

Alberta Waterfowl Crop Damage Prevention Program, 2004

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Alberta Waterfowl Crop Damage Prevention Program, 2004

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EXECUTIVE SUMMARY

The Waterfowl Crop Damage Prevention Program (WCDPP), administered by the Alberta Conservation Association (ACA), assists Alberta cereal grain producers in preventing and/or controlling damage to crops from waterfowl during the fall migration period. The WCDPP activities include 1) direct assistance to producers through installation and maintenance of waterfowl scaring equipment on affected crops, 2) the provision of alternate feed for waterfowl at bait stations, and 3) the operation of distribution centres that provide scaring equipment free of charge for producers to borrow.

In each year, program activities begin in early August and continue until approximately 70% of cereal crops are harvested. In order to avoid conflicts with recreational waterfowl hunting opportunities, effort is made to terminate program operations by the Friday preceding the October Thanksgiving weekend. In 2004, poor weather delayed harvest and the program continued until early October in the southern and central areas of Alberta and until mid-October in the northern regions.

In 2004, 11 field personnel worked in 23 active control areas. Scaring equipment was available through 25 distribution centres located in local businesses and Alberta Sustainable Resource Development (ASRD) offices. One-hundred-and-ninety-one potential cases of waterfowl damage were handled by ACA field staff, while distribution centres issued scare cannons for use on 139 potential waterfowl damage locations. The number of reported waterfowl damage cases was 56% higher in 2004 than in 2003.

In 2004, the ACA operated 10 bait stations and one lure crop to provide alternate food sources for waterfowl. A total of 18,199 bushels of barley were provided at bait stations with an estimated duck use of 1,985,999 days and a consumption rate of 0.44 pounds/duck/day. The total number of duck-use days at the bait stations in 2004 was 7% higher than that in 2003.

The 2004 program expenditures totaling \$324,000 was cost-shared equally by the Alberta Conservation Association and Environment Canada.

Key words: waterfowl, crop damage prevention, Alberta, cereal grain, ducks, geese, cranes.

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1.0 INTRODUCTION

1.1 General introduction

Alberta is a major nesting and staging area for many species of waterfowl, including ducks, geese, and cranes (Salt et al. 1976, Poston et al. 1990, Federation of Alberta Naturalists 1992). Waterfowl are opportunistic feeders and their fall migration period tends to coincide with the harvest season for cereal grains in Alberta (Federation of Alberta Naturalists 1992). This creates the potential for significant waterfowl damage to unharvested grain crops across the province. Most grain producers will tolerate a certain amount of waterfowl damage to their crops, however when that damage becomes severe or recurrent, they become intolerant of waterfowl and the damage that they cause (Hudson 2004). This, in turn, causes producers to be less receptive to programs aimed at enhancing or protecting waterfowl and their habitat.

1.2 Waterfowl crop damage compensation

In 1961, the Government of Alberta established the Wildlife Damage Fund, funded by sportsman's license fees, to make compensation for crop damage caused by waterfowl available to Alberta grain producers without the payment of crop insurance premiums. Initially, the compensation payable was the lesser of \$15/acre or one half of the value of the lost crop. In 1973 the rate was increased to the lesser of \$25/acre or three quarters of the value of the lost crop. The rate was adjusted once more in 1978 to the lesser of \$50/acre or three quarters of the value of the lost crop. From 1983 to 1990 the compensation rate was adjusted annually with a maximum payment of three quarters of the value of the lost crop. The signing of the North American Waterfowl Management Plan (NAWMP) in the late 1980s increased the need for an improved compensation program. Discussions between various governments, producers, and crop insurance agencies culminated in the development of a compensation program that paid a flat 80% of the value of the crops lost to waterfowl damage from 1991 to 1999. In 2000, waterfowl damage compensation was changed to the present rate of 100% of the commercial value of the crop damaged (Ken Lungle, ASRD, pers. comm.).

1.3 Waterfowl crop damage prevention

In 1970, an experimental waterfowl damage prevention program was initiated by the Alberta Government in the Grand Prairie area (Burgess 1973). The purpose of this program was to determine if a waterfowl scaring program in combination with the provision of feeding sites would prevent or minimize crop damage. Additionally, the goal was to establish if the prevention program would be economically efficient, by preventing crop damage instead of making compensation payments after the damage was done. With the success of the experimental program, a waterfowl damage prevention program was expanded into areas of the province where depredation losses had been both severe and recurrent. Today the Waterfowl Crop Damage Prevention Program (WCDPP) delivers damage prevention assistance in all grain producing areas of the province. Mallards (*Anas platyrhynchos*), northern pintails (*Anas acuta*), Canada geese (*Branta canadensis*), white-fronted geese (*Anser albifrons*), snow geese (*Chen caerulescens*), and sandhill cranes (*Grus canadensis*) are the primary waterfowl species targeted by the WCDPP.

The Alberta Conservation Association (ACA) has been responsible for delivering Alberta's Waterfowl Crop Damage Prevention Program since 1997. Cost of the 2004 program was shared equally between ACA and Environment Canada. This report summarizes the WCDPP activities for 2004.

2.0 STUDY AREA

The WCDPP is delivered throughout the white (settled) area of Alberta (Figure 1). Depending on the severity and recurrence of crop damage, prevention assistance is provided through Crop Damage Control (CDC) areas, bait stations, and distribution centres (Figure 1).

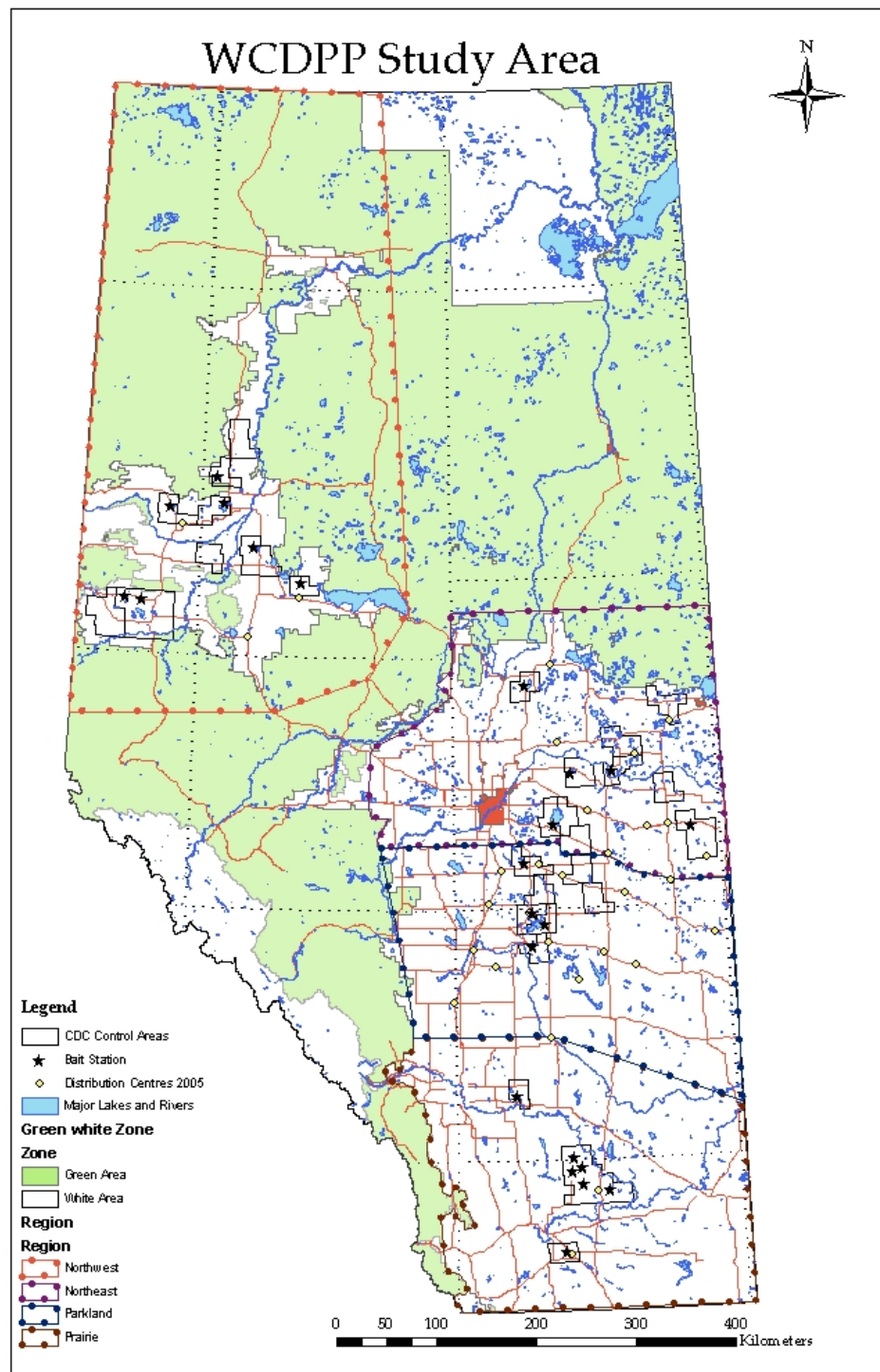


Figure 1. Map of Alberta Waterfowl Crop Damage Prevention Program 2004 operational areas, showing Crop Damage Control areas, bait stations, and distribution centres.

3.0 MATERIALS AND METHODS

Waterfowl damage prevention activities are delivered through three basic methods: 1) direct assistance to producers by ACA field staff in identified CDC areas, 2) provision of alternate feed for waterfowl, and 3) provision of scaring equipment from distribution centres located throughout the province for producers to borrow and maintain.

3.1 Regional organization

Four regional coordinators (Northwest, Northeast, Parkland, and Prairie region; Figure 1) deliver the WCDPP under the direction of a provincial coordinator. In the Northwest, Northeast, and Parkland regions, WCDPP activities include operation of CDC areas, bait stations (alternate feed), and distribution centres. In the Prairie region waterfowl damage prevention activities consist of provision of alternate food for waterfowl through bait stations and one lure crop, and the operation of scare cannon distribution centres.

3.2 Direct assistance in Crop Damage Control areas

Crop Damage Control (CDC) areas have been developed in Alberta where crop losses to waterfowl depredation were both severe and recurrent. These areas are typically six to seven townships in size and usually contain a significant staging lake. Where an appropriate water body is available, a bait (feeding) station is established to provide an alternate food source for waterfowl and is operated to complement scaring activities.

ACA field staff carry out waterfowl crop damage prevention activities within these CDC areas, typically from early August to mid or late October. ACA field staff learn of potential damage from direct contact with producers, by observing the damage during regular patrols or as a result of a telephone complaint from a producer. Field staff are responsible for responding to producers' reports of waterfowl damage by visiting the producer, assessing the waterfowl damage, and applying the appropriate damage prevention activity - typically installation of scare cannon(s) and occasionally use of pyrotechnics (scare cartridges that can be fired by a launcher using 0.22 calibre regular blanks). Zon scare cannons, manufactured by DAZON BV and distributed in Alberta

by Margo Supplies Ltd. have been used by the WCDPP for 30 years. These cannons provide reliable, timed explosions similar in sound to a shotgun blast, which typically scare waterfowl out of the cereal crop. Field staff record relevant information (crop type, number and species of waterfowl damaging crop, extent of damage, producer cooperation, etc.) on each damage site. Field staff also patrol CDC areas during peak waterfowl feeding periods (dusk and dawn) and inform producers of possible waterfowl damage.

In 2004, direct waterfowl damage prevention assistance was provided to producers in the Beaverhill East, Beaverhill West, Brosseau, Derwent, Flat Lake, Holden, Kenilworth, McCullough, Whitford CDC areas in the Northeast Region (Hudson 2004), Bittern Lake, East Buffalo, Edberg, Erskine, Forestburg, Wavy CDC areas in the Parkland Region (Potter 2004), and Grande Prairie, Beaverlodge, Eaglesham, Fahler, Grimshaw, Dixonville, Manning and High Priairie CDC areas in the Northwest Region (Rosendal 2004). A summary of the 2004 sites is provided in Appendix 1.

3.3 Provision of alternate feed

Provision of alternate feed for waterfowl consists of either a bait station, where shelled barley is spread along a portion of lakeshore, or a lure crop where a mature barley crop is swathed and left in the field for waterfowl to feed on. Bait stations are used primarily by ducks, while both ducks and geese use lure crops. Hunting in feeding areas is prohibited in order to avoid disturbing birds that have adjusted to the area.

3.3.1 *Bait station*

Twelve bait stations have been established in combination with CDC areas over the development of the program (Appendix 1). However, in 2004, feeding operations took place at four stations only (i.e., La Glace, Buffalo, Lac Cardinal, and Lac Brosseau bait stations), due to low water levels at the other eight stations. The effectiveness of bait stations is somewhat dependent on water levels. Ducks are reluctant to feed at sites where they cannot swim within a short distance of the actual bait. Excessive vegetation growth between the open water and the bait station, that is usually associated with low water levels, appears to be a barrier to ducks. Although water levels were sufficient for

operation at the George and Flood bait stations, they were not operated in 2004 in an attempt to reduce cost (Rosendal 2004). Water levels at the Beaverhill, Flat, Kenilworth, Whitford, East Buffalo, and Bittern lake bait stations were insufficient for effective operation (Hudson 2004, Potter 2004). While not quantified, provision of alternate feeding sites combined with active scaring of waterfowl (see section 3.4) has been effective in reducing damage and loss of cereal crops from ducks in the past hence, active scaring was conducted concurrently with baiting at all four bait stations.

Bait station operation is carried out by a local producer who is contracted to spread barley on the bait station daily. The contractor records the amount of barley placed on the bait station each day. The amount placed depends on the number of ducks feeding. The target is for all barley placed out one day to be consumed before the next feeding in order to avoid wasting barley through spoilage, sprouting, or trampling. During the entire feeding period, the contractor maintains contact with ACA staff and reports any sick ducks observed, any unauthorized entry on the bait station, and the status of barley on hand for feeding.

Termination of the baiting program begins when 70% of barley, wheat, and pea fields in the local area have been harvested. The amount of barley spread at bait stations is tapered off for the final few days of feeding to allow ducks attending the stations to disperse in small numbers. The proportion of crop harvested (harvest progression) is monitored by weekly surveys along transects in each program area. Field staff identify a route (road) of approximately 100 km, which gives a good representation of crop types within each CDC area. Each week, staff drive along this route and record the harvest status (standing, swathed, or combined) of each field of wheat, barley, and peas adjacent to the road. Harvest progression is represented by the percentage of these crops that are standing, swathed, or combined and is calculated weekly in each area. Because swathed crop constitutes the most vulnerable category to depredation, differences in the percentage of swathed crops provides a general comparison of the potential for depredation between regions of the province. The status of harvest was also used as a guideline for termination of programs within each CDC area.

Field staff visit the bait stations at least twice a week during peak feeding periods to visually estimate the number and species of ducks using the sites, and to monitor for

disease outbreaks. At most bait stations, small blinds are erected to facilitate counting of ducks. Observation begins approximately 0.5 hours before sunrise and continues until either new birds cease to arrive at the bait stations or the number of birds arriving is considered insignificant in relation to the peak abundance, typically 1.5 – 2 hours after sunrise. Evening observations begin approximately 1.5 hours before sunset and continue until 0.5 hours after sunset, or until it is too dark for observation. Estimates of number of ducks is made in a cumulative manner for each observation visit. Upon arrival, the number of ducks feeding on the bait station and the number of dabbling ducks, (particularly mallard, pintail, and widgeon) swimming in the water within approximately 100 m of the bait station are estimated. Estimates of additional flocks landing or swimming into the bait station area are added to the original estimate. Estimated number of ducks can vary considerably among field staff therefore, field staff estimates of bird numbers are used in conjunction with barley consumption information recorded by the bait station feeders to develop an estimate of ducks feeding on any one day. The WCDPP uses a consumption estimate of 0.5 pounds of barley per duck per day for grain consumption by ducks at a bait station (Ken Lungle, ASRD, pers. comm.).

In addition to the above four bait-active scaring stations, seven feeding-only bait stations (Bashaw, Lost Lake, Grantham Lake, San Diego Lake, Badger Lake, Stirling Lake, and Namaka Lake) were established in response to producer concerns about development, securement, or enhancement of waterfowl habitat (Appendix 2). The WCDPP operates these stations in support of the Wetlands for Tomorrow Program, the Buck for Wildlife Program, the North American Waterfowl Management Plan (NAWMP), the Bow River Irrigation District (BRID), and the Raymond Irrigation District (RID).

3.3.2 *Lure crop*

Lure crop operation consists of a local producer being contracted to plant and swath the crop of barley used for luring waterfowl. When the feeding period at the lure crop is completed, the contractor combines the remaining swaths and transports the barley to nearby WCDPP granaries. Due to unpredictable use by birds, lure crops have been discontinued in all areas except one operated at Prouty Lake in the BRID (Appendix 3).

3.4 Scare cannon distribution centres

In 1992, a NAWMP initiative purchased scare cannons for use in the WCDPP. A network of scare cannon distribution centres was set up throughout agricultural areas of Alberta where there was no other damage prevention activity. In addition to these areas, scare cannon distribution centres replaced some CDC areas that previously had ACA staff deliver direct scaring assistance to producers. The decision to replace direct assistance in a CDC area with a distribution centre is based on a review of complaint data from recent years, observed crop trends, water levels and wetland numbers in the area, and logistics for field staff deployment. Some CDC areas established in the early 1970s have experienced many years of modest precipitation, resulting in a reduction in the number of wetlands and size of waterfowl staging lakes and typically resulting in a reduction in numbers of waterfowl in the area. Production of cereal crops in some of the CDC areas has been reduced in favour of forage crop production therefore, CDC areas exhibiting low numbers of waterfowl complaints annually are considered for conversion to a distribution centre. In 2004, the Manatohan and Fairview CDC areas were replaced with distribution centres located in Bonnyville and Fairview, respectively (Hudson 2004, Rosendal 2004).

Scare cannons are stored at many of the distribution centres located either in local businesses or ASRD district offices. Cannons may be borrowed, free of charge by producers with waterfowl damage problems. In some cases where a distribution centre does not have storage capacity, cannons are shipped from another distribution centre via Greyhound bus service when required. Distribution centres located in local businesses are contracted by ACA to provide scare cannons to producers. In 2004, distribution centre contracts typically paid \$100 for storing cannons for the season plus \$10 for each cannon distributed. ASRD offices that serve as distribution centres provide this service to ACA for free. In the Prairie region, Irrigation District offices store, maintain, and distribute scare cannons. In 2004, scare cannons were provided to agricultural producers through 25 distribution centres (Appendix 4).

3.5 Program duration

To avoid conflicts with recreational waterfowl hunters, every effort is made to terminate feeding programs by the Friday preceding the Thanksgiving weekend in October. In extreme circumstances, feeding and scaring activities may be extended beyond this date depending on local harvest conditions, harvest potential, and remaining budget. In most areas, scare cannons continue to be available for producers to administer themselves during the entire harvest season. Distribution centre activities typically conclude by October 31 but may be extended depending on budgets and harvest status.

3.6 Cost of damage control

Two significant factors have always been taken into account when describing yearly program costs. First, costs for large equipment (scare cannons, granaries) purchased for the program and initial development or major upgrading of bait stations are amortized over 10 years as these items are used beyond the year in which they were purchased. When annual program costs are determined, the amortized amount rather than the purchase price of the equipment is used. For example, 100 cannons purchased for \$23,600 in 1998 were reported as a \$2,360 annual expense for years 1998 – 2007 inclusive. Second, barley for bait stations is purchased throughout the feeding period as required. A final purchase of barley for each bait station for use in the following year is usually made after feeding activities have ceased. This final purchase is not accounted for in the year that it was made, since it is for the next year's operation. All costs for barley purchases are accounted for in the year that the barley is used, regardless of when the actual purchase was made. To allow for yearly comparisons, costs in this report are accounted for in this manner to be consistent with previous years' reporting method (Ken Lungle pers. comm.).

4.0 RESULTS

4.1 Cost of damage control

The total cost of the field operations for the 2004 damage prevention program was \$212,074. Cost breakdown is as follows: \$126,835 for ACA staff-delivered waterfowl scaring activities, \$77,757 for waterfowl feeding, and \$7,482 for scare cannon distribution centre operations (Tables 1 and 2).

Table 1. Cost for bait station and lure crop activities for the 2004 Waterfowl Crop Damage Prevention Program in Alberta.

CDC area	Scaring cost (\$)	Feeding cost (\$)	Total cost (\$)
Beaverhill East	3,684	-	3,684
Beaverhill West	3,684	-	3,684
Brosseau	4,289	8,406	12,694
Derwent	3,737	-	3,737
Flat Lake	6,237	400	6,637
Holden	3,684	-	3,684
Kenilworth	3,672	-	3,672
Manatokan	2,787	-	2,787
McCullough	4,391	-	4,391
Whitford	3,611	-	3,611
Grande Prairie (La Glace bait station)	6,109	4,670	10,780
Beaverlodge (Buffalo bait station)	6,109	9,646	15,755
High Prairie	11,530	-	11,530
Manning	7,639	-	7,639
Dixonville	4,471	-	4,471
Grimshaw (Lac Cardinal bait station)	10,771	5,452	16,223
Falher	13,690	-	13,690
Eaglesham	9,471	-	9,471
Bittern Lake	3,685	-	3,685
East Buffalo	2,016	-	2,016
Edberg	3,685	-	3,685
Erskine	2,016	-	2,016
Forestburg	2,935	-	2,935
Wavy	2,935	-	2,935
Bashaw	-	9,190	9,190
San Diego	-	5,320	5,320
Grantham	-	2,806	2,806
Badger	-	5,796	5,796
Lost	-	5,525	5,525
Stirling	-	10,636	10,636
Namaka	-	6,810	6,810
Prouty	-	3,100	3,100
Grand Total	126,835	77,757	204,592

Table 2. Cost for scare cannon distribution centre activities for the 2004 Waterfowl Crop Damage Prevention Program in Alberta.

Distribution centre	Scaring costs (\$)
Atmore	150
Bonnyville	212
Mannville	390
Smoky Lake	257
St. Paul	0
Vegreville	882
Vermilion	499
Viking	314
Northeast Amortized Equipment	340
Fairview	1,370
Northwest Amortized Equipment	883.50
Bashaw	269
Big Valley	124
Byemore	155
Castor	145
Lougheed	187
Provost	176
Camrose	0
Coronation	0
Olds	0
Ponoka	0
Stettler	0
Wetaskiwin	0
Parkland Amortized Equipment	1,129
Grand Total	7,482

4.2 Damage complaints

Field staff dealt with a total of 191 damage complaints involving 216 different quarter sections of cropland (Table 3). Of these complaints, 174 (91%) were received via phone calls from producers, 10 (5%) were noticed during regular patrols, and 7 (4%) were located after direct contact with a grain producer in the field. Sixty-two (29%) of the quarter sections sustained sufficient crop damage to warrant a damage compensation

claim. In comparison, the percentage of quarter sections damaged prior to scaring activities in 2003 was 25%. Within areas serviced by cannon distribution centres, producers borrowed scare cannons to deal with 139 potential damage cases (Table 4). In total, the WCDPP dealt with 330 cases of waterfowl depredation of unharvested grain. The total number of damage cases handled in 2004 was 2.3 times higher than that handled in 2003.

Table 3. Summary of waterfowl damage complaints received by ACA field staff during 2004 Waterfowl Crop Damage Prevention Program, including number, complaint source, and extent of damage.

Damage Control Area	Days of operation	No. of complaints	No. of quarters involved	Quarters damaged before notification		Source of complaints					
						Phone		Patrol		Field contact	
				No.	%	No.	%	No.	%	No.	%
Beaverhill East	73	1	2			1	100				
Beaverhill West	73	1	1			1	100				
Brosseau	53	4	4			4	100				
Derwent	73	10	14	11	79	10	100				
Flat Lake	60	10	12	5	42	6	60			4	40
Holden	73	2	2			2	100				
Kenilworth	73	14	18	10	56	13	93	1	7		
McCullough	53	11	18	4	22	11	100				
Whitford	73	3	3		0	3	100				
Grande Prairie	73	18	18	2	11	18	100	0	0	0	
Beaverlodge	73	18	18	3	17	18	100		0		
Grimshaw	72	3	3	0	0	3	100		0		
Falher	73	6	6	2	33	6	100		0		
Eaglesham	73	5	5	0	0	5	100		0		
Manning	72	7	7	3	43	7	100		0		
Dixonville	72	7	7	0	0	7	100		0		
High Prairie	72	44	44	12	27	44	100		0		
Bittern	47	7	13	2	15	4	57	1	14	2	
East Buffalo	47	1	2	0	0	1	100		0		
Edberg	47	2	2	0	0	1	50		0	1	
Erskine	47	3	3	2	67	2	67	1	33		
Forestburg	47	8	8	3	38	5	63	3	38		
Wavy	47	6	6	3	50	2	33	4	67		
Total		191	216	62	29	174	91	10	5	7	4

Table 4. Summary of damage complaints handled by scare cannon distribution centres for the 2004 Alberta Waterfowl Crop Damage Prevention Program.

Distribution centre	Dates of operation	Number of days	Number of cannons used	Number of complaints	Number of owners	Number of quarter sections
Atmore	16 Aug – 19 Nov	96	1	1	1	3
Bonnyville	16 Aug – 23 Nov	100	7	7	7	7
Mannville	17 Aug – 24 Nov	100	14	11	3	5
St. Paul	Year round		10	6	6	7
Smoky Lake	16 Aug – 24 Nov	101	12	5	5	6
Vegreville	17 Aug – 24 Nov	100	34	18	15	26
Vermilion	17 Aug – 24 Nov	100	22	12	11	16
Viking	17 Aug – 22 Nov	98	15	14	7	11
Fairview	15 Aug – 25 Oct	72	52	18	16	24
Bashaw	15 Aug – 31 Oct	76	16	10	9	19
Big Valley	15 Aug – 22 Oct	67	2	1	1	2
Byemore	15 Aug – 22 Oct	67	5	3	3	4
Castor	15 Aug – 26 Oct	71	4	4	4	6
Lougheed	15 Aug – 26 Oct	71	8	5	5	5
Provost	15 Aug – 26 Oct	71	7	5	5	3
Camrose	15 Aug – 31 Oct	76	3	3	3	3
Cornation	15 Aug – 31 Oct	76	3	3	3	3
Red Deer	15 Aug – 31 Oct	76	7	4	4	5
BRID	Year-round			8		8
Stirling	Year-round			1		1
Total			222	139	108	164

4.3 Waterfowl use of alternate feeding sites

In the Prairie region, the Prouty Lake lure crop in the BRID was swathed on 3 August when it was mature and left as a potential lure for waterfowl. The crop was combined on 29 September and the salvaged grain was hauled to bait station granaries. An

estimated 650 bushels of barley were consumed on the lure crop providing 76,375 duck days of use. Bait station feeding activities at Badger, Grantham, Lost, Namaka, Stirling, and San Diego lakes commenced on 3 August. The Stirling Lake bait station was the first feeding station to report 70% of crop harvest in the surrounding area and waterfowl feeding terminated on 18 September. The Lost lake and Grantham Lake bait stations terminated on 23 and 24 September, respectively. Feeding terminated at San Diego Lake on 28 September and at Badger Lake on 29 September. Feeding at Namaka Lake bait station continued until 3 October. The average number of ducks feeding per day at these bait stations was higher in 2004 (average = 2,563) than in 2003 (average = 2,483). The bait stations provided an estimated 843,533 days of duck use with approximately 7,179 bushels of barley fed at the six bait stations, up approximately 25% from 2003 (628,200 days of duck use and 5,235 bushels of barley consumed was reported for the same six bait stations in 2003).

In the Parkland region, only one (Bashaw) out of three bait stations was operational. Water levels at the Bittern and East Buffalo bait stations were too low to allow effective feeding. Duck feeding operations commenced on 3 August and were completed by 6 October. Bait station operation over 65 days provided a total of 325,355 duck feeding days. Average daily duck use at the Bashaw bait station was 5,005 birds, 20% lower than in 2003.

In the Northeast region one bait station (Lac Brosseau) out of five was operational. Feeding at the Beaverhill, Flat, Kenilworth, and Whitford lake bait stations was not attempted because of low water levels and/or excessive emergent vegetation between the feed pad and open water. Average daily duck use at the Brosseau bait station was slightly lower (14%) than that recorded in 2001, the last year the bait station was operational. Days of duck use in 2004 were estimated at 158,400. A total of 1,650 bushels of barley were consumed over 52 days of feeding. The bait station rental agreement at Kenilworth Lake expired in 2004 and was not renewed and the bait station was abandoned; the lake has been virtually dry for over 10 years and very minimal feeding has occurred at this site since 1991.

In the Northwest region, three out of five bait stations were in operation (La Glace, Buffalo, and Lac Cardinal). Feeding activities at the bait stations at George and Flood

lakes were not initiated in 2004 in an attempt to reduce program costs. Feeding at bait stations commenced in mid August and was completed by 15 October. In total, the three bait stations provided 177 days of feeding with an estimated 582,336 days of duck use.

Throughout the province, bait stations operated for an average of 57 days (Table 5). The ten bait stations and one lure crop provided a total of 18,199 bushels of barley with an estimated 1,985,999 days of duck use. This resulted in a consumption rate of 0.44 pounds/duck/day, at an average cost of 3.92 cents per duck day. The total estimated duck use of feeding stations in 2004, measured by duck days, was 7% higher than that reported in 2003.

Table 5. Summary of waterfowl use of bait stations during the 2004 Waterfowl Crop Damage Prevention Program.

Feeding site	Days of feeding	Start date	End date	Total duck days	Grain consumed (bu)	Grain consumed/duck/day	Feeding costs (\$)	Cost/duck/day (cents)
Feeding sites in CDC areas								
Grande Prairie – La Glace	59	15-Aug	15-Oct	268,800	2,800	0.43	4,670	1.74
Grande Prairie - Buffalo	62	15-Aug	15-Oct	234,336	2,441	0.99	9,646	4.12
Lac Cardinal	56	16-Aug	10-Oct	79,200	825	0.26	5,452	6.88
Lac Brosseau	52	16-Aug	7-Oct	158,400	1,650	0.50	8,871	5.60
Feeding sites operated to support waterfowl habitat initiatives								
Prouty Lake	58	3-Aug	29-Sep	76,375	650	0.04	3,100	4.06
Lost Lake	52	3-Aug	23-Sep	133,950	1,140	0.40	5,525	4.12
San Diego	57	3-Aug	28-Sep	113,623	967	0.40	5,320	4.68
Badger	58	3-Aug	29-Sep	164,265	1,398	0.40	5,796	3.53
Grantham	53	3-Aug	24-Sep	37,247.5	317	0.40	2,806	7.53
Stirling	47	3-Aug	18-Sep	249,100	2,120	0.40	10,636	4.27
Namaka	62	3-Aug	3-Oct	145,348	1,237	0.40	6,810	4.68
Bashaw	65	3-Aug	6-Oct	325,355	2,654	0.39	9,190	2.82
Total				1,985,999	18,199		77,823	
Average	57					0.44		3.92

4.4 Harvest chronology

A summary of harvest progression is provided in Table 6. In the Prairie region, harvest operations began in early August but were hampered by cool, wet weather throughout August and well into September. By 18 September, only 50% of crops had been combined. The Stirling Lake area had 70% harvest completed by 18 September and the Lost and Grantham lake areas reached 70% crops combined by 26 September. Prouty, Badger, San Diego, and Namaka lake areas reached the 70% harvest completion target by the first week of October. The percentage of crops in the most vulnerable state (swathed) varied widely across the region throughout the harvest period, but generally did not exceed 40% in any week.

Weather conditions for harvest were poor in the Parkland region. Only 12% of crops were combined by 19 September compared to 50% in the Prairie region. Most of the harvest was completed during two periods of better harvest weather, the third week of September and the first week of October. A few wheat and canola crops were not harvested until early December.

Harvest weather in 2004 was less than ideal in the Northeast region. Although harvest activities begun in most areas by the end of August, most of the crops that had been harvested were either combined while standing or taken as greenfeed. Rain and snow hampered harvest progression, especially of field peas, which typically are harvested in late August. Many field peas were not harvested until early October, with a few fields remaining unharvested when winter snow came on 17 October. The percentage of wheat, barley, and peas harvested remained under 15% until mid-September with few crops lying in swath (10%). During the following two weeks of September, many crops were swathed. The Brosseau, Derwent, and Kenilworth CDC areas had nearly 50% of crops lying in swath by the last week of September, creating a high potential for waterfowl damage. Drier weather during the first two weeks of October resulted in rapid harvesting. Most CDC areas reached the 70% harvest completion target during this time period. The Flat Lake CDC area had only 55% harvest completed by 17 October when approximately 15 cm of heavy snow fell preventing any further harvest. Program activities in the Flat Lake CDC area were terminated without reaching 70% harvest completion.

In the Northwest region harvesting commenced in mid- to late August. Wet weather conditions during the first half of September and rain and snow during the latter half of the September and most of October prevented most farmers from harvesting their crops until late October. In many areas producers were unable to harvest 100% of their crops because of the poor harvest conditions. Program activities in the Dixonville and Manning CDC areas were terminated without reaching 70% crops harvested.

Table 6. 2004 Waterfowl Crop Damage Prevention Program weekly harvest progression expressed as a percentage of field peas, barley, and wheat crops standing, swathed, and combined by region.

Harvest category	Weekly harvest progression (%)										
	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct
Prairie Region											
Standing	96	86	72	68	58	47	29	17	13	-	-
Swathed	2	7	15	17	22	21	21	14	12	-	-
Combined	7	7	13	15	20	32	50	69	75	-	-
Parkland region											
Standing	-	-	98	98	92	82	63	33	10	-	-
Swathed	-	-	1	1	6	11	24	23	11	-	-
Combined	-	-	1	1	2	7	12	44	79	-	-
Northeast region											
Standing	-	-	97	93	93	86	67	29	17	10	-
Swathed	-	-	2	2	4	10	24	36	21	12	-
Combined	-	-	2	6	3	4	8	36	62	78	-
Northwest region											
Standing	-	-	93	90	87	87	84	79	59	32	16
Swathed	-	-	4	4	6	5	7	7	10	10	5
Combined	-	-	3	6	7	8	9	13	30	59	79

4.5 Program expenditures

The 2004 program expenditure is the total money spent on the WCDPP between 1 April 2004 and 31 March 2005. Data and information provided by field personnel indicate that the total WCDPP program expenditure during 2004 amounted to \$315,346

(Table 7). This amount differs from program costs as described in section 4.1. Program expenditures include the purchase price of amortized equipment and all grain purchased in 2004 whether fed in that year or not, as well as supervisory expenditures. While supervisory expenditures are an important component in the operation of the WCDPP, they have not been attributed to the cost of the program in any specific CDC area, feeding site or distribution centre to be consistent with the previous 30 years program report format.

The 2004 WCDPP was delivered within the approved budget of \$390,847. Cool, wet weather during the summer resulted in later maturing crops. Continued cool, wet weather throughout most of the fall and early snowfall in September and October delayed harvest completion. Some crops remained unharvested in all regions over the winter of 2004/05. No additional scaring equipment was purchased in 2004.

Table 7. Alberta Waterfowl Crop Damage Prevention Program expenditures for 2004.

	Expenses (\$)	Subtotal (\$)
Scaring Operations		
Field Technicians salaries/benefits	50,813	
Staff training	67	
Mileage		
Meal allowance	198	
Vehicle operations	33,123	
Propane	5,961	
Office supplies	231	
Phone (cell and long distance)	508	
Equipment replacement		
Equipment repairs	714	
		91,615
Feeding Operations		
Field Technician salaries/benefits	13,141	
Vehicle operations	6,880	
Travel expenses	109	
Materials/supplies	124	
Bait station site rental	950	
Bait station feeding contracts	25,205	
Bait station grain	58,310	
Lure crop	3,100	
		107,818
Scare Cannon Distribution		
Distribution centre contracts	3,282	
Cannon shipping	1,442	
Travel expenses	59	
Vehicle operations	347	
		5,130
Administration		
<i>Regional Programming</i>		
Coordinator Salaries/benefits	76,236	
Training	67	
Travel expenses	326	
Vehicle operations	17,038	
Telephone	1,273	
Materials/supplies	59	
Office supplies	384	
		95,384
<i>Provincial Coordination</i>		
Salaries/benefit	10,626	
Vehicle operation	2,051	
Travel expenses	2,053	
Materials/supplies	670	
		15,399
Total Expenditures		315,346

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6.0 APPENDIX

Appendix 1. 2004 Crop damage control areas and alternate feeding sites.

CDC area	Area covered	Bait station	Bait station land location
Beaverhill East	Twp 50, Rg 17 Twp 51-52, Rg 16-17 Twp 53, Rg 17 W4		
Beaverhill West	Twp 50-51, Rg 18-19 Twp 52-53, Rg 18, pt 19	Beaverhill ¹	NE 3-51-18 W4
Brosseau	Twp 55-56, Rg 11-12 Twp 57 Rg 9-1, pt. Rg 12	Lac Brosseau	NE 13-56-12 W4
Derwent	Twp 53-55, Rg 6-7 W4		
Flat Lake	Twp 64, Rg 20-21 Twp 65, Rg 19-21 Twp 66, Rg 19-20 W4	Flat ¹	NE 22-65-20 W4
Holden	Twp 48-49, Rg 15-17 Twp 50, Rg 15-16 W4		
Kenilworth	Twp 47-49, Rg 2-4 Twp 50, Rg 2-5 Twp 51, Rg 4-5 W4	Kenilworth ¹	NW 15-50-4 W4
Manatokan ²	Twp 61 Rg 5 Twp 62 Rg 5-6 Twp 63 Rg 4-7 Twp 64 Rg 7 W4		
McCullough	Twp 58, Rg 9-11 Twp 59, Rg 9-12 Twp 60, Rg 11-12 W4		
Whitford	Twp 55-57, Rg 14-16 W4	Whitford Lake ¹	NW 14-56-16 W4

CDC area	Area covered	Bait station	Bait station land location
Grande Prairie	Twp 73-74 Rg 4-9	La Glace	NW 7-74-8 W6
	Twp 73-74 Rg 4-9	Buffalo	NE 2-74-7 W6
	Twp 70-72 Rg 4-8 W6		
Beaverlodge	Twp 70-71 Rg 9-11	Lac Cardinal	SW 15-84-24 W5
	Twp 72 Rg 9-12		
	Twp 73 Rg 10-12		
	Twp 74 Rg 10 W6		
Eaglesham	Twp 77 Rg 25 W5		
	Twp 78-79 Rg 25-26 W5		
	Twp 78-79 Rg 1 W6		
Falher	Twp 77 Rg 19-22		
	Twp 78-79 Rg 20-22		
	Twp 80 Rg 21-22 W5		
Grimshaw	Twp 82 Rg 26 W5		
	Twp 83 Rg 24-26 W5		
	Twp 84 Rg 24-25 W5		
	Twp 82-83 Rg 1 W6		
Dixonville	Twp 86 Rg 23-25	Flood ¹	NE 35-86-25 W5
	Twp 87 Rg 24-25		
	Twp 88 Rg 24 W5		
Manning	Twp 89 Rg 21-23		
	Twp 90-92 Rg 22-23 W5		
High Prairie	Twp 75 Rg 15-17 W5		
	Twp 76 Rg 16-17 W5		
Fairview ²	Twp 82 Rg 2-5 W5	George ¹	NW 29-83-4 W6
	Twp 83-84 Rg 4-5 W6		
Bittern Lake	Twp 46 Rg 19-22	Bittern ¹	SE 8-47-21 W4
	Twp 47 Rg 20-22		

CDC area	Area covered	Bait station	Bait station land location
	Twp 48 Rg 22 W4		
East Buffalo	Twp 40 Rg 19-21 Twp 41 Rg 18-20 Twp 42 Rg 19 W4	East Buffalo ¹	SE 36-40-20 W4
Edberg	Twp 43 Rg 19-21 Twp 44 Rg 19-20 Twp 45 Rg 20 W4		
Erskine	Twp 37 Rg 20-21 Twp 38 Rg 20-22 Twp 39 Rg 20 W4		
Forestburg	Twp 42 Rg 13-15 Twp 43-44 Rg 14-15 W4		
Wavy	Twp 45, Rg 15-17 Twp 46-47, Rg 15-16 W4		

¹no feeding at bait station in 2004

²complaints handled through distribution

Appendix 2. 2004 Waterfowl Crop Damage Prevention Program bait stations operated to support waterfowl habitat initiatives.

Area	Bait station	Land location
Bashaw	Bashaw	SE 2-42-21 W4
Bow River Irrigation District	Lost Lake	E 6-14-17 W4
	Grantham Lake	SE14-13-15 W4
	San Diego Lake	SW29-15-17 W4
	Badger Lake	NE29-16-18 W4
	Prouty Lake	SE18-15-18 W4
Raymond Irrigation District	Stirling Lake	NE 6-7-19 W4
Namaka	Namaka Lake	NE 12-23-24 W4

Appendix 3. 2004 Waterfowl Crop Damage Prevention Program lure crop operated to support waterfowl habitat initiatives.

Area	Lure crop	Land location
Bow River Irrigation District	Prouty Lake	SE18-15-18 W4

Appendix 4. 2004 Waterfowl Crop Damage Prevention Program Distribution Centre locations.

Location	Type of distribution centre
Atmore	Contracted business
Bonnyville	Contracted business
Mannville	Contracted business
Smoky Lake	Contracted business
St. Paul	ASRD office
Vegreville	Contracted business
Vermilion	Contracted business
Viking	Contracted business
Fairview	Contracted business
Bashaw	Contracted business
Big Valley	Contracted business
Byemore	Contracted business
Castor	Contracted business
Lougheed	Contracted business
Provost	Contracted business
Camrose	ASRD office
Coronation	ASRD office
Olds	ASRD office
Ponoka	ASRD office
Red Deer	ASRD office
Provost	ASRD office
Wetaskiwin	ASRD office
Stettler	ASRD office
BRID	Irrigation District office
RID	Irrigation District office

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