5'

ii.) inside end width (flexible) 4" - 7"; height 1'



Side view of Funnel

The interior door opening must be flexible. It was kept at a constant width of approximately 4" by the tension of the wire, but could easily be pushed open to a 7" width. When opened it quickly closed to 4" after pressure was released. It therefore closed behind the ducks as they entered. Two aluminum poles were placed about 10" apart and approximately 10" from the opening (interior) of the funnel. They added strength and support to the funnel.



Top view of Funnel attached to trap

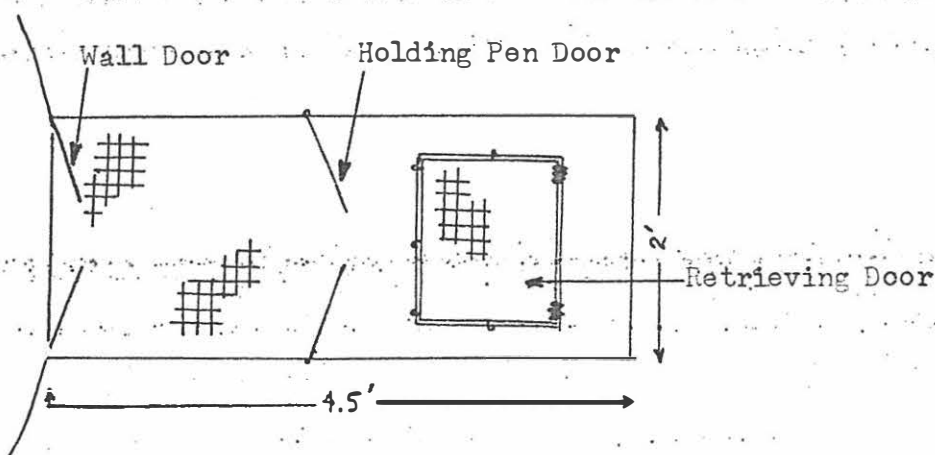
If the sides of the funnel needed repair, the baffles could be hooked onto the sides, providing a stucco wire side (see Diagram 3 for doors after attachment).

Holding Pens:

In traps that were difficult to work in because of the size or muddy water, the holding pens were built (e.g. traps #4 and 5). These pens were

pre-constructed of stucco wire (Length 4.5' x Width 2' x Height 2') and were open at one end.

They were attached to the wall at one end of the trap. The trap wall was cut forming a funnel type door. The pen itself was divided into two compartments. A door was cut in the top of the pen in the second compartment for retrieving the birds (see Diagram).



Top View of attached Holding Pen

Upon arriving at the trap, the birds were driven into the pen and the wall door of the pen was blocked with a pole.

Baiting:

The bait used in this operation was barley. It was important to use a high grade of grain. It was found that a low grade contained too much chaff, small kernels, and tended to float away. Buckwheat was also used as bait for a short trial period but no significant increase in the catch was observed, although new birds did increase slightly.

To start the traps, approximately two bushels of grain was used.

The inside of the trap was lightly baited and the funnels were heavily baited. Leads of 30-40' long and 5-10' wide were densely baited. This procedure was followed daily until catches were firmly established. The leads were then shortened, and more grain was placed inside the trap. The amount of grain used per day per trap was also reduced to 2 bushels.

RECOMMENDATIONSA. Traps (General)

- 1.) use 6' stucco instead of $4\frac{1}{2}'$
- 2.) for the first few days of heavy catches continue to push the stucco wire walls into the mud (wind lifts traps, and ducks create channels around and under the walls)

B. Doors & Funnels

- 1.) reinforce with the stucco wire baffles (chicken wire is weak and rusts; also holes become too big and small ducks escape).
- 2.) chicken wire is easily deformed and the doors do not always operate properly. However, its flexibility is a must for the door to work.

C. Holding Pen

- 1.) Because of complications in getting the ducks to go into the pens, maybe covering them with cloth would make the pens more inviting.

D. Baiting

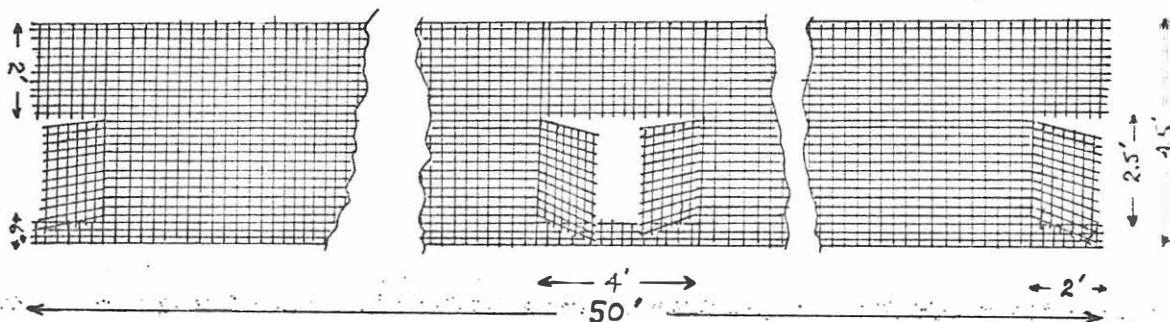
- 1.) use the best quality grain available
- 2.) try different mixtures of grain

E. General

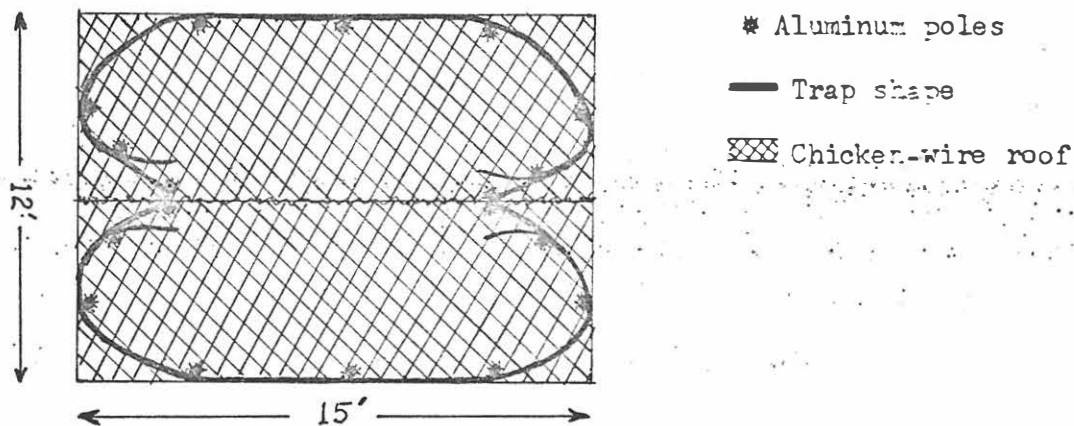
- 1.) An Air Boat is a must for a marsh of this type.
- 2.) One more member of the crew would have made the operation 100% more efficient.

CONSTRUCTION OF TRAPS

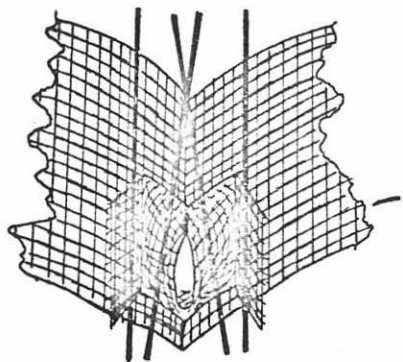
1. Pre-cutting of the stucco wire.



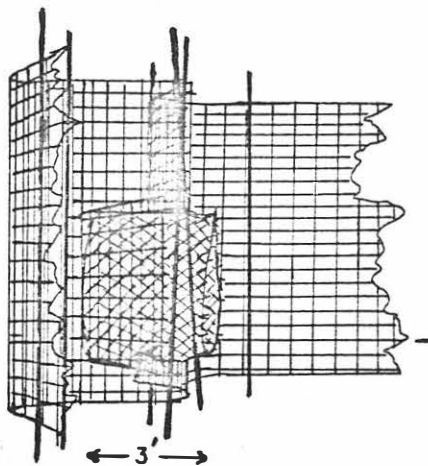
2. Trap outline; Pole placement; and Pre-cutting of the roof.



3. Construction of the trap doors.



Front view



Side view

DUCKS BANDED AT BIG GRASS MARSH IN 1971

SPECIES	AGE	Local	Flying Immature	Adult	TOTAL	
Mallard	♀	5	132	321	458	1198
	♂	3	165	572	740	
Black Duck	♀	0	0	1	1	11
	♂	0	0	10	10	
Mallard- Black Cross	♀	0	0	0	0	2
	♂	0	0	2	2	
Blue- Winged Teal	♀	0	60	9	69	151
	♂	0	72	10	82	
Green- Winged Teal	♀	0	3	0	3	9
	♂	0	6	0	6	
Pintail	♀	0	21	7	28	53
	♂	0	22	3	25	
Widgeon	♀	0	0	0	0	1
	♂	0	0	1	1	
Wood Duck	♀	0	0	0	0	1
	♂	0	0	1	1	
TOTAL		8	481	927	1426	

DUCK BEHAVIOUR

Mr. Rollie Wilkins of Ducks Unlimited, who had banded ducks at Big Grass Marsh in 1969 and 1970, proved to be a great help in our operation. He advised us that the time of checking the traps would have a definite effect on our daily catch. Rollie had found that only one check was sufficient in his banding and that it should be made after the morning feed. He had attempted twice a day checking, but found that only once was there a significant number of birds caught in the evening. In addition, this evening check was usually followed by a smaller catch in the morning, suggesting an interference in the duck's feeding habits.

Few ducks were caught during the last two weeks in July. This was probably due to their timidity during the moult or because of natural food availability.

In the beginning, we baited on a twice a day routine to make certain that there was plenty of grain in the trapping area. As the catch started to rise, we found that once a day was not only adequate but resulted in higher numbers of trapped birds. Of equal importance was the time of the check. The ducks tended to feed from 8:00 A.M. until noon. When we tried checking around 10:00 A.M., many ducks were still feeding in the area and our catches were small. If we waited until after the morning feed, our catches were much higher. We found, as Rollie Wilkins did, that if we waited too long, we would begin to lose birds through drowning. We therefore settled on a time between noon and 1:00 P.M. for our daily check, starting with those traps which were being used most heavily. The traps which were used lightly,

were not as important to remove the ducks from. We felt it was important to check the traps when as few uncaught birds as possible would see us, as this might tend to frighten them from the area. In the more heavily used areas, this was found to be between noon and 4:00 P.M. and 7:00 P.M. in the marsh. The late time in the marsh was due to the light use of the area for feeding and a higher use at night for other activities.

On windy, overcast days, the catches were low and birds in the traps were restless. On warm, sunny days, when we approached the traps, the ducks often were sleeping, preening and quite relaxed until they spotted us. This resulted in panic and the birds would crowd up against the far side of the traps. Some managed to escape beneath the stucco wire when the traps were new. The traps were not secured in the mud until about the third day of use. When a bird escaped, we had to hurry to the point of escape to close it off as the ducks were very quick to follow one another to freedom. Once all possible exits were closed off, we moved slowly and deliberately and the ducks quickly settled down, although, they remained extremely nervous and hypertense.

When there were two banders it was best to have only one person in the trap. The other sat outside, banded and recorded. When a third person was available, he would record and open bands. This third person almost doubled the operation speed. The person in the trap used a hand net. When there were large numbers of ducks in the traps, it was best to cut off small groups of five or ten and corner them. Netting or hand grabbing these birds could then be accomplished without greatly alarming the others.

It was found that Mallards were by far the worst ducks to work with. They tended to climb over each other, run back and forth flapping their wings, fly into the roof, dive, splash, bite, scratch and anything else to contribute to the misery of anything else in the trap. Occasionally, Blue-Wing Teal,

Pintail, or other Mallards would be knocked out by the flapping wings of these stampeding mallards. The Blue-Wing Teal are just the opposite. They are curious and relatively relaxed, easy to catch and put up little struggle. In order to avoid being trampled by the larger ducks, we often saw Blue-Wing Teal sit on their backs. If the catch was largely Mallards, we found it was advisable to rid the traps of the injured birds and other species before banding the Mallards. If the catch was only a small number of mallards, it was best to get rid of the injured birds, then the Mallards, and finally the other species. At all times, we had to watch for injured birds and get them out of the trap before they were drowned.

Leaving a duck in the trap was found to be of great help in building up the catch in a given trap. It did not appear to make a great difference whether the bird left was young or old, male or female, although it is generally acknowledged that adult females are best for this purpose. The species of decoy had an effect on the species composition of the next catch and often we left in a bird from each species caught. When the traps were catching 30 or more ducks per day, a decoy did not seem to effect the catch.

More important than the decoy, was the establishing of a "moocher". This is a duck which has learned that for a free meal it is worth getting trapped. These birds were generally young drakes, and some would come every day without fail to claim their breakfast. These birds are extremely important in showing others the doorway in. Ironically they are usually the worst birds to handle in the traps. A possible technique which could be employed in the future is to take an established moocher from one trap and use him as a decoy in another trap for a night or so. After his release perhaps he would use this new trap for his free meal, thus enhancing the attractiveness of

the trap to other ducks.

The sites where the traps were located were chosen because of the large numbers of moulters present in the area. As many of the moulters were adult drakes, they were therefore the predominant birds caught. (See Table 1 for the age and sex breakdown of the 1426 ducks banded.)

COOTS

During the banding program not a single Coot was captured. Why this good luck befell us is unknown. In previous years Rollie Wilkins captured a number of Coots, although it was never a problem.

PREDATION

One of the major problems which developed during the banding program was the trap predation. We lost a number of ducks to Raccoon, Fox and Mink. Trap #4 had to be closed down as a result of predation. This trap was hit by both Raccoon and Fox. At first, we were able to prevent duck loss by leaving no decoy and checking the trap at nightfall. However, ducks began using the area at night. We stayed up on various occasions in an attempt to scare off the predator but night was his ally not ours. As the water around the trap diminished, we lost almost any duck which succeeded to get in the trap. This was seldom more than one as the presence of a dead bird in the trap did not have the same effect as a live decoy in bringing in new birds.

The marsh trap, #3 also was closed when it ceased to be productive. This was mainly due to the fact that on several occasions a hungry Mink had stripped the decoy's head of its flesh. Unless allowed to trap these predators, it appears that the best solution to a predated trap is to move it to a safer area.

UNUSUAL DUCKS

Apart from the eleven Black Ducks captured during the banding operation there were other more unusual ducks which are worth noting. Two Black Mallard hybrids, one Widgeon, one Wood Duck, and a "female-male" Mallard were also trapped. The Wood Duck, an adult male provided us with positive proof of their presence in the area (see Photo 8). We had, on numerous trips into the marsh, seen groups of up to five Wood Ducks sitting in the drainage ditch (see Photo 6). The "female-male" Mallard had the plumage of an adult drake in the later stages of moult, including green head, white neck ring, and curled green tail feathers. The bill however was definitely female, as was the voice. Coacal examination revealed female sex and there was no indication that she had laid eggs. Her plumage was well in advance of the moulting drake's at that time. She was held for a time, in case any one was interested in her as an oddity, then released at the Winnipeg Zoo Duck Pond (see Photo 9).

RECOMMENDATIONS

1. Use of R. Wilkins or other experienced banders for advise (preferably with experience at Big Grass Marsh).
2. Determine the feeding times of the waterfowl in the area.
3. Check the traps after the morning feed, starting with those most heavily used.
4. Remain calm around the traps, only hurrying to cut off escaping birds.
5. Get the injured birds out of the trap first.
6. Leave one duck in the trap as a decoy.
7. If a trap is predated, move the trap.
8. It is not worth trapping until the beginning of August.
9. High concentrations of ducks feed on lure crops in this area during mid-September. These birds have to be frightened off the crops before the hunting season begins at the expense of the Provincial Government.
Cannon netting at this time would provide the dual purpose of banding ducks and frightening them away from these lure crops.

SUMMARY

Big Grass Marsh is among the largest marsh in Manitoba. Although little work has been done on the marsh compared to marshes such as the Delta marshes, a continuous program of banding has provided valuable knowledge of the waterfowl of the area. The recent decision to split the southern hunting zone, necessitated the continuation of banding at Big Grass Marsh. The 1971 hunting season was an extremely bad season for most duck hunters in Manitoba and band returns will very likely be affected for 1971. One year will not provide the information to assess the effects of the new zone formation.

In the future, attempts should be made to cannon net ducks on the lure crops during the fall to supplement summer bait trapping. Bait trapping should be done with a three man crew and/or an air-thrust boat. The crew should have a trailer which is independent of electricity, as well as a 4-wheeled drive vehicle for moving about the marsh. It is our recommendation that banding at Big Grass Marsh be continued for several years.



PHOTO 1 Reed Canary Grass (Phalaris arundinacea) forms a zone between the marsh and farm land



PHOTO 2 Giant Reed Grass (Phragmites communis) and Cattail (Typha Catifolia) bordered much of the open water in the marsh.



PHOTO 3 Only Hard Stem Bulrush (Scirpus acutus) emerged from the large spans of open water in the middle of the marsh.



PHOTO 4 Clasp Leaf Pondweed (Potamogeton sectinalus) and Widgeon Grass (Potamogeton vaginatus) were two of the numerous densely growing aquatic plants found in the marsh.



PHOTO 5 Bladderwort (Utricularia vulgaris) was most common in the stagnant pools of the marsh.



PHOTO 6 The drainage ditch which was used for travel to and from the main part of the marsh. Reed Canary Grass (Phalaris arundinacea) and Willow (Salix sp.) grew along the banks well out into the marsh.



PHOTO 7 The marsh trap (#3) was located on the edge of a small island and was shut down because of the resident mink.



PHOTO 8 An adult male Wood Duck. Others were seen sitting in the ditch (Photo 6) but this was the only one banded.



PHOTO 9 This female Mallard had all the feather markings of an adult drake. She was further advanced in the moult than drakes in the area were.