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Results of Semi-Controlled Hunting Upon the Harvest of Waterfowl at Lake Odessa, Iowa, 1960

JAMES G. SIEH¹ AND WILLIAM ASPELMEIER²

Abstract. In 1960 two controlled shooting areas with a total of 25 blind sites were established. The remaining portion of the public hunting area was open to hunting without special restrictions. Checking stations were established at each of the two main access points. A total of 6,014 hunters harvested 6,499 waterfowl in 33,968 hours, averaging one bird for each 5.22 hours of hunting. Waterfowl taken included 14 species of ducks, mergansers, coots, and 3 species of geese. Mallards comprised 72% of the kill, and wood ducks accounted for 12%. Flight dates during the fall were clearly indicated by the peak kills of mallards on October 19, 29, November 3, 9, and 29. The sex ratio of mallards in the kill averaged 1.45 males to 1 female throughout the season, but increased during the 5 major flight dates to 1.71:1, indicating preference for drakes. A sample of 666 mallard wings indicated an age ratio of 2.4 young to 1 adult.

The Lake Odessa area in Louisa County, Iowa, comprises some 6,000 acres of land and water located just above the confluence of the Iowa and Mississippi Rivers (Figure 1). Historically, this area of timbered potholes, marsh, low lying farm land, and open water has attracted vast numbers of migrant waterfowl during spring and fall migrations. Both the Iowa and Mississippi rivers constitute major migratory arteries for wild ducks during mass fall flights down the Mississippi flyway (Bellrose and Sieh, 1960).

The Lake Odessa public hunting area (3,100 acres) lies between the upper and lower Louisa refuge units of the Mark Twain National Wildlife Refuge. A plan of semi-controlled hunting was adopted for the 1960 season to eliminate overcrowding of hunters in problem areas and to improve the quality of hunting and reduce crippling losses. Two controlled areas were established and plainly marked. Around the perimeter of each area were signs which read "Controlled Sites—Decoys at Stake Only." Inside the north controlled area were 11 shooting sites (1-10 and 25), each one marked by a steel post with an attached duck silhouette indicating the shooting site number. There were 14 shooting sites (11-24) established inside the south controlled area. Neither drawings nor assignments were made for any shooting site. Hunting parties used these sites on a first come, first served basis. If one party filled its bag limit at a stake, another party was free to hunt at that stake and to remain

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there until the end of the shooting day or until they filled their bag limit. The remaining portion of the entire public hunting area was open to hunting without special restrictions concerning the location hunted or the proximity of hunting parties to one another; however, 10 special regulations adopted by departmental edict applied to all hunters using the area.

Checking stations were established at each of the two main access points, one at Shafer's Point and the other at Sand Run. At each checking station hunters were required to surrender

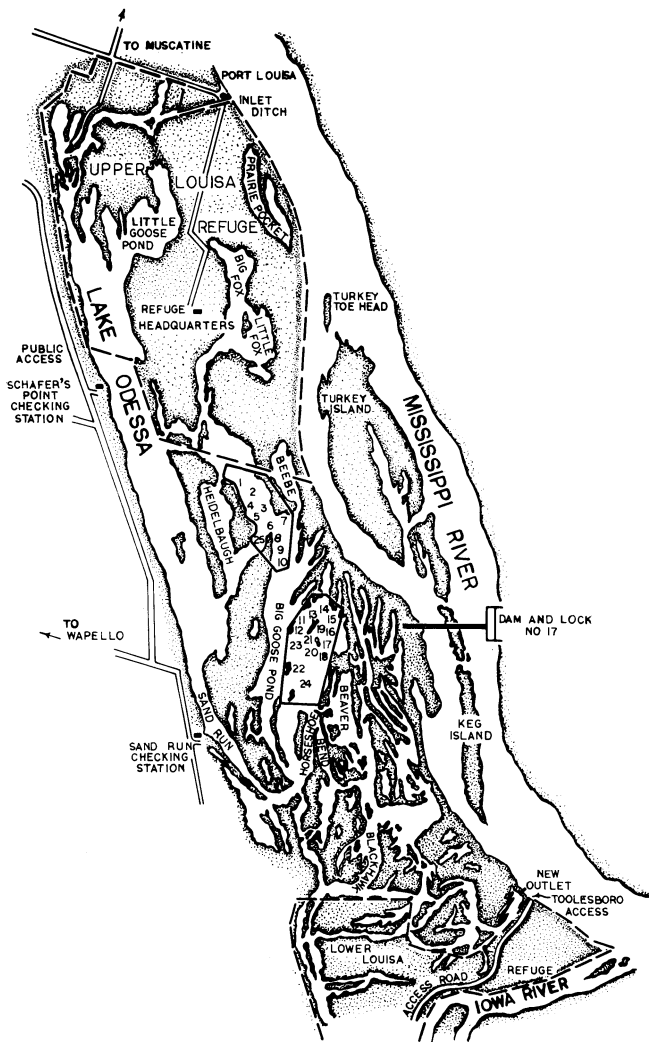


Figure 1. Controlled hunting areas with numbered blind sites, checking stations, and refuge units, Lake Odessa, Louisa County, Iowa, 1960.

their hunting licenses to obtain special permits each day to hunt anywhere on the public hunting area. Special hunting permits were dated and issued to all hunters on a first come, first served basis. All hunters were required to check back through the station each day, and data concerning their hunt were recorded. Checking station personnel verified and recorded species, age and sex of all waterfowl taken, recorded crippling losses as reported by the hunter, and returned each hunter's license in exchange for his special permit. Because special permits were required of all hunters using the area, both controlled and uncontrolled portions, the boundary of the Odessa public hunting area was posted with special signs which read "Permit Area - Get Permits at Check Stations."

HUNTING SUCCESS

A total of 2,517 hunting parties comprising 6,014 hunters used this area during the season. Sixty-three percent of all hunting was reported from the uncontrolled areas, accounting for 60 percent of the kill; 37 percent was reported in the controlled areas at the staked sites, accounting for 40 percent of the kill. However, it is our opinion that these data are slightly biased in that some hunters using the controlled areas tended to report their kill as having been taken from the uncontrolled areas.

Waterfowl taken included 14 species of wild ducks, mergansers, coots, and three species of geese (Table 1). Hunters harvested a total of 6,499 birds in 33,968 hours averaging one bird for each 5.22 hours of hunting. They reported a total of 1,314 cripples which were not retrieved, indicating a crippling loss of 16.8 percent. It is our opinion that crippling losses were minimized by some hunters.

Table 1. Weekly Harvest Totals of Waterfowl, Lake Odessa, Fall, 1960.

Species	Oct. 15-21	Oct. 22-28	Oct. 29- Nov. 4	Nov. 5-11	Nov. 12-18	Nov. 19-25	Nov. 26- Dec. 3	Total	Percent
Mallard (<i>Anas platyrhynchos</i> Linnaeus)	422	646	682	1,067	640	541	660	4,658	71.7
Wood Duck (<i>Aix sponsa</i> Linnaeus)	242	269	172	35	19	11	8	756	11.6
Gadwall (<i>Anas strepera</i> Linnaeus)	25	31	67	66	42	29	39	299	4.6
American widgeon (<i>Mareca americana</i> [Gmelin])	29	41	30	39	28	24	9	200	3.1
Pintail (<i>Anas acuta</i> [Linnaeus])	59	33	11	11	7	3	3	127	1.9
Green-winged teal (<i>Anas carolinensis</i> Gmelin)	38	3	14	13	6	1	8	83	1.2
Black duck (<i>Anas</i> <i>rubripes</i> Brewster)	2	18	14	13	10	1	13	71	1.1
Ring-necked duck (<i>Aythya collaris</i> [Donovan])	6	14	15	10	13	4	7	69	1.0
Blue-winged teal (<i>Anas discors</i> Linnaeus)	53	5	2	3	2	...	...	65	1.0
Shoveler (<i>Spatula</i> <i>clypeata</i> [Linnaeus])	7	12	18	9	3	4	4	57	0.8
Lesser scaup (<i>Aythya</i> <i>affinis</i> [Eyton])	...	5	15	7	8	2	8	45	0.6
Greater scaup (<i>Aythya</i> <i>marila</i> [Linnaeus])	1	...	1	0.01
Bufflehead (<i>Bucephala</i> <i>albeola</i> [Linnaeus])	2	2	0.03

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Table 1. (Continued)

Species	Oct. 15-21	Oct. 22-28	Oct. 29- Nov. 4	Nov. 5-11	Nov. 12-18	Nov. 19-25	Nov. 26- Dec. 3	Total	Percent
Ruddy Duck (<i>Oxyura jamaicensis</i> [Gmelin])	...	....	....	1	...	...	...	1	0.01
Hybrid (Mallard x Black duck)	...	....	1	....	....	...	...	1	0.01
Hooded Merganser (<i>Lophodytes cucullatus</i> [Linnaeus])	1	1	1	2	1	1	3	10	0.1
Canada Goose (<i>Branta canadensis</i> [Linnaeus])	4	3	1	1	7	...	...	16	0.2
Blue Goose (<i>Chen caerulescens</i> [Linnaeus])	...	3	2	....	...	...	...	5	0.07
Snow Goose (<i>Chen hyperborea</i> [Pallas])	3	....	....	....	1	...	...	4	0.06
Coot (<i>Fulica amarecana</i> Gmelin)	5	4	7	13	29	0.4
Totals	896	1,088	1,045	1,286	800	622	762	6,499	99.5

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Hunters using the controlled area reported their kill from each of the 25 staked sites. These sites were established to permit maximum opportunity for hunters to decoy and harvest ducks with a minimum of interference from other hunters. Natural vegetation such as willow (*Salix spp.*) and buttonbush (*Cephalanthus spp.*) were utilized to separate the sites. Hunting success in some locations was better than in others as indicated by the harvest reported from each staked site (Table 2).

It is our opinion, as well as that of a majority of the hunters using the area, that the system of semi-controlled hunting worked out much better than was anticipated. Hunters honored the first come first served rule on the shooting stakes very well. This system was thought to have reduced crippling losses slightly and inspired hunters to utilize many portions of the area that they had not used before. Hunters found that ducks could be bagged in places other than the crowded sites of previous years.

Table 2. The Number and Percent of Waterfowl Reported from Each Staked Site Within the Controlled Areas

Site number	Number of birds taken	Percent reported from each site
1	42	.65
2	67	1.03
3	55	.85
4	104	1.61
5	65	1.00
6	249	3.86
7	149	2.31
8	192	2.97
9	140	2.17
10	89	1.38
11	159	2.46
12	111	1.72
13	191	2.96
14	106	1.64
15	15	.23
16	80	1.24
17	248	3.84
18	11	.17
19	50	.77
20	75	1.16
21	118	1.82
22	158	2.45
23	36	.55
24	36	.55
25	13	.20
Totals (All sites)	2,559	39.59 Percent

INFLUENCE OF MASS FALL MIGRATION
UPON THE HARVEST OF MALLARDS

In the early fall freezing temperatures and permanent snow cover in the higher latitudes tend to concentrate most species of ducks in southern Canada and in the northern United States.

Sudden thrusts of winter weather from the Arctic to the Gulf tend to coincide with mass fall migrations of waterfowl into Iowa (Sieh, 1958). In 1960, weather conditions were responsible for a series of fall flights into Iowa without the large or spectacular grand passage such as that observed on November 7, 1956 (Bellrose and Sieh, 1960).

Flight dates during the fall of 1960 were clearly indicated by the peak kills of mallards at Lake Odessa on October 19, October 29, November 3, November 9, and November 29 (Figure 2). It is interesting to note that most of these same massed flights were recorded in northwestern Iowa on the day preceding the flight date at Lake Odessa. This circumstance appears to be the rule, indicating that most mass migrations through western Iowa precede those in eastern Iowa by about 24 hours, and that the leading edge of these flights is on a line extending north-northeastward across the state. The grand passage in 1960 occurred on November 8 in northwestern Iowa and on November 9 at Lake Odessa.

MALLARD AGE AND SEX RATIOS

Mallards have represented approximately one-half of the wild ducks harvested in Iowa each fall since 1948. In 1960 over 70 percent of all the ducks taken at Lake Odessa were mallards. Sustained waterfowl hunting depends upon the annual production of surplus waterfowl, often referred to as the "harvestable surplus." In waterfowl management we assume that an age ratio of 2:1 (young:adult) in the harvest indicates favorable but

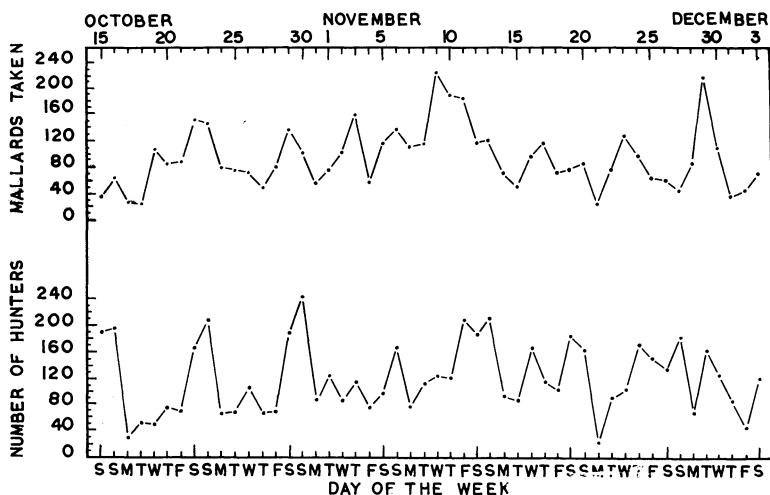


Figure 2. Number of mallards taken and number of hunters checked each day of the 1960 waterfowl season at Lake Odessa.

mediocre production. Only recently, through the unified efforts of the Technical Section of the Mississippi Flyway Council, has it been possible to evaluate the productivity of individual species by utilizing the "wing method" to obtain age and sex ratios (Geis and Carney, 1961). It is desirable to supplement these age and sex ratio studies with specific kill information from strategic locations throughout the flyway, such as at Lake Odessa.

At the checking stations each duck was examined to determine its age and sex. Cloacal examinations were made to verify the age of males by the size and appearance of the penis and sheath, but no attempt was made to probe for the bursa of Fabricius to verify age in males or females. One wing was collected from each duck and labeled according to species, age, sex, and date of kill. A sample of 666 mallard wings was obtained and later examined to verify the accuracy and practicability of the "wing method" as a means of determining mallard age and sex composition in the harvest (Carney and Geis, 1960). Each wing was examined carefully and identified as "male or female" and as "juvenile or adult". Only one wing of the entire 666 was disputed according to sex, and this was probably an inadvertent labeling error.

A total of 4,658 mallards was examined at the checking stations to determine the sex ratio of the kill for each day of the hunting season (Table 3). These data indicate a season kill of 2,759 males and 1,899 females, or a sex ratio of 1.45 males to 1 female. The proportion of males in the harvest increased to 1.7:1 during the five major flight dates and clearly indicated selectivity on the part of the hunters and their preference for drakes. It is doubtful that these data indicate such a preponderance of males available during these flights.

This study was undertaken in part to shed some light on age ratio differences between sexes in the harvest at Lake Odessa. The age determination of female waterfowl at the checking stations was difficult because they lacked distinct aging criteria such as are present in males. The age ratio discrepancy between the results of the wing method and checking station data for 409 males was negligible (1.34:1 compared with 1.25:1), but for 257 females the discrepancy was greater (4.24:1 compared with 2.34:1).

Very little has been published concerning the importance of differences between age ratios of male and female mallards in the harvest. Age ratios have been lumped together for both sexes. Even though the sample of 666 wings obtained was too

small to interpret adequately some of these differences, they remain of special interest. Lumping the age ratio data for male and female mallards together we obtain ratios—young to adult—2.4:1 by the wing method and 1.6:1 from the checking station

Table 3. Daily Kill of Mallard Ducks by Sex at Lake Odessa, 1960 Season

Date	Schafer's Point check station		Sand Run check station		Total	
	Male	Female	Male	Female	Male	Female
Oct. 15	11	8	8	9	19	17
16	17	10	21	14	38	24
17	6	3	12	4	18	7
18	9	9	4	2	13	11
19	53	19	23	10	76	29
20	26	28	14	14	40	42
21	34	29	9	12	43	41
22	47	41	48	34	95	75
23	25	31	51	39	76	70
24	15	36	15	12	30	48
25	19	21	17	17	36	38
26	16	17	25	13	41	30
27	16	14	11	6	27	20
28	30	21	12	12	42	33
29	32	26	38	33	70	59
30	17	19	28	33	45	52
31	8	10	21	16	29	26
Nov. 1	16	16	22	19	38	35
2	24	16	33	26	57	42
3	59	31	36	31	95	62
4	27	9	11	10	38	19
5	27	12	41	35	68	47
6	37	27	44	27	81	54
7	30	32	31	16	61	48
8	41	27	24	21	65	48
9	64	33	80	47	144	80
10	50	26	78	37	128	63
11	69	28	49	38	118	66
12	33	22	39	25	72	47
13	35	18	40	27	75	45
14	19	18	17	13	36	31
15	11	12	14	13	25	25
16	26	20	25	24	51	44
17	28	21	42	20	70	41
18	22	18	20	10	42	28
19	23	16	20	16	43	32
20	19	18	34	13	53	31
21	13	8			13	8
22	33	16	18	10	51	26
23	50	36	28	16	78	52
24	33	18	33	13	66	31
25	26	16	10	9	36	25
26	30	26	7	5	37	31
27	18	10	10	3	28	13
28	32	22	14	13	46	35
29	43	42	98	35	141	77
30	35	10	32	30	67	40
Dec. 1	18	6	6	5	24	11
2	18	16	7	3	25	19
3	26	12	23	9	49	21
Totals	1,416	1,000	1,343	899	2,759	1,899

sample. These discrepancies in age ratio data indicate the extreme importance of accuracy in the interpretation of age ratio information.

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