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The 1973 kill of Canvasback under restrictive hunting regulations, Delta Marsh, Manitoba

by George S. Hochbaum¹ and Patrick J. Caldwell²

Abstract

Hunter compliance with restrictions and kill limits for Canvasbacks, and Canvasback migration chronology were studied on the Delta Waterfowl Control Area. Only hunters using decoys had opportunity to fire at Canvasbacks. Eighty-three% of all Canvasbacks within range were fired at by 9 of 10 parties observed.

Canvasback numbers made up 46% of the 48 316 waterfowl estimated to use the Delta Marsh on 4 October. Canvasback numbers declined thereafter until only 3.3% of the total ducks represented Canvasback on 17 October.

Canvasbacks bagged showed a similar pattern to Canvasback numbers with 78% of them shot during the period 8 - 20 October. The Canvasback made up 8.2% of the total ducks bagged.

Hunters are unable or unwilling to refrain from shooting Canvasback, and therefore hunting should be limited when numbers of Canvasback are abundant at Delta. Two methods are suggested for the Delta Marsh:

1. Closure of the control area until after Canvasback have left the area, generally 15 October.
2. Prohibit the use of decoys while hunting in the control area until after 15 October.

Introduction

Low populations and poor reproductive success of Canvasback (*Aythya valisineria*) and Redhead (*Aythya americana*) during the 1973 breeding season induced the Manitoba Department of Mines, Resources and Environmental Management to delay the opening day of duck hunting on four major "staging" areas for these species. Hunting started 24 September in all southern Manitoba except on these four ranges, where shooting did not begin until 8 October. Whitewater Lake, Swan Lake, Lake Winnipegosis and the Delta Waterfowl Control Area were the four restricted zones. This study was carried out on the Delta Waterfowl Control Area (hereafter referred to as the Control Area) which includes the eastern portion of the Delta Marsh and all the Lake Francis Marsh (Fig. 1).

The Control Area was legally described in 1947 as a restricted hunting range. Hunters believed that excessive shooting during the early season could over-harvest the local breeding stock, as suggested by Hochbaum (1947). In 1947, duck hunting on the Control Area was delayed until 10 October to provide sufficient time for late-hatching diving ducks to ma-

ture and maternal females to regain flight. Delayed openings remained in effect until 1963. Then the special regulation was abandoned and the marsh again opened in September with the rest of southern Manitoba. The delay in opening was resumed in 1973. It was hoped the delay would not only protect local stock but would also allow migrating Canvasback and Redhead time to pass through the Delta Marsh before significant hunting began, thereby partially reducing their kill in Manitoba.

Restrictions on the bag limit of Canvasback first came into effect in Manitoba during 1959 when four birds could be taken daily. Bag limits were reduced to one Canvasback in 1960 and 1961 and a complete closure was imposed during 1962 and 1963. From 1964 to 1968, two birds could be taken daily. During the seasons 1969 through 1973, hunters were allowed one Canvasback daily. Our study was conducted to assess the effectiveness of the 1973 special regulations.

Procedures

Our procedures were: 1) to observe hunter behaviour on the marsh; 2) to estimate the numbers and species composition of waterfowl on the marsh (weekly aerial surveys); and 3) to assess the timing and species composition of the kill.

Hunter performance was evaluated from observation blinds located about 90 m from hides being used by hunters. We watched the entire hunt of as many parties as possible during the season, keeping records of all ducks estimated to be within shotgun range (less than 55 m). There was no evidence hunters were aware of being observed; one investigator would shoot as if hunting. We recorded the time of each encounter, species, flock size, minimum distance from guns, number of shots, number of birds killed, and the number of birds crippled. Cripples were considered to be ducks that appeared hit, not killed and not retrieved. The observations began 24 September on the west Delta Marsh shifting to the Control Area on 8 October, and continuing there until 27 October when most Canvasback had departed.

Aerial surveys were flown weekly by Robert Jones. The flights followed transects along east to west section lines and were flown at an altitude of 30 m and at a ground speed of 110 km/h. Only birds considered to be within 80 m of the observer's side of the aircraft were counted. About 14% of the marsh was covered by each survey. These counts were then extrapolated to estimate the population for the entire marsh.

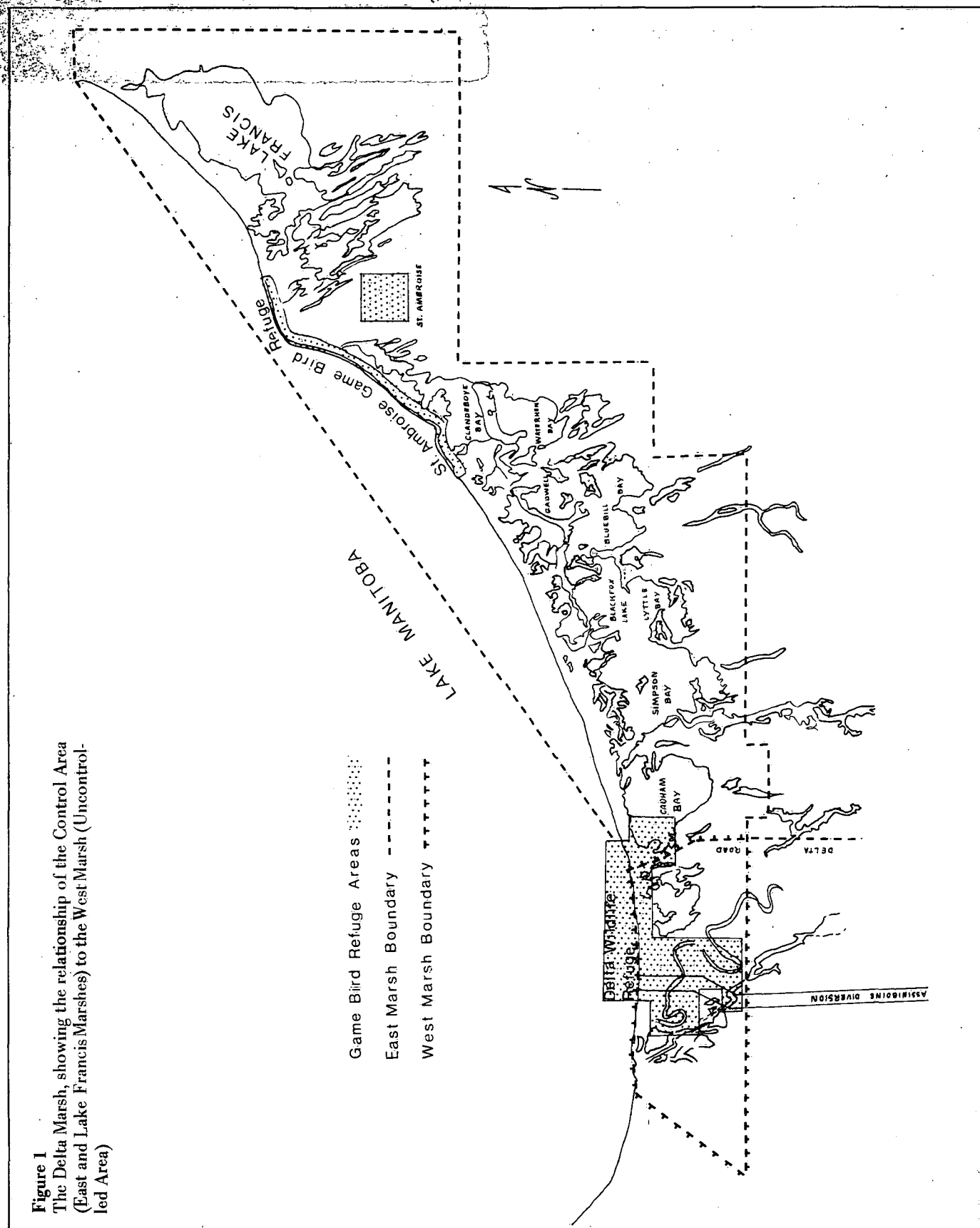
A survey of ducks killed on the marsh between 24 September and 3 November was conducted at private and commercial lodges, where wings were collected weekly and at known hunter concentration points where birds were checked three or four times a week.

SK
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¹CWS, 501 University Crescent, Winnipeg, Manitoba.

²Ducks Unlimited (Canada), 1415 Pembina Highway, Winnipeg, Manitoba.

Figure 1
The Delta Marsh, showing the relationship of the Control Area (East and Lake Francis Marshes) to the West Marsh (Uncontrolled Area)



Results

From 24 September through 27 October we observed 26 hunting parties, 10 of which had the opportunity to kill Canvasback. Of 22 singles or flocks of Canvasback passing within range of hunters, 18 were fired at; 12 Canvasback were killed and 7 were crippled (37% crippling loss). Only one party refrained from shooting at Canvasback. All shooting at Canvasback occurred where hunters had decoys. Nine of the 26 parties did not use decoys and none of these were observed to have Canvasback pass within gun range.

The Canvasback was one of the more abundant ducks on the Delta Marsh from 17 September until 10 October 1973. It made up 17% of all ducks on 17 September; about 26% on 26 September; about 46% on 4 October, and on 10 October it was approximately 36% (Table 1). Between 4 October and 17 October there was a mass exodus of Canvasback which thenceforward were uncommon.

Canvasback ranked fourth in the 1973 bag. The majority (78%) were shot during the period of 8–20 October, the first 2 weeks of hunting on the Control Area. In our bag survey we examined 4192 ducks, 8.2% (343) being Canvasback. Canvasback consistently made up 5–10% of ducks in hunter bags each week of the season (Table 2).

Discussion

In most years Canvasback comprise but a small portion of the ducks on the Delta Marsh in July and August. The Delta Marsh is not a traditional moulting area for drakes, which travel to lakes in West Central Manitoba (Bergman 1973) to moult after their hens are incubating clutches. Some males return to Delta in September and early October to join the young of the year and adult females (Hochbaum 1959).

The use of the marsh by Canvasback during September and October is highly variable and may be related to the amount of aquatic foods available. In years of Sago Pondweed (*Potamogeton pectinatus*) abundance, Canvasback are found on the marsh in greater numbers than when Sago is scarce (H.A. Hochbaum, pers. comm.). Sago was abundant during the autumn of 1973 and Canvasback were much more common than during the three previous years (Table 1).

Canvasback numbers reached a maximum of 6747 in the uncontrolled marsh on 17 September. Two days after the 24 September opening, the population there declined by approximately 50%. The decline continued throughout the remainder of the season and we suspect there may have been a shift to the Control Area. As Canvasback decreased on the hunted uncontrolled marsh, there was an increase on the unshot Control Area until 4 October (Table 1).

The kill of Canvasback appeared to be greatly influenced by decoys. No Canvasback came within range of hunters who had no decoys. Moreover, we found that small flocks, singles

³The point system is a management technique whereby the hunter does not have to identify the duck until he has the bird in hand. Using the point system, the daily bag is reached when the point value of the last duck bagged, added to the sum of the point values of other ducks already bagged that day, causes the total to reach or exceed 100 points (Geis and Crissey 1973).

and pairs of Canvasback, were decoyed with greater frequency than larger flocks. Olson (1965) found that the smaller the flock size, the greater the probability of a Canvasback being bagged. Boyd (1971) drew the same conclusion from observations of other species harvested in eastern Canada.

Most hunters were not selective in their shooting. They fired at 82% of all Canvasback flights estimated to be within shotgun range. Only one party in 10 passed up Canvasback. Perhaps the other hunters could not identify the birds in flight, hence the steady shooting at this species. These findings are not unique to the Delta Marsh; Geis and Crissey (1973) report that 95% of all Canvasback and Redhead flights were shot at in 12 States experimenting with the point system.³ This high rate occurred despite the fact that Canvasback and Redhead were "90 point" birds.

Only twice did we encounter too many Canvasback or Redhead in a hunter's bag. Violations that may have occurred at lodges were impossible to detect since only combined bags or wings were checked. Two searches with dogs of blinds produced two Canvasback and one Redhead. Four other Canvasback were found in blinds or at landings. We presume these birds were discarded.

The Canvasback kill during the first week of hunting on the Control Area comprised 58% of the season's Canvasback bag (Table 2). Thus one effect of the special regulation was to concentrate the kill of this species in a very short period just prior to their mid-October departure.

Conclusions and recommendations

Delayed hunting of the Delta Waterfowl Control Area probably prevented a much larger kill of Canvasback than would have occurred if shooting had begun there on 24 September. However, the 8 October opening still overlapped the period of heavy Canvasback concentration, thus allowing a large pre-migratory harvest.

Geis (1959) suggests that the bag limit affects the total kill of Canvasback on a continental basis; Geis and Crissey (1969) demonstrated, through a band analysis, that restrictive regulations reduce the mortality rate of Canvasback. Our studies at Delta suggest that most hunters are unable to identify or unwilling to refrain from shooting Canvasback, and the kill of this species in 1973 was substantial despite the one bird limit.

Regulations that might be considered in reducing harvests are to prohibit hunters from using decoys on the Delta Marsh and to delay the opening of hunting until 15 October, allowing most Canvasback time to pass through the Delta area.

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Table 1

Duck populations on the Delta Marsh during September and October from 1970 through 1973 as determined by aerial surveys

Year	Date	Total ducks	Total Canvasback	% Canvasback	Total West Marsh	Total East Marsh
1970	17 Sept.	27 356	1 430	5.2		1 430
	20 Sept.	28 059	2 028	7.2		2 028
	27 Sept.	26 267	4 468	17.0	755	3 713
	11 Oct.	21 640	2 991	13.8	298	2 693
	18 Oct.	17 133	578	3.4	145	433
	9 Nov.	3 212	193	6.0		193
1971	3 Sept.	45 360	2 235	4.9		2 235
	11 Sept.	45 832	600	1.3	8	592
	19 Sept.	22 590	907	4.0	506	401
	28 Sept.	28 661	743	2.6	535	208
	6 Oct.	8 103	71	0.9		71
	21 Oct.	5 962	985	16.5	286	699
1972	7 Sept.	30 073	1 856	6.2	7	1 849
	13 Sept.	40 431	450	1.1		450
	27 Sept.	24 939	1 864	7.5	122	1 742
	5 Oct.	34 162	4 990	14.6	1035	3 955
	17 Oct.	21 935	393	1.8		393
	1973	6 Sept.	31 044	1 128	3.6	
12 Sept.		38 782	2 592	6.7	129	2 463
17 Sept.		88 999	15 137	17.0	6747	8 410
26 Sept.		57 239	14 601	25.5	3362	11 239
4 Oct.		48 316	22 034	45.6	1642	20 392
10 Oct.		27 148	9 668	35.6	871	8 797
17 Oct.		10 446	343	3.3	93	251
30 Oct.		13 972	728	5.2	286	442

Table 2
 Duck harvest on the Delta Marsh by weeks of the season
 1970-1973

Year	Week	Total bag	Canvas-back bag	% Canvasback in bag	% of total Canvasback
1970	21-26 Sept.	866	72	8.3	23.6
	28 Sept.-3 Oct.	904	87	9.6	28.5
	5-10 Oct.	890	49	5.5	16.1
	12-17 Oct.	1060	77	7.2	25.2
	19-24 Oct.	252	11	4.3	3.6
	26-31 Oct.	92	2	2.1	0.6
	2-7 Nov.	54	3	5.5	0.9
	9-14 Nov.	74	4	5.4	1.3
	Total	4192	305	7.2	
1971	27 Sept.-20 Oct.	540	41	7.5	38.3
	3-9 Oct.	317	20	6.3	18.7
	10-16 Oct.	255	22	8.6	20.6
	18-23 Oct.	277	20	7.2	18.7
	25-30 Oct.	196	2	1.0	1.8
	1-6 Nov.	59	2	3.3	1.8
		Total	1644	107	6.5
1972	25-30 Sept.	392	37	9.4	36.7
	2-7 Oct.	491	40	8.1	39.6
	9-14 Oct.	739	18	2.4	17.8
	16-21 Oct.	275	4	1.4	4.0
	23 Oct.-4 Nov.	146	2	1.3	2.0
		Total	2043	101	4.9
1973	24-29 Sept.	541	32	5.9	9.4
	1-6 Oct.	270	22	8.2	6.4
	8-13 Oct.	2089	201	9.6	58.6
	15-20 Oct.	896	67	7.5	19.5
	22-27 Oct.	196	11	5.7	3.2
	29 Oct.-3 Nov.	201	10	5.0	2.9
		Total	4193	343	8.2