DEPREDATION INVESTIGATION AT KINDERSLEY, SASKATCHEWAN

By

W.J.D. Stephen

1957.

CANADIAN WILDLIFE SERVICE

CWS
57-18
c.1

1M

CWS-~~18-57~~ Stephen, W.J.D.

57-18

Depredation investigation at Kindersley, Saskatchewan. Ottawa, Canadian Wildlife Service 1957.

10 . illus., charts.

1. Waterfowl - Crop damage - Saskatchewan.
2. Ducks - Feeding and feeds.
I. Canada. Canadian Wildlife Service.
II. Title.

2c.

CWS18-57
c.2

CANADIAN WILDLIFE SERVICE
WESTERN REGIONAL LIBRARY

DEPREDATION INVESTIGATION AT KINDERSLEY SASKATCHEWAN

AUGUST 1957.

by

W.J.D. Stephen, Seasonal Technical Officer.

INTRODUCTION

This is a report on an investigation into the age, sex, and species composition of field feeding flocks of ducks. The purpose of the study was to establish the identity of the flocks of ducks which cause so much conern to the farmers by feeding in the grain fields. The investigation was made from August 15 to August 25, 1957 in the vicinity of Kindersley, Saskatchewan.

The waterfowl referred to, in this report, as ducks, are of at least four species; Mallards Anas platyrhynchos, Pintail, Dafila acuta, Baldpate, Mareca americana, and Shoveller, Spatula clypeata, (based on A.O.U. check list 1931).

Data on species, age, and sex of 60 ducks were collected. Some of these were obtained from shooters who were protecting crops, but most were collected for this investigation. Ducks suitable for museum preparation were deep frozen. Those unbanded were destined for later shipment to the Ontario Agricultural College for student preparation and ultimate addition to that collection. Those banded were for addition to the Saskatoon collection of the Canadian Wildlife Service. From the ones unsuitable for museum preparation, I removed the stomach proventriculus and in some cases also the esophagus and preserved them for future analysis by a student in Wildlife Management at the Ontario Agricultural College.

After discussing the project with Mr. J.B. Gollop, I set out to collect the largest possible sample of ducks from a field feeding flock, in order to determine, if possible, which ducks were causing damage. A field feeding flock was interpreted to mean a flock of ducks which were feeding in a cultivated field.

I made an attempt to sneak up to large flocks which had already settled on swaths in order to shoot a sample. I also constructed blinds from bales of oats in order to hide from flocks settling in the fields. I enlisted the help of Mr. Alex Dzubin and Mr. Ron Lamont in order to increase the firepower and thus collect larger samples. Specimens were also collected by a method called "jump-shooting", i.e., shooting them as they flushed from the field in small groups. The other method used was to lie in the standing grain in order to shoot the ducks as they landed in it.

Data were collected in five sites. These were as follows:

1) in barley stubble, on the farm of H. Fries, 4 miles west and 1.5 miles south of Kindersley;
2) in an oat stubble field, 13.8 miles west and 1.5 miles south of Kindersley;
3) in a summer fallow field 21.8 miles west and 0.7 miles north of Kindersley;
4) in a swathed wheat field, on the farm of Mr. Brazeau, 0.5 miles east and 13.5 miles north of Kindersley;
5) in a standing barley field, on the farm of Mr. Dillabough, 7.0 miles west and 18.0 miles north of Kindersley.

All these mileages are measured from the junction of highways numbered 7 and 30 which is situated at the northwest corner of Kindersley. The associations of these sites and their relationship to water are shown in Figs. 1 - 5.

Sites were selected on the basis of farmers' reports of heavy damage and by observation of large flocks leaving sloughs where they had been loafing during the day.

The season had been described to me by one of the local residents as one of the earliest in memory. This individual had been in the district for at least seven years and had spent about 25 years in Saskatchewan. Except for rain beginning the week of August 26, which threatened to hold up harvest, the weather during the ten day period of this study could be described as warm and dry.

DISCUSSION

At each site the landowner was consulted prior to collecting ducks there. I omitted to ask two of the landowners their names, however, I asked each some general questions regarding their opinion of the depredation problem. In reply, they seemed unanimous in their dislike of the ducks. Some seemed more vehement in their denunciation than others. Those farmers which were most dispassionate had only vague recollections of personal trouble with ducks. One farmer reported ducks to have been feeding in summer fallow "all summer". Some farmers did not differentiate ducks as to age, sex, or species. All the brown ducks seen by them were called hen mallards.

The investigation at each of the sites was more or less commensurate with the facility of collecting samples there. None of the efforts to collect large samples from flocks met with unqualified success. The largest sample I was able to collect from any one feeding flock was five, from a flock of 75 to 100 ducks. The reasons for this are manifold, but are probably mostly due to the wariness of the flocks which settle in the fields in fairly large concentrations. The technique known as "jump-shooting" which I used, would seem to be satisfactory under the circumstances which existed in the field of standing barley. In this field,

(site 5) the feeding ducks were dispersed and flushed in groups up to four, as I walked in and around the field.

The effort expended at each site was also influenced by my opinion of the economic importance of the feeding at that site. The ducks could do no damage to the summer fallow, oat stubble, or barley stubble. However, in my opinion they were causing damage to the standing barley and the swathed wheat. I do not feel warranted to estimate the losses in bushels. Nevertheless, relatively little travel in both fields revealed evidence of considerable damage by the ducks. Both the swathed and the standing fields were adjacent to sloughs. In the swathed wheat (site 4) there was very obvious evidence of feeding in the first row around the slough. There was less evidence of feeding in the second row and even less in the third row. In the standing barley field (site 5) the evidence of most damage to the crop was at the perimeter of the field. It was less evident in the interior of the field. The damage was heaviest on the side of the field adjacent to the slough, but there was some damage on the perimeter of the entire field. In stands of grain having lower and less densely distributed stems, the evidence of eating and trampling was more conspicuous than in good stands. I think the damage was more severe there in terms of unharvestable grain, than in spots where there was a good thick stand of grain. The areas where the crop was thin seemed to be in the locations within the field which had the best drainage. They would be the spots most likely to suffer from a shortage of water, such as the tops of knolls and the sides of gullies.

It was in each of those two fields, also, that I found flightless juvenile mallards feeding. In the swathed wheat around Brazeau's slough (site 4) there seemed to be more feeding on the side of the slough which had the steeper slope to the shore, which would tend to create a shorter walk from the feeding spot to the water or vice versa. The water level in that slough had dropped about a foot since the surrounding crop had been sown, leaving a wider shore in the spots with a more gradual slope to the basin. The shores of Dillabough's slough, near the barley fields (site 5) had quite a steep slope on all sides, but the crop was only growing on the east side of the slough, so that a difference in feeding habits was not so easily discernible there. Furthermore, I was unable to precede the arrival of all the ducks in the fields, so that I could not determine how many of them flew to the field.

The results of the investigation are tabulated as follows:

Table 1. - Ratios Derived From Collected Specimens *

	All species	Mallard	Pintail	Baldpate	Shoveller
Sex ratio M:F	27:27	26:24	1:3	-	-
Age ratio J:A	46:8	43:7	3:1	-	-
Species composition		50	4	1	3

M:F = male to female.

J:A = juvenile to adult.

* Does not include data from two flightless mallards, examined and released.

Table 2. To show daily samples collected and to show sample size in relation to field population.

Site No.	Date	Time	Species	Age ratio J:A	Sex ratio M:F	Total no. observed (1) +++	Sample as % of (1)	Sizes of groups sampled (2)	Sample corresponding as % of (2) **
* 1	8/17	6-9 p.m.	shoveller	2:0	unk.	unk.	unk.	unk.	unk.
1	8/21	6-9 p.m.	mallard	2:1	2:1	unk.	unk.	unk.	unk.
1	8/21	6-9 p.m.	baldpate	unk.	unk.	unk.	unk.	unk.	unk.
1	8/21	6-9 p.m.	shoveller	unk.	unk.	unk.	unk.	unk.	unk.
2	8/20	6-9 p.m.	mallard	4:4	5:3	200-300	3%-4.5%	5 to 30	3% to 20%
2	8/20	6-9 p.m.	pintail	1:0	0:1				
3	8/16	6-9 p.m.	mallard	1:2	2:1	400-600	0.75%-0.0%	10 to 40	2.5% to 20%
+ 4	8/23	6-9 p.m.	mallard	3:0	3:0	75-100	5%-6.6%	75 to 100	5%-6.6%
4	8/23	6-9 p.m.	pintail	1:1	1:1				
4	8/24	6-9 p.m.	mallard	3:0	0:3	75-100	3%-4%	75 to 100	3%-4%
++5	8/21	3-6 p.m.	mallard	6:0	4:2	50-100	6%-12%	1-4	50%-100%
5	8/21	6-9 p.m.	mallard	8:0	1:7	100-200	4.5%-9%	1-10	10%-100%
5	8/21	6-9 p.m.	pintail	1:0	0:1				
5	8/22	3-6 p.m.	mallard	3:0	2:1	50-100	1.5%-3%	singles	100%
5	8/22	6-9 p.m.	mallard	9:0	5:4	100-200	4.5%-9%	1-5	20%-100%
5	8/25	6-9 p.m.	mallard	4:0	2:2	50-150	2.7%-8%	1-5	20%-100%

* includes data reported verbally by "crop protectors".
**this is a general figure, shooting success, or sample obtained as a percentage of group size was not recorded, but since the success was not spectacular it was easily remembered without undue error. These figures are intended to show the general reliability of the sample.

+ includes one IIc mallard caught by dog and killed by me.
++does not include two IIc mallards caught by the dog and released by me.
+++during period of time indicated.

Shooting in the standing grain did not necessarily scare all the ducks out of the field nor did it inhibit the influx of others, or, perhaps, the return of the same ducks. In the swathed grain, this was not the case. All the ducks seemed to be feeding in one part of the field and when they were scared they all flushed at once. Very few ducks would come by that field thereafter that evening. Those that did were in small groups, of one to four. Some of them seemed very anxious to land amongst the swaths, circling low three or four times before finally leaving.

Table 3. Showing the relationship of field type, age and species.

Field type	Species	Age	Ratio
standing barley	mallard	96.8 %	30:0
	pintail	3.2	1:0
swathed wheat	mallard	85.7 %	6:0
	pintail	14.3	1:1
summer fallow	mallard	100.0 %	2:1
oat stubble	mallard	88.9 %	4:4
	pintail	11.1	1:0
*barley stubble	mallard	42.9 %	2:1
	baldpate	14.2	?
	shoveller	42.9	?

* includes data reported verbally by "crop protectors".

This pattern was evident on the two occasions in which I was in the field. After darkness had fallen, ducks which were in a field seemed very loath to leave and would endure considerable disturbance, in the form of people walking around, talking, blowing dog whistles, and making other noises, in addition to flashing lights.

Although these results are meager, they may serve as indicators to the existing situation. Certainly no definite statement could be made regarding sex, age, or species composition of field feeding flocks, in late August, or at the beginning of harvest, on the basis of this information. However, I believe that some basis for conjecture is indicated by these data.

If the species composition and the age ratios obtained in this study are in fact representative of the real species composition and age ratios of field feeding flocks, then the reason for the discrepancy of pintails (from the spring and early summer brood and breeding ratios of 60% to 70% mallards and 30% to 40% pintails, considering these two species only) might be because the majority of the pintails have migrated, whereas the mallards have not. Similarly, the reason for the discrepancy from an expected ratio of class III young to adults, which might be as high as 3:1 on the average, could be that the adults have migrated, or, that instead, they are not as yet preparing to migrate, assuming that the reason the young are feeding in the fields is to obtain a quick physiological preparation (in the form of stored fat). Or then, if we assume that the age ratios found in the oat stubble, summer fallow, and barley stubble are close enough to "normal" not to warrant further conjecture, then the reason for the disparity from the age ratio in fields near sloughs may be that the young form habits of feeding in these fields because they are able to walk into them from the sloughs. Some young might return to these fields as a preference even after they are able to fly. The

reason for others not doing so may be explained by the hypothesis that there is a minimum stopping distance once the duck has begun to fly more proficiently. Furthermore, there is no reason to believe that ducks on one slough are at the same phenological stage as those on another slough, therefore, the apparent differences in species composition, and sex ratio may be artifacts of seasonal changes. Then of course, if the other alternative of the basic assumption is true, that these species and age ratios are not representative of the population, then the differences apparent would be due biases introduced in the collecting of information, such as the greater wariness of adults approaching a feeding site or the greater susceptibility of younger birds to gunshot.

The crop damage may be over-estimated, by the casual observer, or observer viewing from a distance. The explanation for this is that large flocks may be seen to settle behind a knoll, into what appears to be a grain-field but may be, in reality, a summer fallow field or a stubble field. However, the answers to the questions arising from these statements must still be sought out.

SUMMARY

1. Samples were collected from field feeding flocks for the purpose of obtaining species, age, and sex information.
2. Five different geographical and ecological sites were used for the collecting.
3. Information was collected on 60 ducks of four species.
4. There seems to be a difference in the species and age groups which feed in flocks, at least in particular fields. This may be due to the location of the field, in relation to a slough, or some other factor as yet uninvestigated.

REFERENCES

Weidmann, U., 1956. Behaviour of the Mallard, Journal fur Tierpsychologie, (number unknown, copy of paper which I read is no longer in my possession)

RECOMMENDATIONS

1. Experiments should be made using "boom" traps for capturing flocks on swaths.
2. If the use of blinds is found necessary, they should be set up more than one day prior to the attempt to sample the population.
3. Make observations of large concentrations of ducks on sloughs in order to determine the species composition. The expected species composition of field feeding flocks could then be established.

Submitted September 23, 1957.

W. J. Douglas Stephen.

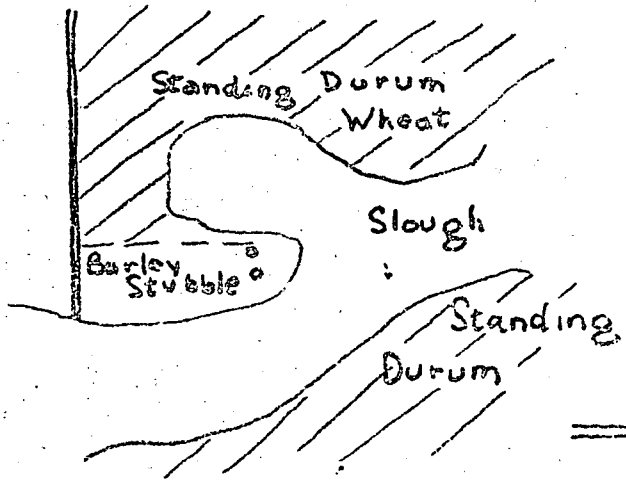


Figure 1 Barley Stubble, Site 1

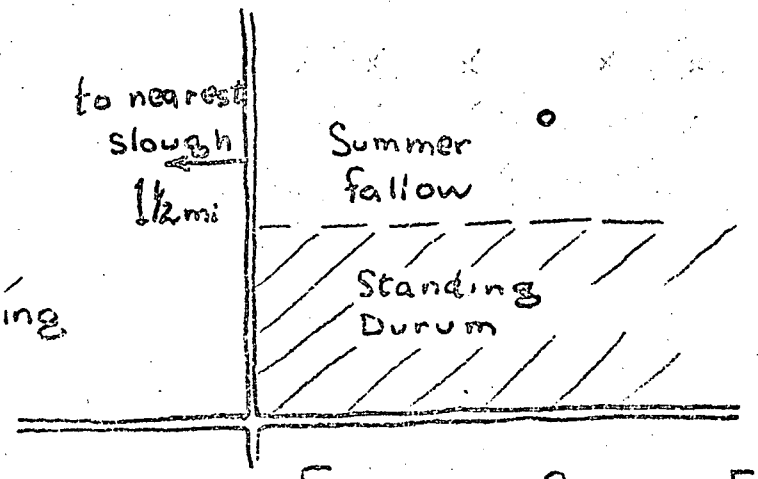


Figure 2 Summer Fallow, Site 3

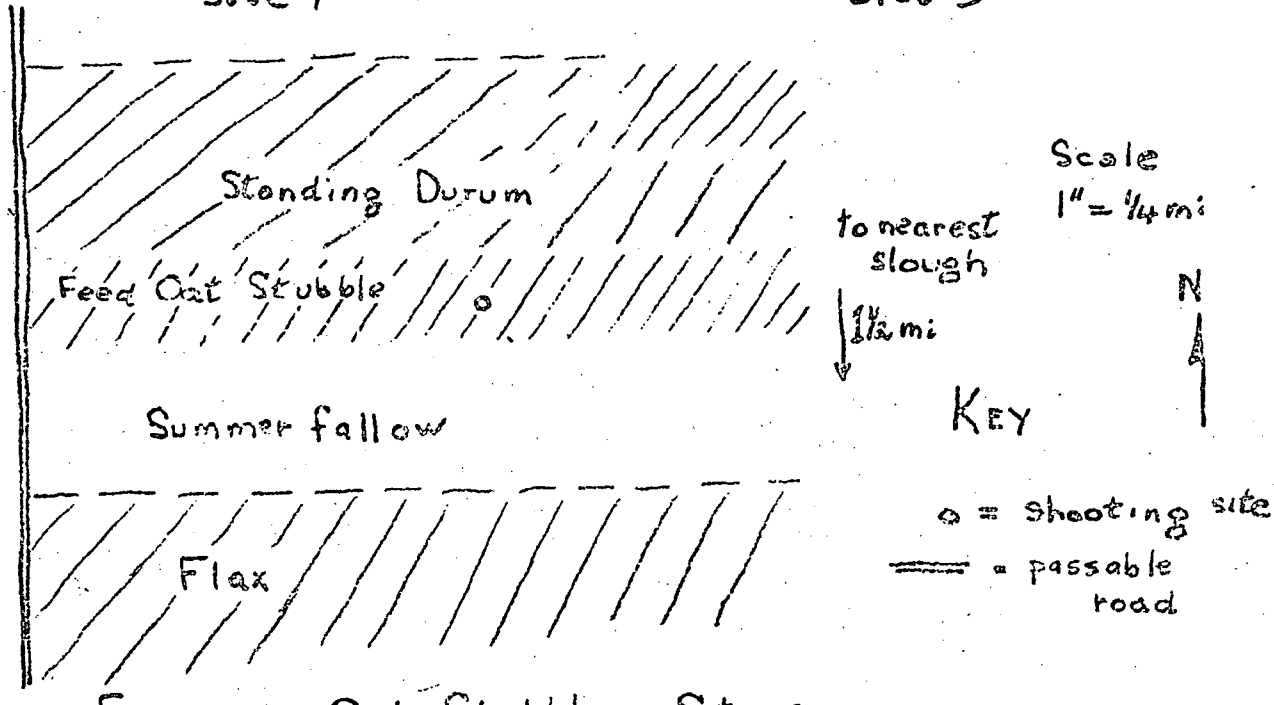
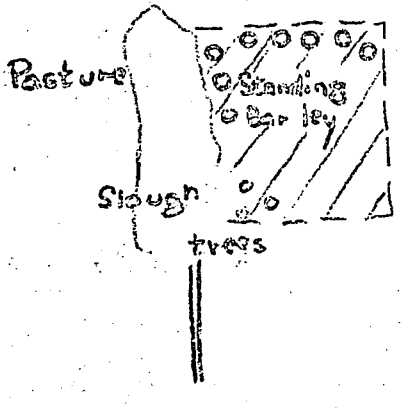


Figure 3 Oat Stubble, Site 2



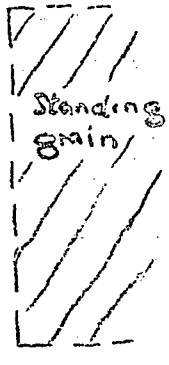


Figure 4 Standing Barley, Site 5

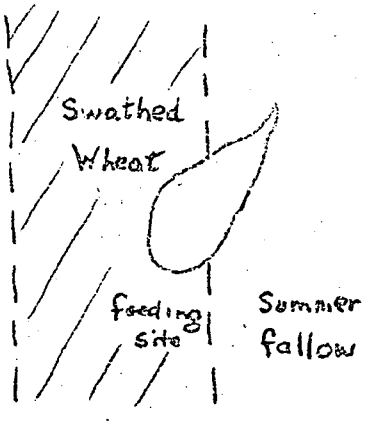


Figure 5 Swathed Wheat, Site 4

CWS
57-18 Stephen, W. J. Douglas
c.1 Depredation
investigation at
Kindersley.

DATE DUE	BORROWER'S NAME

FORM L1-160WE

willson business services ltd.