

Research Report No. 35

A SURVEY OF OPEN WATER WATERFOWL HUNTING
IN WISCONSIN IN 1967

by
James R. March
and
Richard A. Hunt

DEPARTMENT OF NATURAL RESOURCES
Bureau of Research
Madison, Wisconsin 53701

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DEPARTMENT OF STATE, WASHINGTON, D. C.
IN "REPLY TO THE

by
James H. Doolittle
and
Richard A. Lamm

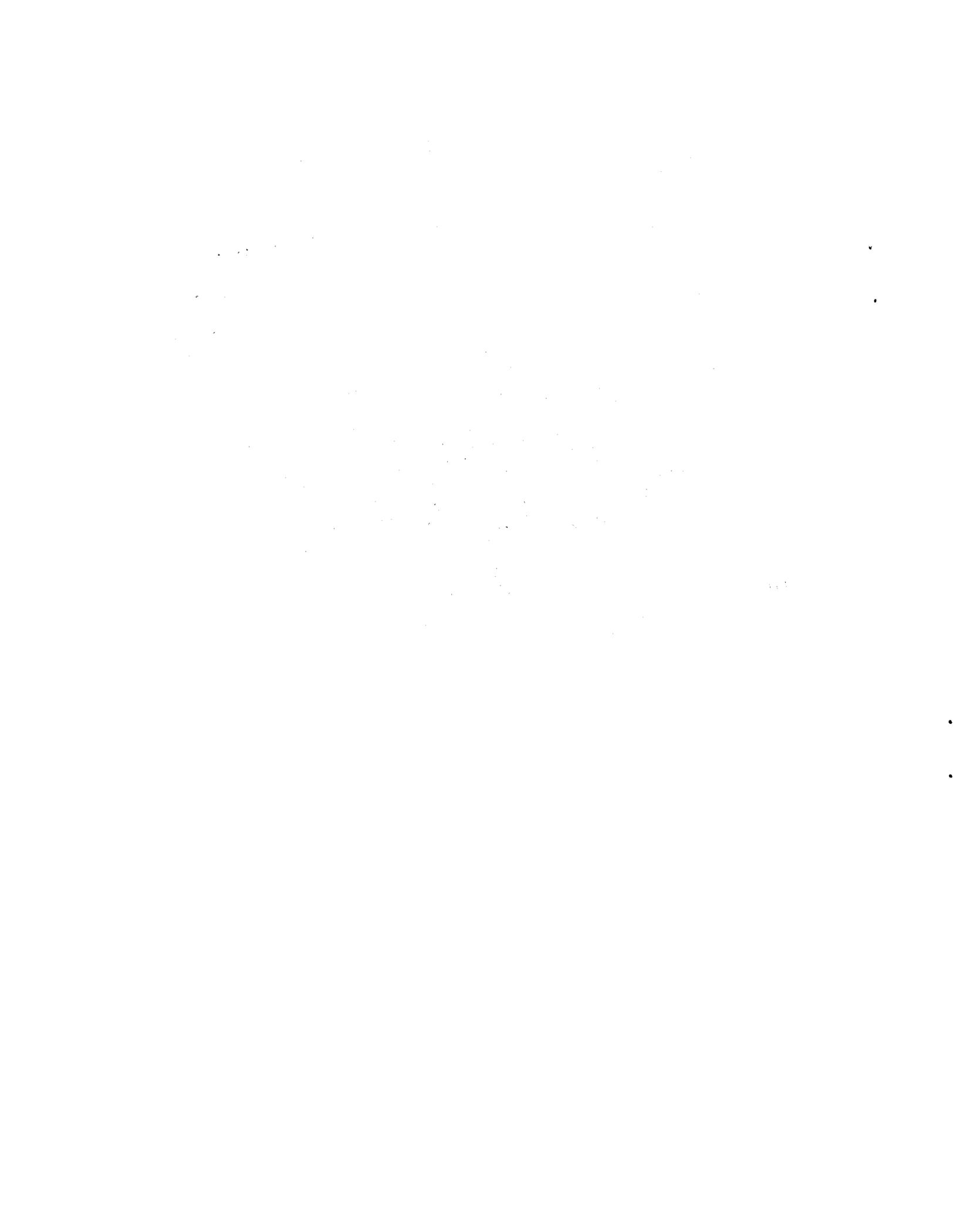
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INTRODUCTION

The 1967 waterfowl season marked the introduction of open water hunting on specified inland waters of Wisconsin. "Open water" as defined in the Wisconsin Administrative Code is "any water outside or beyond a natural growth of vegetation extending over the water surface and of such height as to offer partial or whole concealment for the hunter". Prior to 1967, open water hunting was permitted only on the offshore waters of Lake Superior and Lake Michigan, excluding Green Bay.

Lake Winnebago in east central Wisconsin was the area initially recommended for an experimental season of open water hunting. This 137,708-acre lake attracts thousands of diving ducks each fall, especially scaup, a species that could support additional harvest. Ducks using Winnebago receive only light gun pressure because there is limited access to areas available for shooting.

Open water hunting was also authorized on the Mississippi River bordering Grant County. This portion of the river has large lake-like areas attractive to diving ducks and relatively inaccessible to most hunters.

Participation was expected to be self limiting because of the need for specialized equipment and the difficulties and hazards of hunting on such large bodies of water.

An evaluation of the initial years of open water hunting is essential. We need to measure hunter participation, harvest, duck distribution, and the potential application of this hunting to other large water areas in Wisconsin. We obtained the information needed for this evaluation primarily from a mail survey of open water hunters.

OBJECTIVES

The objectives of the experimental open water hunting season were:

(1) Provide more hunting opportunities on the designated areas; (2) increase the harvest of scaup and provide a better distribution of the duck harvest on the areas; (3) determine how open water hunting might affect hunter activities; and (4) determine how open water hunting might influence duck distribution and use of the areas.

HUNTING REGULATIONS AND SURVEY TECHNIQUES

Regulations

Permits were required. They were issued without charge to all licensed hunters that applied. Applicants could designate on their permit whether they wished to hunt on (1) Lake Winnebago, (2) Mississippi River in Grant County, or (3) both areas. Hunting was authorized only from securely anchored boats or blinds, to eliminate the use of sneak or scull boats. This regulation was written into the Administrative Code but was omitted from the 1967 pamphlet of waterfowl regulations. On Lake Winnebago open water hunting was prohibited within 1500 feet of any shoreline, including islands. On both areas all blinds had to be removed each day and shooting from boats or other devices while propelled by a motor was illegal. Open water hunters were subject to all other state and federal waterfowl regulations for 1967.

Number of Permits Issued

The number and types of open water hunting permits issued were as follows:

1925 permits for hunting only on Lake Winnebago
403 permits for hunting only on the Mississippi River
789 permits for hunting on both areas

3117 total permits

Permits were issued to individuals throughout the state but the majority of requests came from residents of the counties that bordered waters open to this hunting or from the metropolitan areas of Milwaukee and Dane Counties (Figs. 1, 2 and 3). There were 28 permits issued to non-residents. Permits were issued throughout the waterfowl season since no cut-off date was established. However, about 95% of all permits were issued by the opening of the waterfowl season on October 7.

Techniques

Hunter diaries and packets of twenty duck-wing envelopes were sent to a sample of open water permit holders. These were furnished through the courtesy of the U. S. Fish and Wildlife Service and provided most of the data for evaluation. Aerial surveys by law enforcement personnel gave additional information on the number and location of both hunting parties and waterfowl. Comments on open water hunting from both state and federal game, fish and law enforcement field personnel were also helpful in this survey.

Survey Size and Cost

Diaries and duck-wing envelopes were sent to 502 permit holders. We chose survey participants at random from the three groups of permittees. About one of every six permittees was selected from each group.

The diaries were designed specifically for open water hunting (Fig. 4). A letter of instructions and a stamped return envelope were included in the materials sent to survey members. Preparation costs for the diaries was \$35.60. Postage totaled \$223.94 for the packets sent to the hunters, diary-return envelopes, and reminder cards. Total cost of survey materials was \$261.34 or about \$1.20 per returned diary.

RESULTS

Survey Response

Hunters returned 218 diaries (43%). The best response came from Mississippi River hunters and the poorest response came from those holding permits to hunt both areas (Table 1). Following the hunting season, 65 diaries (13% of the total sent out) were returned without any reminder to the hunters. In January a postcard was sent to all survey members requesting them to return their diaries and also asking them to destroy any unused wing envelopes. Following the reminder, 153 more diaries were returned. This response represented 35% of the diaries still outstanding when the reminder was sent out and 30% of all diaries. No additional effort was made to obtain more of the diaries. The higher response to the reminder notice suggests that many survey members had simply forgotten to return their diaries.

Hunter Participation

Hunter participation was considerably lower than anticipated. Among the 218 respondents in the diary survey, only 29 (13%) reported one or more open-water hunting trips. Of these respondents 23 (about 80%) hunted on Lake Winnebago and 6 hunted on the Mississippi River. If we assume all non-respondents did not hunt, a minimum estimate of use on a direct expansion basis suggests only 179 hunters were active (total permits times non-response rate times percent use of each area). However, we know some diary non-respondents hunted because at least 3 of these hunters submitted duck wings in the envelopes that were sent with the diaries. A maximum estimate of participation, based on the assumption that non-respondents were as active as respondents, suggests that 411 hunters were afield (total permits for each area times percent utilization for each area). While some non-respondents apparently did hunt, we assume use was at a lower rate but that the actual number of open-water hunters probably was within the upper half of the estimated 179-411 range.

Harvest Aspects

Diary data. Hunters reported that they or their hunting party bagged 166 ducks and 6 coots (Table 2). An additional 35 ducks were reported shot but not retrieved, giving a total reported kill of 207 waterfowl. Open water shooters on the Mississippi River had more successful trips and bagged more ducks per trip. The estimated range for total duck kill on open water was 631-1,445 (Table 2). The size of the kill depends on which estimate of the number of open water hunters is used in the calculation of total kill. About 2/3 of the total kill came from Lake Winnebago. Crippling losses were also higher on Lake Winnebago.

Species composition of the kill as reported in the diaries is shown in (Table 3). Divers made up 85% of the reported bag on Lake Winnebago. "Bluebill" represented over 60% of the divers bagged on the lake. Buffleheads were the second most important diver species and ringnecks, redheads, and canvasbacks collectively furnished 19% of the diver bag. Only 27% of the open water bag from the Mississippi were diving ducks. The actual kill reported was 19 "bluebill" and one canvasback. Among the puddlers, blue-winged teal (31%), wood ducks (19%), and mallards (16%) were the important species.

Duck-wing data. Thirty-five survey members sent in 137 duck wings, 6 coot wings, and the tail feathers from 5 Canada geese. Three hunters that sent in wings did not return their diaries, even after being contacted individually. Some hunters apparently did not understand that wing envelopes were for only the wings from waterfowl shot while hunting on open water. Only 65 duck wings and 6 coot wings (39% of the total submitted) were from birds shot while hunting open water. Species composition of wing receipts generally agreed with species composition reported in the diaries (Table 3). Hunters sending diaries apparently separated ringnecks from the general term "bluebill" since only one ringneck wing was reported in a diary as coming from a "bluebill". All other wings from ducks reported in diaries as "bluebill" were from lesser scaup. Age ratios (immature to adult) taken from wings were 3.0 for divers and 2.0 for dabblers, respectively.

Chronology of kill. Chronology of the open water kill as reported in diaries differed for the two areas. The period of heaviest reported kill for Lake Winnebago came after the first week of the season (Table 4).

On the Mississippi, 58% of the kill came in the first week of the season and 69% was reported taken during the first two weeks. Most of the dabblers shot on Winnebago were killed in the first week of the season and all but two dabblers shot on the Mississippi were taken in the first two weeks of the season. The entire reported kill of ringnecks, redheads, and canvasbacks on Lake Winnebago occurred before November 1. Only one diver was reported bagged on the Mississippi prior to November 1. Two hunters on Lake Winnebago and two on the Mississippi reported taking bonus scaup after November 1.

Hunter effort. Hunter party size was larger on the Mississippi than on Lake Winnebago (2.4 hunters and 1.8 hunters per party, respectively). Respondents hunting on the Mississippi also made the most trips on open water per hunter (Table 2), and spent about an hour longer in the field (4.1 hours per hunter-trip on the Mississippi versus 3.2 hours per hunter-trip on Lake Winnebago).

Mississippi River hunters used decoys on 60% of their trips to open water. Hunters that used decoys bagged 3.3 ducks per trip and those hunting without decoys took 2.5 ducks per trip. Winnebago respondents used decoys on 91% of their trips and decoy users bagged 1.7 ducks per trip while non-decoy users took 1.2 ducks per trip. Hunters that used more than two dozen decoys had better success, bagging 2.3 ducks per trip as compared to 0.6 ducks bagged per trip by hunters using two dozen or fewer decoys.

Information from the diaries indicated that hunters took 3.5 shots per duck in the bag on Lake Winnebago and 5.1 shots per duck in the bag on the Mississippi River.

DISCUSSION

Lake Winnebago

The 1967 season was a poor one in which to test the effects of open water hunting. Major diver flights were either absent or did not arrive until the last two weeks of the season. One or two unsuccessful trips on the lake in early or mid-October discouraged some permit holders from going out in late October or in November when more birds were present. Overall hunting pressure on open water was light. Flights over the lake by warden-pilot Ken Corbett recorded one hunting party on the lake on October 10; 12 parties on October 14; 6 parties on October 23; 8 parties on October 28; 4 parties on November 4; and 2 parties out on November 13.

Some hunters reported that rough water prevented them from trying this type of hunting. The introduction of open water shooting also caught many hunters without the proper equipment or the know-how to participate in the sport. Some hunters apparently applied for permits only in case the hunting proved to be successful for their friends. Participants who were prepared for open water hunting and who stuck it out through the season did set ducks.

This special type of hunting furnished recreation to several hundred hunters in 1967. Participation should increase as more people learn to prepare for it. No adverse effects on duck concentrations on the lake were noted and scaup apparently received the bulk of the shooting pressure.

Only 24 respondents made any comments on future open water hunting. Five of these who had hunted and ten who had not commented favorably on open water hunting and asked that it be continued. Nine respondents gave unfavorable comments, e.g. "lake was too rough", "shore or blind hunting was better", "too much equipment was needed", and "scares ducks away from other types of hunters". One person (a guide for hunters using one of the islands) asked that open water shooting be discontinued.

Several other shore or island hunters (not members of the survey) complained that shooting on open water hurt their hunting, but considering the light hunting pressure on the open water, these complaints do not seem justified on a broad scale. Several reports of open water hunters rallying ducks with motorboats or shooting with the motor running were received. However, no arrests were made and this type of complaint is not considered a common occurrence.

Hunting on large bodies of water could be hazardous (several comments were made on the difficulty of hunting the rough water) but no accidents were reported and hunters seemed to recognize the need for caution.

The present requirement of hunting 1500 feet from shore or islands was of concern to some guides and hunters. Increasing the hunting distance to 2500 feet or 1/2 mile could help this situation. This interval should also be required between hunting parties on open water. Spacing restrictions help protect the quality aspects of shore, offshore blind, island, and open water hunting.

Open water hunting can be given a fair test only under increased hunter pressure and a more normal diver flight. The 1967 results do indicate that open water shooting on Lake Winnebago is a specialized sport and one that will attract a group of hunters with suitable equipment and the ability to withstand the rigorous conditions.

Mississippi River off Grant County

Many points discussed for Lake Winnebago are also true for open water hunting on pools off Grant County. Divers did not stop on the Potosi pool in 1967 as they normally do. State and federal law enforcement personnel reported little hunting pressure on open water. Our survey showed that interest was higher during the early part of the season when fair numbers of dabbling ducks were present. Hunting pressure fell off when diver flights failed to arrive and hunter success dropped.

Added hunting opportunity was made available. Dabbling ducks furnished most of the shooting, at least in the early part of the season. It is questionable whether increasing the harvest of dabblers on the area, particularly of mallards and wood ducks, meets the intent of this new method of hunting. Should the dabbler harvest continue to be heavy in a year of normal diver flights, some consideration might be given to restricting open water hunting to a period after most of the dabblers have moved out of the area. In any case, a season of good diver flights is needed to adequately assess the effects of open water hunting on bird distribution and harvest.

No major complaints were received and all comments about the open water hunting were favorable. No reports of arrests or accidents were received. If more interest develops a spacing regulation may be needed.

If one compares the Mississippi with Lake Winnebago, it appears that in 1967 the latter water area was more difficult to hunt because of its physical nature; but this type of hunting on either location apparently does not interest the "fair-weather" hunter. There also seems to be greater interest in open water hunting by hunters in the Lake Winnebago area.

RECOMMENDATIONS

1. The data collected in 1967 are not sufficient to make firm recommendations for open water shooting on all Wisconsin waters. However, since no significant adverse affects on hunting conditions or waterfowl populations were evident, it is recommended that open water shooting be continued on the same areas on an experimental basis.

2. Free permits should be required again to accurately determine hunter interest and for purposes of obtaining survey information. A cut-off date for permit issuance would be desirable.

3. Hunting diaries and duck-wing envelopes provide adequate data to evaluate hunter activity and harvest. These techniques should be used again. Aerial surveys and frequent field inspections are needed to supplement data from hunters.

4. Spacing of hunting parties needs careful consideration and may be desirable as a basic requirement.

5. Lake Pepin has been suggested as another area for open water hunting. Present information shows no reason why such a season could not be held on Lake Pepin unless it would complicate relations with Minnesota which does not allow open water shooting.

TABLE 1.

Number of Permittees Surveyed, Survey Response, and Estimated Number of Hunters Using Open Water in 1967.

Area of Permit	No. Surveyed	No. Respondents		No. Respondents Hunting		Est. No. of Hunters	
		Total	Percent	Total	Percent	Maximum ^a	Minimum ^b
Winnebago	320	139	43	19	14	263	114
Miss. River	65	33	51	5	15	62	31
Both areas	117	46	39	5 (4 ^c) (1)	11	86 (69 ^c) (17)	34 (27 ^c) (7)
Overall	502	218	43	29	13	411	179

- a. Total permits issued times percent respondents hunting.
 b. Total permits issued times percent of total survey that hunted. Assumes all non-respondents did not hunt.
 c. Upper figure represents number hunting on Lake Winnebago; lower figure represents number hunting on the Mississippi River.

TABLE 2.

Hunting Statistics on Open Water in 1967.

Area	Ducks Bagged	Ducks Lost	Crip. Loss (%)	Total Hunter Trips	Success. Trips (%)	Ducks Bagged/Hunter-Trip	Avg. No. Trips/Hunter	Est. Total Duck Kill ^a
Winnebago	92	23	25	104	47	0.9	2.6	413-970
Miss. River	74	12	16	59	64	1.3	4.2	241-499
Both areas	166	35	21	163	52	1.0	2.9	654-1469

- a. Estimate of total number hunting (maximum or minimum from Table 1) times Average number trips per hunter times ducks bagged per hunter trip, plus Adjustment for crippling loss.

TABLE 3.

Species of Ducks Bagged on Open Water as Reported in Hunter Diaries and from Duck Wings received.

Species	Lake Winnebago				Mississippi River			
	Reported in Diaries		Wings Submitted		Reported in Diaries		Wings Submitted	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Mallard	6	7	4	12	11	15	5	16
Black Duck	2	2	1	3	-	-	-	-
Pintail	-	-	-	-	3	4	2	6
A. Widgeon	-	-	-	1	1	1	-	-
Gadwall	1	1	-	-	1	1	1	3
Wood Duck	-	-	-	-	14	20	6	19
B.W. Teal	-	-	-	-	5	7	10	31
G.W. Teal	-	-	-	-	3	4	3	9
Uniden. Teal	2	2	-	-	13	18	-	-
Shoveler	-	-	-	-	3	4	1	3
Percent Dabblers		12		15		74		87
Scaup	1)		11	33	1)		4	13
"Bluebill"	50)	55			18)	26		
Ringneck	6	7	3	9	-	-	-	-
Redhead	6	7	2	6	-	-	-	-
Canvasback	3	3	1	3	1	1	-	-
Goldeneye	-	-	1	3	-	-	-	-
Bufflehead	11	12	7	21	-	-	-	-
H. Merganser	1	1	1	3	-	-	-	-
Ruddy Duck	3	3	2	6	-	-	-	-
Percent Divers		88		85		27		13
Coots	<u>5</u>		<u>4</u>		<u>1</u>		<u>2</u>	
Total Sample	97		37		75		34	

TABLE 4.

Percent of Total Duck Kill on Open Water by Period of the Season.*

Area	October			November	Total
	7-14	15-21	22-31	1-15	
Winnebago	15	38	22	25	100
Miss. River	58	11	-	31	100

* Figures are based on information from hunter diaries. The waterfowl season opened on October 7, and closed on November 15, 1967.

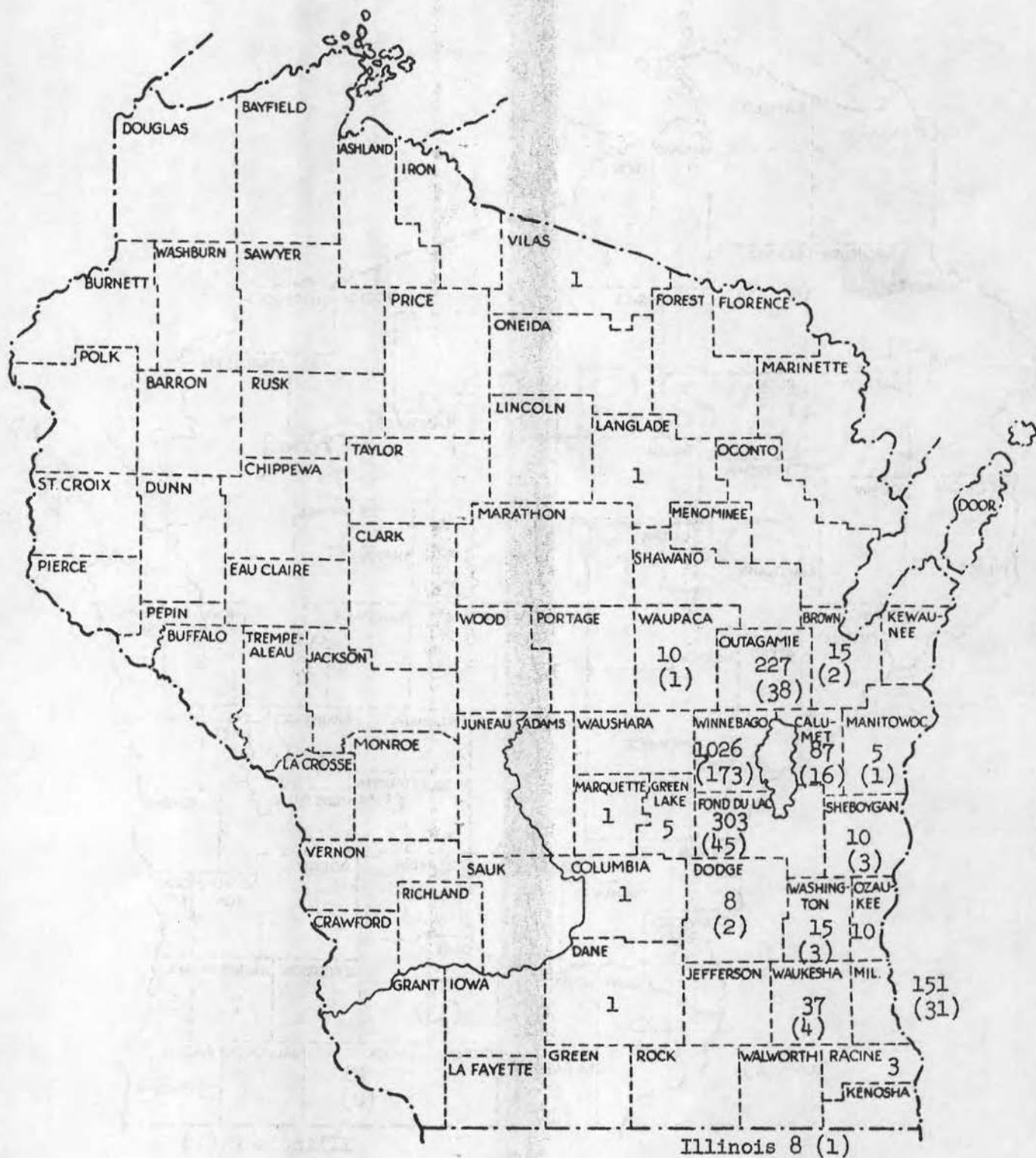


FIGURE 1. Distribution by Counties of Open Water Hunting Permits Issued for Lake Winnebago Only. (Number in () indicates number of hunters receiving diaries and wing envelopes.)

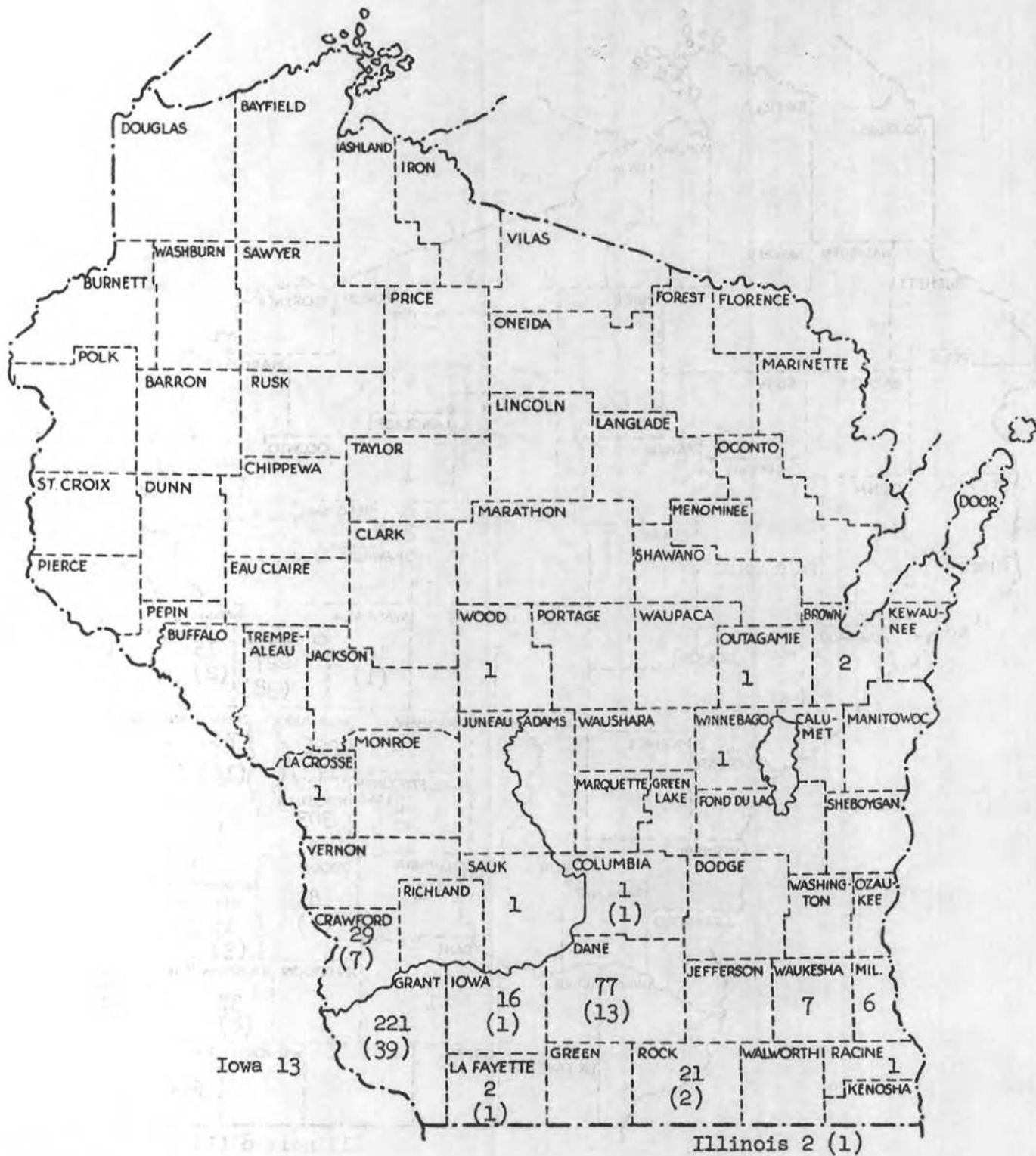


FIGURE 2. Distribution by Counties of Open Water Hunting Permits Issued for the Mississippi River Bordering Grant County Only. (Number in () indicates number of hunters receiving diaries and wing envelopes.)

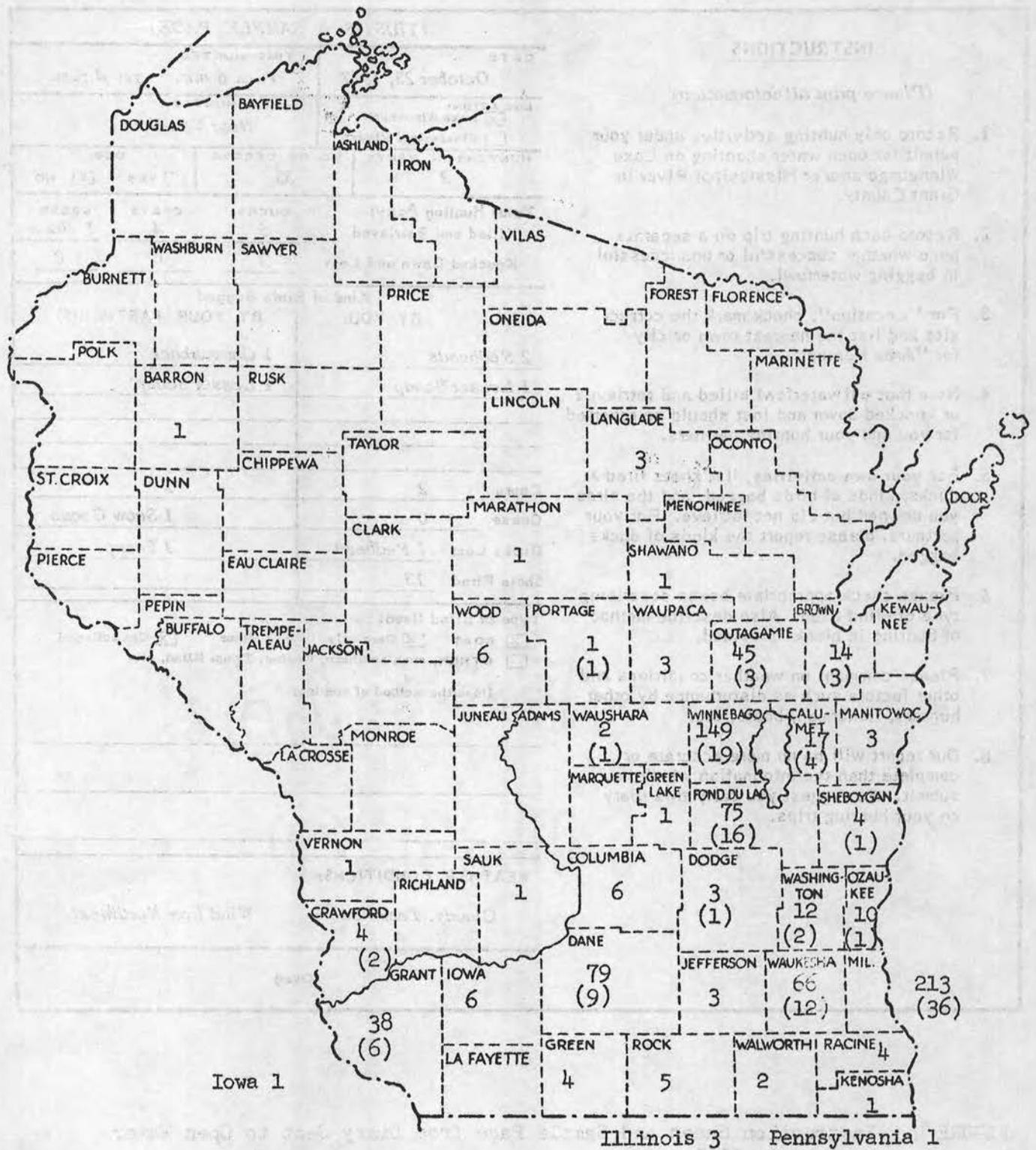


FIGURE 3. Distribution by Counties of Open Water Hunting Permits Issued for Both Lake Winnebago and the Mississippi River Bordering Grant County. (Number in () indicates number of hunters receiving diaries and wing envelopes.)

INSTRUCTIONS

(Please print all information)

1. Record only hunting activities under your permit for open water shooting on Lake Winnebago and/or Mississippi River in Grant County.
2. Record each hunting trip on a separate page whether successful or unsuccessful in bagging waterfowl.
3. For "Location", check mark the correct site and list the nearest town or city for "Area Hunted".
4. Note that all waterfowl killed and retrieved or knocked down and lost should be reported for you and your hunting partners.
5. For your own activities, list shots fired at ducks, kinds of birds bagged, and the birds you downed but did not retrieve. For your partners, please report the kinds of ducks bagged.
6. Please check appropriate boxes describing type of blind used. Also describe method of hunting in blanks provided.
7. Please comment on weather conditions and other factors such as disturbance by other hunters, fishermen, boats, etc.
8. Our report will be no more accurate or complete than the information which you submit. We suggest you carry this diary on your hunting trips.

(THIS IS A SAMPLE PAGE)

DATE <i>October 23, 1967</i>		TIME HUNTED From: <i>6 a.m.</i> To: <i>4 p.m.</i>	
LOCATION: <input checked="" type="checkbox"/> Lake Winnebago <input type="checkbox"/> Mississippi River		AREA HUNTED: <i>Near Van Dyne</i>	
HUNTERS IN PARTY <i>2</i>	NO. OF DECOYS <i>35</i>	DOG <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
Total Hunting Party:		DUCKS	COOTS
Killed and Retrieved		<i>5</i>	<i>4</i>
Knocked Down and Lost		<i>2</i>	<i>0</i>
		GEESE	<i>1 Snow</i>
			<i>0</i>
Kind of Birds Bagged			
BY YOU:		BY YOUR PARTNER(S)	
<i>2 Redheads</i>		<i>1 Canvasback</i>	
<i>1 Lesser Scaup</i>		<i>1 Lesser Scaup</i>	
Coots <i>2</i>		<i>2</i>	
Geese <i>0</i>		<i>1 Snow Goose</i>	
Ducks Lost <i>1 Redhead</i>		<i>1 Scaup</i>	
Shots Fired <i>13</i>			
Type of Blind Used:			
<input checked="" type="checkbox"/> BOAT <input checked="" type="checkbox"/> Oars only <input type="checkbox"/> Motor <input checked="" type="checkbox"/> Camouflaged			
<input type="checkbox"/> OTHER, such as Stump, Wading, Temp. Blind, etc.			
Describe method of hunting:			
WEATHER CONDITIONS:			
<i>Cloudy, Temp. 35°</i>		<i>Wind from Northwest</i>	

(Over)

FIGURE 4. Instruction Sheet and Sample Page from Diary Sent to Open Water Hunters in 1967.

