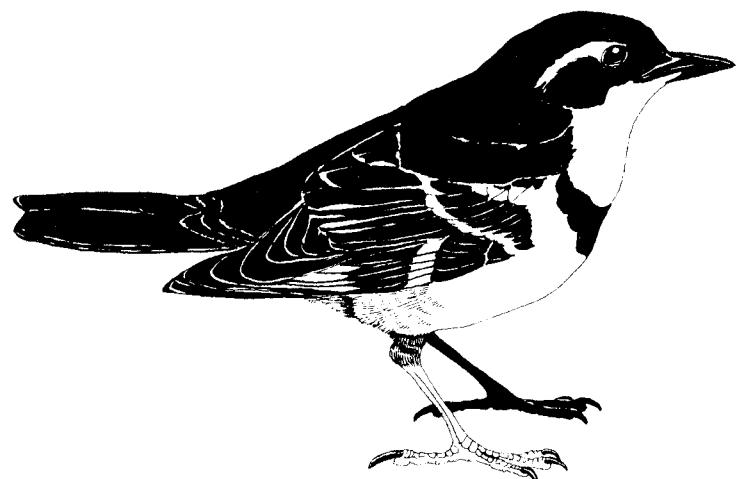


SURVEYS CONDUCTED ON THE CRESTON VALLEY WILDLIFE MANAGEMENT AREA, 1969 - 1991

Steven F. Wilson
Brian G. Stushnoff



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ABSTRACT

This report summarizes the wildlife surveys conducted on the Creston Valley Wildlife Management Area (CVWMA) since its inception in 1968. Data collection focused on use of the Management Area by breeding and non-breeding waterfowl, although records were available for many other species of birds and mammals. Methods were variable and surveys were generally not consistent between years. These data are analysed and interpreted in a subsequent report.

RÉSUMÉ

Ce rapport donne un résumé des dénombrem ents de la faune qui ont été faits dans l'aire de protection de la faune de la vallée de Creston (APFVC) depuis sa création en 1968. Des données recueillies portent principalement sur l'utilisation de l'aire de protection par la sauvagine, que ce soient les nicheurs ou les autres; il y a aussi des relevés de beaucoup d'autres espèces d'oiseaux et de mammifères. Les méthodes ont différé et les recensements n'ont généralement pas été faits de façon uniforme d'une année à l'autre. Ces données sont analysées et interprétées dans un rapport subséquent à celui-ci.

ACKNOWLEDGEMENTS

Early data were collected by the late D. D. Moore, the first Area Manager of the CVWMA. In addition, many seasonal assistants, naturalists, and graduate students collected data over the years. G. Townsend made helpful comments on the manuscript.

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INTRODUCTION

The Creston Valley Wildlife Management Area (CVWMA) was established by an act of the British Columbia legislature in 1968. Under the Creston Valley Wildlife Act, approximately 7 000 ha of the Kootenay River floodplain south of Kootenay Lake were protected for "wildlife conservation, management and development...in particular, as a waterfowl management area" (Province of British Columbia 1979). The area is funded by the federal and provincial ministries of environment, private donations, and by revenues from commercial operations.

CVWMA staff conducted annual surveys of wildlife populations; however, most of these data have never been published. Butler *et al.* (1986) examined some of the data when they described changes in the avian fauna of the Creston valley since Munro (1950, 1957) originally surveyed the area that eventually became the CVWMA.

The purpose of this report was to present a summary of wildlife data collected on the CVWMA since its inception.

STUDY AREA

The general geographic and climatic characteristics of the Creston Valley are summarized in Butler *et al.* (1986). Units within the CVWMA where water levels are controlled are considered "managed". The managed portion of the CVWMA is comprised of : Duck Lake, Duck Lake Nesting Area, and most of the marshes of Six Mile Slough, Leach Lake, and Corn Creek (Figure 1; Table 1). The rest of the Management Area consists of unmanaged marshes, forest, riverine habitats, and portions designated for other uses (Figure 1; Table 1). In total, the Management Area has more than 30 km of diking, 35 water control structures, and covers approximately 40% of the Kootenay River floodplain south of Kootenay Lake.

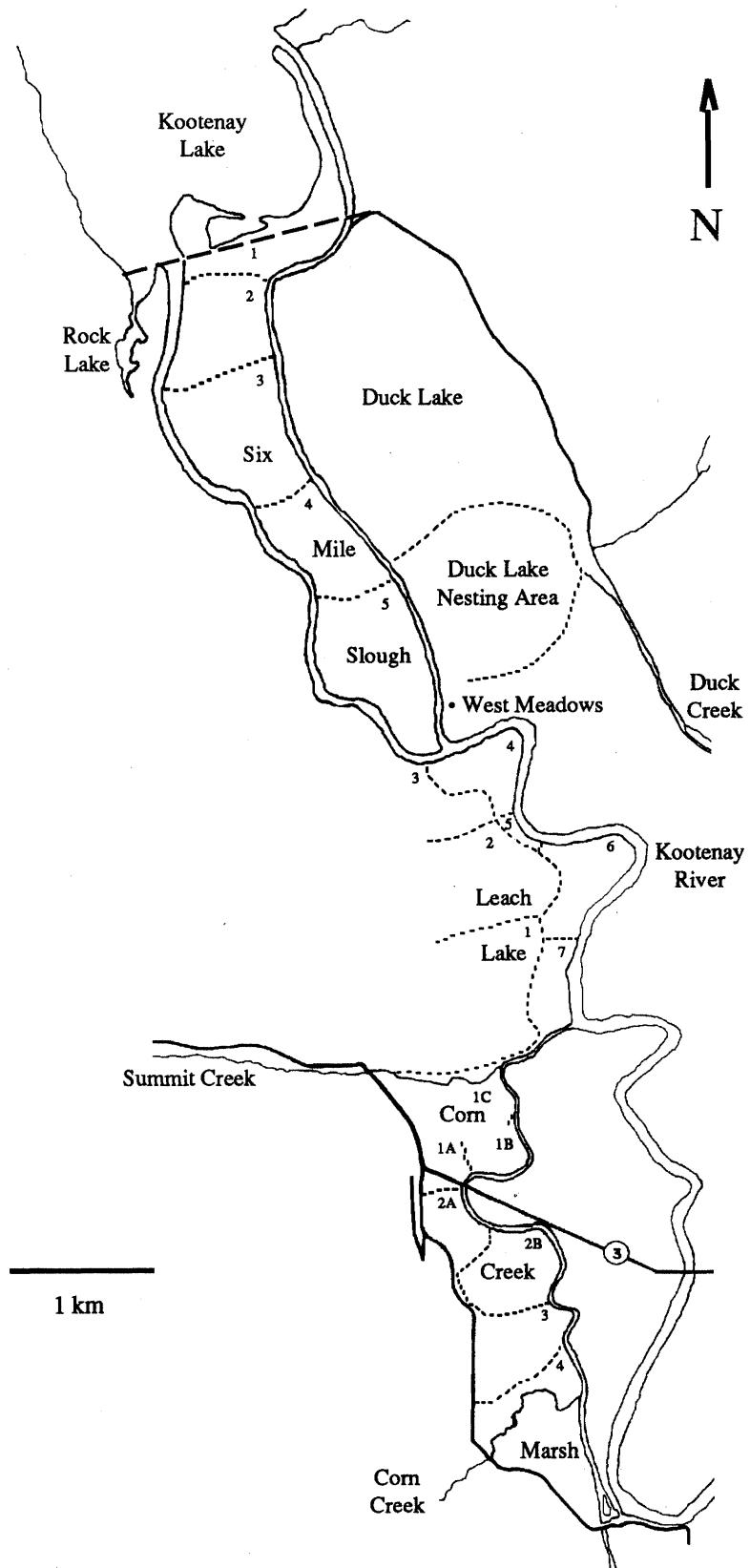


Figure 1. Creston Valley Wildlife Management Area, excluding the Dale Marsh (located 10 km south of Corn Creek).

Table 1. Size of CVWMA managed and unmanaged units.

Managed		Unmanaged	
Unit	Area (ha)	Unit	Area (ha)
Duck Lake (main)	1498.2	Six Mile Slough pond 1	110.1
Duck Lake Nesting Area	427.8	Corn Creek pond 1	229.9
Six Mile Slough pond 2	279.6	Corn Creek pond 4	128.3
Six Mile Slough pond 3	244	Kootenay Lake	829.2
Six Mile Slough pond 4	186.2	Summit Creek Campground	157
Six Mile Slough pond 5	316.5	West Meadows Farm	148.5
Leach Lake pond 1	359	West Slopes	499.4
Leach Lake pond 2	272.8	Rock Lake	110.1
Leach Lake pond 3	94.3	Kootenay River	292.6
Leach Lake pond 4	99.9	Old Kootenay Channel	21.9
Leach Lake pond 5	9.7	Highways	21.4
Leach Lake pond 6	142.8	Dale Marsh	74.5
Leach Lake pond 7	58.7		
Corn Creek pond 2	249.3		
Corn Creek pond 3	116.5		
Total	4355.3	Total	2622.9

METHODS

Waterfowl use surveys:

Before 1988, waterfowl abundance was estimated by periodic total counts or estimates through ground or aerial surveys. Methods were variable, and the timing of most surveys varied from year to year. Aerial surveys of the entire Management Area were conducted most years on 1 April and 1 October to estimate peak waterfowl migration numbers.

An aerial transect survey was started in 1988. Surveys were conducted weekly from mid-March to mid-November, 1988-1991. Waterfowl and other identifiable waterbird species were counted within two 30 m or 60 m transects by two observers. The lengths of the transects were limited to the flooded area of the unit being surveyed. Two to five passes covering 10-20% of the flooded area of each unit were flown. All units except the Dale Marsh and Leach Lake ponds 5, 6, and 7 were surveyed. Numbers of birds per unit by species were multiplied by a constant k [$k = (\text{total flooded area of a pond}) / (\text{flooded area of pond covered by transects})$] to estimate the abundance of species in each unit. The calculation method assumed that bird densities did not differ between the portions of the units surveyed, and those portions not covered by the transects.

Waterfowl breeding surveys:

Waterfowl breeding populations were estimated using a variety of techniques. Uplands areas were searched (1975-1980) with two all-terrain vehicles linked by a drag-chain. The area searched each year varied between 25.5 and 215 ha, and covered between four and 12% of the estimated upland nesting area available. Nesting islands were searched every year from the initial construction of 95 islands in the Duck Lake Nesting Area in 1972, to 1986, when 164 islands were available for nesting throughout the CVWMA. Nest success was determined by post-hatch checks of nest material. The presence of one or more embryo sacs indicated a successful nest. Breeding populations of Mallards (*Anas platyrhynchos*) and Redheads (*Aythya americana*) were estimated in 1991 with aerial pair counts using the aerial

transect survey method, timed to correspond with the peaks of nest initiation for the two species. Estimates were based on the "indicated breeding pairs" method described by Dzubin (1969). Waterfowl brood numbers were also estimated during 1974 to 1987 using airboat transects, corrected for unit size.

Cavity-nesting populations were assessed by annual nest box inspections after the nesting season. Species nesting in the boxes were determined from eggshell and down characteristics of the nest remains. A nest was considered successful if at least one embryo sac was found in the box. Nesting by species using other nesting structures (ie. baskets) was also censused by inspecting structures after the nesting season. Canada Goose (*Branta canadensis*) nests on nesting structures and other sites were censused annually by ground and/or aerial surveys.

Other species:

Great Blue Herons (*Ardea herodias*) were counted on nests in the spring. The only formal assessment of mammal use was annual surveys, from aircraft or from the ground, of Muskrat (*Ondatra zibethica*) houses. Anecdotal records were kept of use by Elk (*Cervus elaphus*) and White-tailed Deer (*Odocoileus virginianus*), Coyotes (*Canis latrans*) and other rarer species.

Human use:

Management Area staff made opportunistic checks of waterfowl hunters to estimate the use of the CVWMA by hunters, and their success (measured by birds bagged per hunter-day). Total hunter-days were estimated from vehicle counts, and the average number of waterfowl hunters per vehicle. Harvest was estimated using the average number of birds bagged per hunter. Sampling was stratified by weekend and weekdays, and by month.

RESULTS

Tables 2a and 2b list abbreviations used in all subsequent tables. Table 3 lists all birds counted on surveys of the entire Management Area before the aerial transect survey method began in 1988. Tables 4 through 7 list data collected on aerial transect surveys. Nest searches are reported in tables 8 through 15. Table 16 reports waterfowl brood survey data. Table 17 lists Great Blue Herons nests counted at the Duck Lake and Leach Lake colonies. All records of mammals seen on the CVWMA are reported in Table 18, and Muskrat house counts in tables 19 and 20. Finally, Table 21 summarizes use of the CVWMA by waterfowl hunters and reports their harvest.

Table 2a. Abbreviations used in subsequent tables for species and units surveyed.

Common Name	Scientific Name	Abbreviation
Common Loon	<i>Gavia immer</i>	Loon
Red-necked Grebe	<i>Podiceps grisegena</i>	R-n Grebe
Horned Grebe	<i>Podiceps auritus</i>	H Grebe
Eared Grebe	<i>Podiceps caspicus</i>	E Grebe
Western Grebe	<i>Aechmophorus occidentalis</i>	W Grebe
Pied-billed Grebe	<i>Podilymbus podiceps</i>	P-b Grebe
White Pelican	<i>Pelecanus erythrorhynchos</i>	Pelicans
Double-crested Cormorant	<i>Phalacrocorax aurits</i>	Cormorants
Great Blue Heron	<i>Ardea herodias</i>	Heron
Great Egret	<i>Casmerodius albus</i>	Great Egret
American Bittern	<i>Botaurus lentiginosus</i>	Bittern
Tundra Swan	<i>Olor columbianus</i>	Swans
Canada Goose	<i>Branta canadensis</i>	C Goose
White-fronted Goose	<i>Anser albifrons</i>	W-f Goose
Mallard	<i>Anas platyrhynchos</i>	Mallards
Gadwall	<i>Anas strepera</i>	Gadwall
Pintail	<i>Anas acuta</i>	Pintails
Green-winged Teal	<i>Anas crecca</i>	G-w Teal
Blue-winged Teal	<i>Anas discors</i>	B-w Teal
Cinnamon Teal	<i>Anas cyanoptera</i>	C Teal
Northern Shoveler	<i>Anas clypeata</i>	Shoveler
Eurasian Wigeon	<i>Anas penelope</i>	E Wigeon
American Wigeon	<i>Anas americana</i>	Wigeon
Wood Duck	<i>Aix sponsa</i>	Wood Duck
Canvasback	<i>Aythya valisineria</i>	Canvasback
Redhead	<i>Aythya americana</i>	Redheads
Ring-necked Duck	<i>Aythya collaris</i>	R-n Duck
Greater Scaup	<i>Aythya marila</i>	Scaup
Lesser Scaup	<i>Aythya affinis</i>	Scaup
Bufflehead	<i>Bucephala albeola</i>	Bufflehead
Common Goldeneye	<i>Bucephala clangula</i>	Goldeneye
Hooded Merganser	<i>Mergus cucullatus</i>	H Merganser
Red-breasted Merganser	<i>Mergus serrator</i>	R-b Merganser
Common Merganser	<i>Mergus merganser</i>	C Merganser
Ruddy Duck	<i>Oxyura jamaicensis</i>	Ruddy Duck
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Bald Eagle
Northern Harrier	<i>Circus cyaneus</i>	N Harrier
American Coot	<i>Fulica americana</i>	Coots
Shorebirds	Charadriidae, Scolopacidae, Phalaropodidae	Shorebirds
Gulls	<i>Laridae</i>	Gulls
Forster's Tern	<i>Sterna fosteri</i>	F Tern
Common Tern	<i>Sterna hirundo</i>	C Tern
Black Tern	<i>Chlidonias niger</i>	B Tern

Table 2a. (continued).

Common Name	Scientific Name	Abbreviation
Coyote	<i>Canis latrans</i>	Coyote
Black Bear	<i>Ursus americanus</i>	Bear
Grizzly Bear	<i>Ursus arctos</i>	Grizzly
Moose	<i>Alces alces</i>	Moose
Elk	<i>Cervus elephas</i>	Elk
White-tailed Deer	<i>Odocoileus virginianus</i>	Deer

Table 2b. Abbreviations used in subsequent tables for CVWMA units.

Unit	Abbreviation
Corn Creek Marsh Ponds 1-4	CCM 1-4
Leach Lake Ponds 1-7	LL 1-7
Six Mile Slough Ponds 1-5	SMS 1-5
Duck Lake	DL
Dale Marsh Unit	DU
Kootenay Lake	KL
Kootenay River	KR
entire Management Area	CVWMA

Table 3. Major waterfowl surveys conducted on the CVWMA from 1969 to 1986.

Date	Species	Number	Date	Species	Number
4/1/69	C Goose	320	10/31/73	C Goose	490
4/1/69	Coots	9200	10/31/73	Coots	14950
4/1/69	Ducks	33930	10/31/73	Ducks	40380
10/1/69	C Goose	470	10/31/73	Swans	15
10/1/69	Coots	8050	11/14/73	Coots	3400
10/1/69	Ducks	52270	11/14/73	Ducks	16600
10/1/69	Swans	110	11/15/73	Ducks	20000
4/1/70	C Goose	470	11/16/73	Coots	200
4/1/70	Coots	11400	11/16/73	Ducks	15670
4/1/70	Ducks	45880	11/16/73	Swans	280
10/1/70	C Goose	530	11/19/73	C Goose	8
10/1/70	Coots	10100	11/19/73	Coots	1720
10/1/70	Ducks	60585	11/19/73	Ducks	9100
10/1/70	Swans	85	11/19/73	Swans	305
4/1/71	C Goose	250	3/22/74	C Goose	1700
4/1/71	Coots	16800	3/22/74	Ducks	11900
4/1/71	Ducks	43750	3/22/74	Swans	2100
10/1/71	C Goose	400	3/29/74	C Goose	362
10/1/71	Coots	9800	3/29/74	Coots	2950
10/1/71	Ducks	39720	3/29/74	Ducks	19890
10/1/71	Swans	130	3/29/74	Swans	701
4/1/72	C Goose	350	4/1/74	C Goose	1400
4/1/72	Coots	17500	4/1/74	Coots	20900
4/1/72	Ducks	29750	4/1/74	Ducks	61700
10/1/72	C Goose	310	4/1/74	Swans	2300
10/1/72	Coots	14400	8/30/74	Coots	9250
10/1/72	Ducks	47600	8/30/74	Ducks	8530
10/1/72	Swans	70	8/30/74	Mallard	574
4/1/73	C Goose	300	8/30/74	Pintail	570
4/1/73	Coots	21600	8/30/74	Redhead	1080
4/1/73	Ducks	53700	8/30/74	Teal	15
10/1/73	C Goose	400	8/30/74	Wigeon	214
10/1/73	Coots	34500	9/20/74	C Goose	4
10/1/73	Ducks	58800	9/20/74	Canvasback	325
10/1/73	Swans	300	9/20/74	Coots	35400
10/5/73	C Goose	200	9/20/74	Mallard	3150
10/5/73	Coots	31800	9/20/74	Redhead	2480
10/5/73	Ducks	38925	9/20/74	Ruddy Duck	60
10/9/73	Coots	25800	9/20/74	Shoveler	10
10/9/73	Ducks	38700	9/20/74	Teal	515
10/18/73	C Goose	113	9/20/74	Wigeon	14765
10/18/73	Coots	26910	10/1/74	C Goose	105
10/18/73	Ducks	58840	10/1/74	C Merganser	120
10/18/73	Swans	2	10/1/74	Canvasback	200

Table 3. (continued)

Date	Species	Number	Date	Species	Number
10/1/74	Coots	47540	4/7/75	Ducks	8460
10/1/74	Ducks	40050	4/7/75	Swans	2088
10/1/74	Mallard	3842	4/16/75	Bufflehead	85
10/1/74	Pintail	470	4/16/75	C Goose	6
10/1/74	Redhead	2160	4/16/75	C Merganser	127
10/1/74	Scaup	200	4/16/75	Canvasback	640
10/1/74	Shoveler	80	4/16/75	Coots	26150
10/1/74	Wigeon	16905	4/16/75	G-w Teal	212
10/22/74	Bufflehead	16	4/16/75	Goldeneye	470
10/22/74	C Goose	98	4/16/75	Mallard	170
10/22/74	Canvasback	42	4/16/75	Pintail	300
10/22/74	Coots	20882	4/16/75	Redhead	130
10/22/74	Ducks	31580	4/16/75	R-n Duck	170
10/22/74	Mallard	12	4/16/75	Ruddy Duck	43
10/22/74	Pintail	50	4/16/75	Shoveler	10
10/22/74	Redhead	450	4/16/75	Swans	64
10/22/74	R-n Duck	24	4/16/75	Wigeon	1870
10/22/74	Swans	19	4/30/75	Coots	10600
10/22/74	Teal	10	4/30/75	G-w Teal	290
11/4/74	C Goose	300	4/30/75	Gadwall	100
11/4/74	Coots	22525	4/30/75	Goldeneye	100
11/4/74	Ducks	50371	4/30/75	Loon	2
11/4/74	Swans	118	4/30/75	Mallard	390
11/22/74	C Goose	373	4/30/75	Pintail	26
11/22/74	Coots	730	4/30/75	Redhead	210
11/22/74	Ducks	11760	4/30/75	R-n Duck	858
11/22/74	Swans	285	4/30/75	Shoveler	130
11/26/74	C Goose	65	4/30/75	Teal	360
11/26/74	Coots	12700	4/30/75	Wigeon	140
11/26/74	Ducks	28400	9/9/75	Coots	14255
11/26/74	Swans	12	9/9/75	Ducks	33260
3/7/75	C Goose	2460	9/27/75	Coots	5
3/7/75	Ducks	6615	9/27/75	Ducks	10475
3/7/75	Swans	2144	9/29/75	C Goose	120
3/15/75	C Goose	339	9/29/75	Coots	12700
3/15/75	Ducks	16966	9/29/75	Ducks	110
3/15/75	Swans	806	9/29/75	Mallard	227
4/1/75	C Goose	2700	9/29/75	Pintail	113
4/1/75	Coots	27300	9/29/75	Redhead	250
4/1/75	Ducks	22000	9/29/75	Teal	900
4/1/75	Swans	3700	9/29/75	Wigeon	20657
4/7/75	Bald Eagle	36	10/1/75	C Goose	1480
4/7/75	C Goose	160	10/1/75	Coots	18256
4/7/75	Coots	7200	10/1/75	Ducks	62952

Table 3. (continued)

Date	Species	Number	Date	Species	Number
10/1/75	Swans	170	10/1/76	Coots	20000
10/16/75	Bufflehead	500	10/1/76	Ducks	65100
10/16/75	C Goose	167	10/1/76	Swans	150
10/16/75	Canvasback	500	3/15/77	C Goose	864
10/16/75	Coots	17417	3/15/77	Ducks	18000
10/16/75	Ducks	537	3/15/77	Swans	1253
10/16/75	Gadwall	850	4/1/77	C Goose	860
10/16/75	Goldeneye	2100	4/1/77	Ducks	20000
10/16/75	Mallard	7250	4/1/77	Swans	1300
10/16/75	Pintail	4200	9/30/77	Canvasback	400
10/16/75	Redhead	1000	9/30/77	Coots	57000
10/16/75	Scaup	1000	9/30/77	Ducks	3500
10/16/75	Shoveler	2100	9/30/77	Gadwall	200
10/16/75	Teal	2100	9/30/77	Mallard	4600
10/16/75	Wigeon	21530	9/30/77	Redhead	700
11/5/75	C Goose	1170	9/30/77	Teal	2100
11/5/75	Coots	11080	9/30/77	Wigeon	44000
11/5/75	Ducks	36153	10/27/77	Bufflehead	2020
11/5/75	Mallard	15	10/27/77	C Goose	655
11/5/75	Swans	76	10/27/77	Canvasback	1040
11/5/75	Wigeon	15	10/27/77	Coots	30310
11/11/75	C Goose	649	10/27/77	Gadwall	160
11/11/75	Coots	10460	10/27/77	Mallard	24425
11/11/75	Ducks	42220	10/27/77	Redhead	500
11/16/75	C Goose	253	10/27/77	Swans	30
11/16/75	Coots	3600	10/27/77	Teal	795
11/16/75	Ducks	14400	10/27/77	Wigeon	88560
11/16/75	Swans	2	3/29/78	C Goose	520
11/17/75	Ducks	14300	3/29/78	Coots	20000
11/20/75	Coots	200	3/29/78	Ducks	35040
11/20/75	Ducks	10800	3/29/78	Mallard	270
11/20/75	Swans	98	3/29/78	Swans	594
4/1/76	Coots	19700	3/29/78	W-f Goose	170
4/1/76	Ducks	44100	4/1/78	C Goose	690
4/12/76	C Goose	33	4/1/78	Coots	20000
4/12/76	Coots	19620	4/1/78	Ducks	34700
4/12/76	Ducks	16677	4/1/78	Swans	1800
4/12/76	Swans	191	9/28/78	C Goose	1880
4/12/76	W-f Goose	25	9/28/78	Coots	51700
4/13/76	C Goose	454	9/28/78	Gadwall	80
4/13/76	Coots	25	9/28/78	Mallard	8365
4/13/76	Ducks	27435	9/28/78	Redhead	2900
4/13/76	Swans	545	9/28/78	Teal	190
10/1/76	C Goose	380	9/28/78	W-f Goose	800

Table 3. (continued)

Date	Species	Number	Date	Species	Number
9/28/78	Wigeon	32920	4/1/81	C Goose	1800
4/1/79	C Goose	1750	4/1/81	Coots	17400
4/1/79	Coots	14500	4/1/81	Ducks	11810
4/1/79	Ducks	30350	4/1/81	Swans	690
4/1/79	Swans	800	10/1/81	C Goose	1900
9/29/79	C Goose	240	10/1/81	Coots	23100
9/29/79	Coots	8955	10/1/81	Ducks	19050
9/29/79	Ducks	5300	10/1/81	Swans	45
9/29/79	Gadwall	200	3/17/82	Bald Eagle	2
9/29/79	Mallard	4790	3/17/82	Bufflehead	1580
9/29/79	Pintail	10750	3/17/82	C Goose	2855
9/29/79	Redhead	250	3/17/82	Canvasback	85
9/29/79	Scaup	30	3/17/82	Coots	800
9/29/79	Teal	95	3/17/82	Goldeneye	150
9/29/79	W-f Goose	480	3/17/82	Mallard	175
9/29/79	Wigeon	3265	3/17/82	Pintail	50
10/1/79	C Goose	690	3/17/82	Redhead	3750
10/1/79	Coots	10300	3/17/82	Scaup	300
10/1/79	Ducks	14900	3/17/82	Swans	291
10/1/79	Swans	70	3/17/82	Wigeon	450
11/22/79	Bufflehead	150	4/1/82	C Goose	2050
11/22/79	C Goose	450	4/1/82	Coots	11600
11/22/79	C Merganser	150	4/1/82	Ducks	9010
11/22/79	Canvasback	150	4/1/82	Swans	840
11/22/79	Coots	4500	4/1/82	TOTAL	23500
11/22/79	G-w Teal	100	7/3/82	C Goose	285
11/22/79	Mallard	1600	7/3/82	C Merganser	60
11/22/79	Pintail	250	7/3/82	Canvasback	50
11/22/79	Redhead	400	7/3/82	Coots	3700
11/22/79	Scaup	300	7/3/82	Goldeneye	100
11/22/79	Swans	70	7/3/82	Mallard	1400
11/22/79	Wigeon	3700	7/3/82	Redhead	3550
4/1/80	C Goose	1900	7/3/82	Scaup	1500
4/1/80	Coots	12100	7/3/82	Teal	600
4/1/80	Ducks	16140	7/3/82	W Grebe	80
4/1/80	Swans	860	7/3/82	Wigeon	2125
10/1/80	C Goose	910	9/14/82	C Goose	1100
10/1/80	Coots	19700	9/14/82	Coots	3600
10/1/80	Ducks	23100	9/14/82	Gadwall	200
10/1/80	Swans	80	9/14/82	Mallard	2320
2/24/81	C Goose	724	9/14/82	Pintail	150
2/24/81	Coots	3500	9/14/82	Redhead	50
2/24/81	Ducks	8900	9/14/82	Scaup	300
2/24/81	Swans	407	9/14/82	Swans	1

Table 3. (continued)

Date	Species	Number	Date	Species	Number
9/14/82	Teal	340	3/17/83	C Goose	1575
9/14/82	W-f Goose	50	3/17/83	C Merganser	170
9/14/82	Wigeon	8205	3/17/83	Canvasback	20
9/14/82	Wood Duck	10	3/17/83	Coots	6950
9/27/82	C Goose	600	3/17/83	Goldeneye	110
9/27/82	Canvasback	150	3/17/83	Mallard	1100
9/27/82	Coots	7300	3/17/83	P-b Grebe	10
9/27/82	Ducks	50	3/17/83	Pintail	290
9/27/82	Gadwall	550	3/17/83	Redhead	1225
9/27/82	Mallard	600	3/17/83	Scaup	500
9/27/82	Redhead	1050	3/17/83	Swans	326
9/27/82	Shoveler	50	3/17/83	W-f Goose	60
9/27/82	Teal	750	3/17/83	Wigeon	900
9/27/82	Wigeon	3200	3/24/83	Bald Eagle	4
10/18/82	Bufflehead	30	3/24/83	Bufflehead	262
10/18/82	C Goose	355	3/24/83	C Goose	1931
10/18/82	C Merganser	15	3/24/83	C Merganser	218
10/18/82	Canvasback	250	3/24/83	Canvasback	430
10/18/82	Coots	8660	3/24/83	Coots	6211
10/18/82	Gadwall	75	3/24/83	Ducks	2325
10/18/82	Goldeneye	50	3/24/83	G-w Teal	12
10/18/82	Mallard	3205	3/24/83	Gadwall	274
10/18/82	Redhead	230	3/24/83	Goldeneye	185
10/18/82	Ruddy Duck	20	3/24/83	Heron	20
10/18/82	Scaup	170	3/24/83	Mallard	2574
10/18/82	Teal	245	3/24/83	Pintail	592
10/18/82	W-f Goose	150	3/24/83	Redhead	594
10/18/82	Wigeon	15255	3/24/83	Scaup	776
10/18/82	Wood Duck	10	3/24/83	Swans	416
3/11/83	Bufflehead	240	3/24/83	W-f Goose	70
3/11/83	C Goose	882	3/24/83	Wigeon	10485
3/11/83	C Merganser	615	4/1/83	C Goose	1665
3/11/83	Canvasback	210	4/1/83	Coots	1530
3/11/83	Coots	1530	4/1/83	Ducks	19280
3/11/83	Ducks	10165	4/1/83	Swans	590
3/11/83	Gadwall	175	9/28/83	C Goose	1029
3/11/83	Goldeneye	395	9/28/83	Coots	17210
3/11/83	Mallard	1660	9/28/83	Ducks	18092
3/11/83	Redhead	1990	9/28/83	Gadwall	34
3/11/83	R-n Duck	5	9/28/83	Goldeneye	2
3/11/83	Scaup	2795	9/28/83	Heron	3
3/11/83	Swans	180	9/28/83	Mallard	169
3/11/83	Wigeon	1580	9/28/83	P-b Grebe	15
3/17/83	Bufflehead	50	9/28/83	Redhead	744

Table 3. (continued)

Date	Species	Number	Date	Species	Number
9/28/83	R-n Duck	6	4/6/84	Bufflehead	125
9/28/83	Scaup	15	4/6/84	C Goose	560
9/28/83	W-f Goose	237	4/6/84	C Merganser	55
9/28/83	Wigeon	1820	4/6/84	Canvasback	190
10/27/83	C Goose	805	4/6/84	Coots	4760
10/27/83	Coots	10715	4/6/84	G-w Teal	60
10/27/83	Ducks	5155	4/6/84	Goldeneye	150
10/27/83	Gadwall	280	4/6/84	Mallard	3825
10/27/83	Goldeneye	250	4/6/84	Pintail	1200
10/27/83	Mallard	1880	4/6/84	Redhead	9050
10/27/83	Redhead	1840	4/6/84	Scaup	850
10/27/83	Scaup	920	4/6/84	Swans	71
10/27/83	Teal	375	4/6/84	Teal	20
10/27/83	Wigeon	5520	4/6/84	W-f Goose	150
3/5/84	Bufflehead	215	4/6/84	Wigeon	1210
3/5/84	C Goose	735	9/28/84	C Goose	108
3/5/84	C Merganser	195	9/28/84	Canvasback	619
3/5/84	Canvasback	300	9/28/84	Coots	10277
3/5/84	Coots	50	9/28/84	Ducks	3635
3/5/84	G-w Teal	10	9/28/84	G-w Teal	300
3/5/84	Goldeneye	380	9/28/84	Gadwall	272
3/5/84	H Merganser	5	9/28/84	Mallard	1897
3/5/84	Mallard	390	9/28/84	Redhead	2563
3/5/84	N Harrier	3	9/28/84	R-n Duck	1246
3/5/84	Pintail	480	9/28/84	Swans	10
3/5/84	Redhead	8900	9/28/84	Teal	802
3/5/84	Scaup	650	9/28/84	W-f Goose	300
3/5/84	Swans	115	9/28/84	Wigeon	6497
3/5/84	Wigeon	530	10/3/84	C Goose	154
3/27/84	Bufflehead	18	10/3/84	Canvasback	60
3/27/84	C Goose	1999	10/3/84	Coots	6420
3/27/84	C Merganser	178	10/3/84	Ducks	13160
3/27/84	Canvasback	20	10/3/84	W-f Goose	500
3/27/84	Coots	2538	10/9/84	C Goose	2255
3/27/84	Ducks	2701	10/9/84	Canvasback	80
3/27/84	Goldeneye	209	10/9/84	Coots	7300
3/27/84	Mallard	2247	10/9/84	Ducks	250
3/27/84	Pintail	3093	10/9/84	G-w Teal	75
3/27/84	Redhead	249	10/9/84	Gadwall	425
3/27/84	R-n Duck	44	10/9/84	Mallard	5255
3/27/84	Scaup	754	10/9/84	Pintail	1100
3/27/84	Swans	270	10/9/84	Redhead	9200
3/27/84	W-f Goose	163	10/9/84	Scaup	195
3/27/84	Wigeon	2281	10/9/84	Swans	67

Table 3. (continued)

Date	Species	Number	Date	Species	Number
10/9/84	Teal	750	4/4/85	Ruddy Duck	5
10/9/84	Wigeon	3025	4/4/85	Scaup	1167
11/14/84	Bufflehead	225	4/4/85	Shoveler	6
11/14/84	C Goose	585	4/4/85	Swans	279
11/14/84	C Merganser	2500	4/4/85	W-f Goose	15
11/14/84	Canvasback	360	4/4/85	Wigeon	667
11/14/84	Coots	350	4/8/85	Bufflehead	10
11/14/84	Goldeneye	150	4/8/85	C Goose	2
11/14/84	Mallard	945	4/8/85	C Merganser	24
11/14/84	Redhead	5100	4/8/85	C Teal	6
11/14/84	Scaup	650	4/8/85	Coots	5965
11/14/84	Swans	89	4/8/85	Ducks	260
11/14/84	Teal	85	4/8/85	Gadwall	49
11/14/84	Wigeon	300	4/8/85	Goldeneye	3
3/7/85	Bald Eagle	6	4/8/85	H Grebe	2
3/7/85	Bufflehead	90	4/8/85	H Merganser	2
3/7/85	C Goose	405	4/8/85	Mallard	69
3/7/85	C Merganser	140	4/8/85	Pintail	461
3/7/85	Canvasback	330	4/8/85	R-b Merganser	1
3/7/85	Coots	7000	4/8/85	Redhead	1592
3/7/85	G Eagle	3	4/8/85	Scaup	1425
3/7/85	G-w Teal	10	4/8/85	Shoveler	18
3/7/85	Gadwall	40	4/8/85	Swans	144
3/7/85	Mallard	220	4/8/85	Wigeon	2080
3/7/85	Pintail	75	4/11/85	Bufflehead	7
3/7/85	Redhead	2900	4/11/85	C Goose	4
3/7/85	Scaup	2800	4/11/85	C Merganser	88
3/7/85	Swans	93	4/11/85	C Teal	2
3/7/85	Wigeon	245	4/11/85	Coots	11375
4/4/85	Bufflehead	3	4/11/85	E Wigeon	2
4/4/85	C Goose	506	4/11/85	G-w Teal	82
4/4/85	C Merganser	69	4/11/85	Gadwall	64
4/4/85	C Teal	5	4/11/85	Goldeneye	2
4/4/85	Coots	5825	4/11/85	H Grebe	6
4/4/85	Ducks	1280	4/11/85	Mallard	151
4/4/85	Gadwall	96	4/11/85	Pintail	564
4/4/85	Goldeneye	5	4/11/85	R-b Merganser	2
4/4/85	Mallard	131	4/11/85	R-n Grebe	2
4/4/85	P-b Grebe	7	4/11/85	Redhead	1209
4/4/85	Pintail	283	4/11/85	Scaup	917
4/4/85	R-b Merganser	6	4/11/85	Shoveler	41
4/4/85	R-n Grebe	5	4/11/85	Swans	35
4/4/85	Redhead	2092	4/11/85	Wigeon	1911
4/4/85	R-n Duck	4	4/15/85	B-w Teal	1

Table 3. (continued)

Date	Species	Number	Date	Species	Number
4/15/85	Bufflehead	7	4/22/85	Loon	1
4/15/85	C Merganser	20	4/22/85	Mallard	164
4/15/85	C Teal	15	4/22/85	Pintail	1792
4/15/85	Coots	10110	4/22/85	R-b Merganser	35
4/15/85	Ducks	1300	4/22/85	R-n Grebe	4
4/15/85	E Wigeon	1	4/22/85	Scaup	204
4/15/85	G-w Teal	85	4/22/85	Shoveler	394
4/15/85	Gadwall	43	4/22/85	W Grebe	50
4/15/85	Mallard	75	4/22/85	Wigeon	1925
4/15/85	Pintail	1026	4/22/85	Wood Duck	2
4/15/85	Redhead	28	4/24/85	Bufflehead	150
4/15/85	Scaup	348	4/24/85	C Goose	350
4/15/85	Shoveler	98	4/24/85	C Merganser	1100
4/15/85	Swans	12	4/24/85	Canvasback	320
4/15/85	Wigeon	1123	4/24/85	Coots	15500
4/18/85	Bufflehead	2	4/24/85	G-w Teal	200
4/18/85	C Goose	2	4/24/85	Gadwall	50
4/18/85	C Merganser	30	4/24/85	Goldeneye	50
4/18/85	C Teal	16	4/24/85	Mallard	900
4/18/85	Coots	19050	4/24/85	Redhead	3850
4/18/85	Ducks	950	4/24/85	Ruddy Duck	350
4/18/85	E Wigeon	8	4/24/85	Scaup	6720
4/18/85	G-w Teal	426	4/24/85	Shoveler	30
4/18/85	Gadwall	142	4/24/85	Swans	4
4/18/85	Mallard	79	4/24/85	W Grebe	50
4/18/85	P-b Grebe	1	4/24/85	Wigeon	375
4/18/85	Pintail	1560	9/26/85	C Goose	309
4/18/85	R-n Grebe	2	9/26/85	Canvasback	50
4/18/85	Redhead	9	9/26/85	Coots	13464
4/18/85	Scaup	117	9/26/85	Ducks	5425
4/18/85	Shoveler	181	9/26/85	Gadwall	448
4/18/85	Swans	10	9/26/85	Goldeneye	8
4/18/85	Wigeon	2511	9/26/85	Grebes	11
4/22/85	Bufflehead	16	9/26/85	Mallard	630
4/22/85	C Goose	2	9/26/85	Pintail	138
4/22/85	C Merganser	58	9/26/85	Redhead	806
4/22/85	C Teal	42	9/26/85	R-n Duck	262
4/22/85	Coots	34825	9/26/85	Teal	334
4/22/85	Ducks	560	9/26/85	Waders	254
4/22/85	E Grebe	1	9/26/85	Wigeon	4304
4/22/85	E Wigeon	8	10/15/85	Bufflehead	160
4/22/85	G-w Teal	1118	10/15/85	C Goose	2485
4/22/85	Gadwall	253	10/15/85	Coots	1150
4/22/85	Goldeneye	11	10/15/85	G-w Teal	600

Table 3. (continued)

Date	Species	Number	Date	Species	Number
10/15/85	Mallard	985	3/14/86	Pintail	430
10/15/85	Redhead	980	3/14/86	Redhead	900
10/15/85	Scaup	250	3/14/86	Scaup	520
10/15/85	Swans	7	3/14/86	Swans	235
10/15/85	Teal	165	3/14/86	Wigeon	40
10/15/85	W-f Goose	230	9/28/86	Bufflehead	265
10/15/85	Wigeon	4820	9/28/86	C Goose	1235
11/8/85	Bufflehead	125	9/28/86	Canvasback	265
11/8/85	C Goose	630	9/28/86	Coots	11165
11/8/85	C Merganser	3175	9/28/86	Ducks	215
11/8/85	Canvasback	2325	9/28/86	Gadwall	100
11/8/85	Coots	2950	9/28/86	Goldeneye	95
11/8/85	Gadwall	75	9/28/86	Grebes	10
11/8/85	Mallard	1500	9/28/86	Mallard	2680
11/8/85	Pintail	150	9/28/86	Pintail	520
11/8/85	Redhead	2800	9/28/86	Redhead	4775
11/8/85	Scaup	2850	9/28/86	R-n Duck	20
11/8/85	Swans	165	9/28/86	Scaup	1825
11/8/85	Teal	90	9/28/86	Teal	315
11/8/85	Wigeon	1150	9/28/86	W-f Goose	180
3/6/86	Bald Eagle	2	9/28/86	Wigeon	4230
3/6/86	Bufflehead	25	10/25/86	Bufflehead	30
3/6/86	C Goose	4845	10/25/86	C Goose	1070
3/6/86	C Merganser	260	10/25/86	C Merganser	30
3/6/86	Coots	3750	10/25/86	Canvasback	355
3/6/86	G-w Teal	40	10/25/86	Coots	12320
3/6/86	Goldeneye	380	10/25/86	G-w Teal	50
3/6/86	H Merganser	10	10/25/86	Gadwall	200
3/6/86	Mallard	1035	10/25/86	Goldeneye	135
3/6/86	Pintail	60	10/25/86	Mallard	1706
3/6/86	Redhead	50	10/25/86	Pintail	140
3/6/86	Scaup	4775	10/25/86	Redhead	7930
3/6/86	Swans	130	10/25/86	R-n Duck	10
3/6/86	Teal	260	10/25/86	Scaup	3350
3/6/86	Wigeon	115	10/25/86	Shoveler	20
3/14/86	Bald Eagle	2	10/25/86	Swans	5
3/14/86	Bufflehead	35	10/25/86	Teal	430
3/14/86	C Goose	4170	10/25/86	W-f Goose	150
3/14/86	C Merganser	50	10/25/86	W Grebe	50
3/14/86	Canvasback	20	10/25/86	Wigeon	4770
3/14/86	Coots	3500			
3/14/86	Goldeneye	50			
3/14/86	H Merganser	5			
3/14/86	Mallard	1520			

Table 4. Aerial survey data collected on the CVWMA in 1988.

Date	Species	Number	Date	Species	Number
3/28/88	C Goose	1806	5/11/88	Scaup	127
3/28/88	Coot	2150	5/11/88	Shoveler	4
3/28/88	Ducks	16475	5/11/88	Swan	4
3/28/88	Mallard	130	5/11/88	Teal	68
3/28/88	Swan	298	5/11/88	W Grebe	406
3/28/88	TOTAL	20859	5/11/88	Wigeon	10
5/3/88	Birds	310	5/11/88	Wood Duck	30
5/3/88	Bufflehead	78	5/11/88	TOTAL	11270
5/3/88	C Goose	235	5/18/88	B-w Teal	45
5/3/88	C Merganser	11	5/18/88	Bufflehead	77
5/3/88	Coot	2347	5/18/88	C Goose	386
5/3/88	Dabblers	105	5/18/88	C Merganser	16
5/3/88	Divers	32	5/18/88	C Teal	361
5/3/88	Ducks	950	5/18/88	Coot	9217
5/3/88	Gadwall	2	5/18/88	Dabblers	8
5/3/88	Goldeneye	14	5/18/88	Divers	7
5/3/88	Gulls	6	5/18/88	Ducks	71
5/3/88	Heron	12	5/18/88	G-w Teal	3
5/3/88	Mallard	483	5/18/88	Gadwall	84
5/3/88	Pintail	20	5/18/88	Goldeneye	171
5/3/88	R-n Duck	2	5/18/88	Grebes	21
5/3/88	Redhead	202	5/18/88	Gulls	11
5/3/88	Ruddy Duck	13	5/18/88	H Merganser	16
5/3/88	Scaup	357	5/18/88	Heron	107
5/3/88	Shoveler	2	5/18/88	Mallard	2124
5/3/88	Swan	5	5/18/88	P-b Grebe	5
5/3/88	Teal	98	5/18/88	Pintail	47
5/3/88	Wigeon	140	5/18/88	R-n Duck	46
5/3/88	TOTAL	5424	5/18/88	R-n Grebe	111
5/11/88	B Tern	9	5/18/88	Redhead	1701
5/11/88	C Goose	844	5/18/88	Ruddy Duck	101
5/11/88	C Teal	208	5/18/88	Scaup	421
5/11/88	Coot	5126	5/18/88	Shoveler	33
5/11/88	Ducks	451	5/18/88	Swan	8
5/11/88	F Tern	14	5/18/88	Teal	207
5/11/88	Gadwall	62	5/18/88	W Grebe	258
5/11/88	Goldeneye	99	5/18/88	Wigeon	183
5/11/88	Gulls	4	5/18/88	Wood Duck	16
5/11/88	Heron	77	5/18/88	TOTAL	15862
5/11/88	Mallard	1403	5/26/88	B-w Teal	43
5/11/88	R-n Duck	30	5/26/88	C Goose	50
5/11/88	R-n Grebe	123	5/26/88	C Merganser	59
5/11/88	Redhead	2078	5/26/88	C Teal	304
5/11/88	Ruddy Duck	93	5/26/88	Coot	2428

Table 4. (continued).

Date	Species	Number	Date	Species	Number
5/26/88	Ducks	382	6/22/88	Coot	10700
5/26/88	Gadwall	241	6/22/88	Cormorant	8
5/26/88	Goldeneye	35	6/22/88	Ducks	1586
5/26/88	Grebes	124	6/22/88	F Tern	119
5/26/88	Mallard	1459	6/22/88	Gadwall	315
5/26/88	P-b Grebe	6	6/22/88	Goldeneye	37
5/26/88	Pintail	5	6/22/88	Heron	136
5/26/88	R-n Duck	29	6/22/88	Mallard	6569
5/26/88	R-n Grebe	58	6/22/88	Pintail	70
5/26/88	Redhead	578	6/22/88	R-n Duck	708
5/26/88	Shoveler	5	6/22/88	R-n Grebe	272
5/26/88	Teal	69	6/22/88	Redhead	3905
5/26/88	W Grebe	43	6/22/88	Ruddy Duck	330
5/26/88	TOTAL	5918	6/22/88	Shoveler	211
6/8/88	B Tern	262	6/22/88	Teal	587
6/8/88	B-w Teal	23	6/22/88	W Grebe	661
6/8/88	C Goose	392	6/22/88	Wigeon	28
6/8/88	C Merganser	5	6/22/88	Wood Duck	59
6/8/88	C Teal	315	6/22/88	TOTAL	26575
6/8/88	Coot	5167	6/29/88	C Goose	539
6/8/88	Ducks	317	6/29/88	C Teal	21
6/8/88	F Tern	42	6/29/88	Coot	4355
6/8/88	Gadwall	427	6/29/88	Cormorant	12
6/8/88	Goldeneye	9	6/29/88	Ducks	1838
6/8/88	H Merganser	22	6/29/88	F Tern	57
6/8/88	Heron	128	6/29/88	Gadwall	358
6/8/88	Mallard	2791	6/29/88	Heron	131
6/8/88	P-b Grebe	10	6/29/88	Mallard	1788
6/8/88	Pintail	17	6/29/88	R-n Duck	425
6/8/88	R-n Duck	56	6/29/88	R-n Grebe	110
6/8/88	R-n Grebe	339	6/29/88	Redhead	2145
6/8/88	Redhead	2243	6/29/88	Ruddy Duck	213
6/8/88	Ruddy Duck	151	6/29/88	Shoveler	64
6/8/88	Scaup	60	6/29/88	Teal	503
6/8/88	Shoveler	21	6/29/88	W Grebe	237
6/8/88	Teal	174	6/29/88	Wigeon	189
6/8/88	W Grebe	260	6/29/88	Wood Duck	18
6/8/88	Wigeon	46	6/29/88	TOTAL	13003
6/8/88	Wood Duck	10	7/13/88	C Goose	343
6/8/88	TOTAL	13287	7/13/88	Coot	9343
6/22/88	B-w Teal	34	7/13/88	Ducks	2407
6/22/88	C Goose	165	7/13/88	F Tern	33
6/22/88	C Merganser	45	7/13/88	Gadwall	195
6/22/88	C Teal	30	7/13/88	Goldeneye	5

Table 4. (continued).

Date	Species	Number	Date	Species	Number
7/13/88	Grebes	51	7/27/88	R-n Duck	35
7/13/88	Gulls	19	7/27/88	R-n Grebe	240
7/13/88	Heron	141	7/27/88	Redhead	6584
7/13/88	Mallard	3055	7/27/88	Ruddy Duck	6
7/13/88	P-b Grebe	37	7/27/88	Teal	25
7/13/88	R-n Duck	211	7/27/88	W Grebe	695
7/13/88	R-n Grebe	120	7/27/88	TOTAL	31325
7/13/88	Redhead	4612	8/3/88	C Goose	613
7/13/88	Ruddy Duck	154	8/3/88	C Merganser	67
7/13/88	Teal	267	8/3/88	Coot	15080
7/13/88	W Grebe	344	8/3/88	Cormorant	20
7/13/88	Wigeon	75	8/3/88	Ducks	11141
7/13/88	Wood Duck	8	8/3/88	F Tern	22
7/13/88	TOTAL	21420	8/3/88	Gadwall	119
7/20/88	C Goose	310	8/3/88	Grebes	11
7/20/88	C Merganser	67	8/3/88	Gulls	335
7/20/88	Coot	7820	8/3/88	Heron	553
7/20/88	Cormorant	1	8/3/88	Mallard	2416
7/20/88	Ducks	3442	8/3/88	R-n Duck	23
7/20/88	F Tern	37	8/3/88	R-n Grebe	158
7/20/88	Gadwall	53	8/3/88	Redhead	5890
7/20/88	Heron	332	8/3/88	Ruddy Duck	26
7/20/88	Mallard	1420	8/3/88	Teal	479
7/20/88	P-b Grebe	30	8/3/88	W Grebe	430
7/20/88	Pintail	18	8/3/88	TOTAL	37383
7/20/88	R-n Grebe	200	8/15/88	B-w Teal	28
7/20/88	Redhead	4856	8/15/88	C Goose	64
7/20/88	Ruddy Duck	18	8/15/88	C Teal	268
7/20/88	Shoveler	16	8/15/88	Coot	5485
7/20/88	Teal	418	8/15/88	Cormorant	8
7/20/88	W Grebe	673	8/15/88	Ducks	1509
7/20/88	Wood Duck	47	8/15/88	E Grebe	380
7/20/88	TOTAL	19758	8/15/88	F Tern	30
7/27/88	Birds	566	8/15/88	Gadwall	199
7/27/88	C Goose	615	8/15/88	Goldeneye	56
7/27/88	Coot	12258	8/15/88	Heron	214
7/27/88	Ducks	8796	8/15/88	Mallard	3507
7/27/88	F Tern	23	8/15/88	P-b Grebe	39
7/27/88	Gadwall	76	8/15/88	Pintail	70
7/27/88	Grebes	21	8/15/88	R-n Duck	154
7/27/88	Gulls	229	8/15/88	R-n Grebe	79
7/27/88	Heron	160	8/15/88	Redhead	1639
7/27/88	Mallard	982	8/15/88	Ruddy Duck	225
7/27/88	P-b Grebe	14	8/15/88	Shoveler	207

Table 4. (continued).

Date	Species	Number	Date	Species	Number
8/15/88	Swan	18	9/1/88	Coot	12852
8/15/88	Teal	665	9/1/88	Ducks	14942
8/15/88	W Grebe	362	9/1/88	Gadwall	58
8/15/88	Wigeon	84	9/1/88	Grebes	147
8/15/88	TOTAL	15290	9/1/88	Gulls	1076
8/17/88	C Goose	75	9/1/88	H Merganser	5
8/17/88	Coot	14222	9/1/88	Heron	201
8/17/88	Cormorant	10	9/1/88	Mallard	854
8/17/88	Divers	42	9/1/88	P-b Grebe	10
8/17/88	Ducks	14811	9/1/88	R-n Duck	5
8/17/88	F Tern	5	9/1/88	R-n Grebe	11
8/17/88	Gulls	143	9/1/88	Redhead	4456
8/17/88	Heron	358	9/1/88	Teal	108
8/17/88	Mallard	562	9/1/88	W Grebe	208
8/17/88	R-n Duck	146	9/1/88	Wigeon	1607
8/17/88	R-n Grebe	55	9/1/88	Wood Duck	5
8/17/88	Redhead	4452	9/1/88	TOTAL	43763
8/17/88	Teal	444	9/22/88	Birds	1650
8/17/88	Wigeon	15	9/22/88	C Goose	86
8/17/88	TOTAL	35340	9/22/88	Coot	1570
8/24/88	Birds	424	9/22/88	Ducks	1585
8/24/88	C Goose	211	9/22/88	Gadwall	238
8/24/88	C Merganser	37	9/22/88	Gulls	55
8/24/88	Coot	19849	9/22/88	Heron	10
8/24/88	Ducks	9751	9/22/88	Mallard	254
8/24/88	Gadwall	54	9/22/88	P-b Grebe	9
8/24/88	Goldeneye	5	9/22/88	Pintail	2
8/24/88	Grebes	102	9/22/88	R-n Duck	50
8/24/88	Gulls	73	9/22/88	Redhead	830
8/24/88	H Merganser	5	9/22/88	Scaup	50
8/24/88	Heron	183	9/22/88	Teal	134
8/24/88	Mallard	1077	9/22/88	W Grebe	20
8/24/88	P-b Grebe	15	9/22/88	W-f Goose	300
8/24/88	R-n Duck	22	9/22/88	Wigeon	274
8/24/88	R-n Grebe	263	9/22/88	TOTAL	7117
8/24/88	Redhead	2879	9/29/88	Birds	36350
8/24/88	Scaup	23	9/29/88	C Goose	894
8/24/88	Shoveler	11	9/29/88	Coot	5600
8/24/88	Teal	519	9/29/88	Ducks	14715
8/24/88	W Grebe	146	9/29/88	Gadwall	600
8/24/88	TOTAL	35649	9/29/88	Redhead	4000
9/1/88	Birds	6455	9/29/88	W-f Goose	50
9/1/88	C Goose	735	9/29/88	Wigeon	100
9/1/88	C Merganser	28	9/29/88	TOTAL	62309

Table 4. (continued).

Date	Species	Number	Date	Species	Number
10/6/88	Birds	9915	10/20/88	Teal	336
10/6/88	C Goose	686	10/20/88	W Grebe	3
10/6/88	Coot	60	10/20/88	W-f Goose	1429
10/6/88	Ducks	19185	10/20/88	Wigeon	11731
10/6/88	Gulls	5	10/20/88	TOTAL	46784
10/6/88	Heron	16	10/27/88	Birds	6002
10/6/88	Mallard	66	10/27/88	Bufflehead	1006
10/6/88	Teal	530	10/27/88	C Goose	2204
10/6/88	W Grebe	1	10/27/88	C Merganser	31
10/6/88	W-f Goose	100	10/27/88	Canvasback	192
10/6/88	Wigeon	15	10/27/88	Coot	6635
10/6/88	TOTAL	30579	10/27/88	Ducks	5196
10/13/88	Birds	12530	10/27/88	G-w Teal	73
10/13/88	C Goose	810	10/27/88	Gadwall	85
10/13/88	Coot	7100	10/27/88	Goldeneye	82
10/13/88	Ducks	19907	10/27/88	Gulls	355
10/13/88	Gulls	22	10/27/88	Heron	35
10/13/88	Heron	11	10/27/88	Mallard	3584
10/13/88	Mallard	95	10/27/88	Pintail	63
10/13/88	Teal	200	10/27/88	R-n Duck	39
10/13/88	W-f Goose	450	10/27/88	Redhead	225
10/13/88	Wigeon	250	10/27/88	Scaup	17
10/13/88	TOTAL	41375	10/27/88	Shoveler	30
10/20/88	Birds	2106	10/27/88	Swan	105
10/20/88	Bufflehead	674	10/27/88	Teal	705
10/20/88	C Goose	3717	10/27/88	W Grebe	25
10/20/88	C Merganser	14	10/27/88	Wigeon	9463
10/20/88	Canvasback	554	10/27/88	TOTAL	36152
10/20/88	Coot	12471	11/3/88	Bufflehead	1248
10/20/88	Ducks	8464	11/3/88	C Goose	1987
10/20/88	G-w Teal	101	11/3/88	C Merganser	58
10/20/88	Gadwall	294	11/3/88	Canvasback	165
10/20/88	Gulls	270	11/3/88	Coot	10601
10/20/88	H Merganser	35	11/3/88	Ducks	1982
10/20/88	Heron	30	11/3/88	Gadwall	442
10/20/88	Loon	15	11/3/88	Goldeneye	47
10/20/88	Mallard	3245	11/3/88	Gulls	72
10/20/88	P-b Grebe	4	11/3/88	H Merganser	15
10/20/88	Pintail	272	11/3/88	Heron	33
10/20/88	R-n Duck	37	11/3/88	Mallard	3415
10/20/88	Redhead	947	11/3/88	Pintail	163
10/20/88	Scaup	22	11/3/88	R-n Duck	37
10/20/88	Shoveler	6	11/3/88	Redhead	707
10/20/88	Swan	7	11/3/88	Scaup	596

Table 4. (continued).

Date	Species	Number
11/3/88	Swan	58
11/3/88	Teal	215
11/3/88	W Grebe	12
11/3/88	W-f Goose	812
11/3/88	Wigeon	12667
11/3/88	TOTAL	35332
11/9/88	Birds	7
11/9/88	Bufflehead	1084
11/9/88	C Goose	1729
11/9/88	C Merganser	29
11/9/88	Canvasback	233
11/9/88	Coot	8468
11/9/88	Ducks	2033
11/9/88	Gadwall	406
11/9/88	Goldeneye	41
11/9/88	Gulls	52
11/9/88	H Merganser	8
11/9/88	Heron	36
11/9/88	Mallard	3658
11/9/88	Pintail	368
11/9/88	Redhead	755
11/9/88	Scaup	1906
11/9/88	Swan	259
11/9/88	Teal	30
11/9/88	W-f Goose	440
11/9/88	Wigeon	14473
11/9/88	TOTAL	36015
11/9/88	TOTAL	647789

Table 5. Aerial survey data collected on the CVWMA in 1989.

Date	Species	Number	Date	Species	Number
4/12/89	Birds	26	4/19/89	Scaup	2327
4/12/89	Bufflehead	1061	4/19/89	Shoveler	316
4/12/89	C Goose	3566	4/19/89	Swan	42
4/12/89	C Merganser	93	4/19/89	Teal	215
4/12/89	C Teal	91	4/19/89	Wigeon	1359
4/12/89	Coot	17569	4/19/89	Wood Duck	170
4/12/89	Ducks	3427	4/19/89	TOTAL	28323
4/12/89	G-w Teal	67	4/26/89	Bufflehead	220
4/12/89	Gadwall	264	4/26/89	C Goose	377
4/12/89	Goldeneye	714	4/26/89	C Merganser	22
4/12/89	Gulls	187	4/26/89	C Teal	41
4/12/89	Heron	99	4/26/89	Canvasback	58
4/12/89	Mallard	2153	4/26/89	Coot	4903
4/12/89	Pintail	1012	4/26/89	Ducks	1575
4/12/89	R-n Duck	306	4/26/89	Gadwall	349
4/12/89	Redhead	3818	4/26/89	Goldeneye	117
4/12/89	Ruddy Duck	11	4/26/89	Great Egret	1
4/12/89	Scaup	599	4/26/89	Gulls	50
4/12/89	Shoveler	67	4/26/89	Mallard	820
4/12/89	Swan	43	4/26/89	P-b Grebe	47
4/12/89	Teal	231	4/26/89	Pintail	383
4/12/89	W Grebe	402	4/26/89	R-n Duck	299
4/12/89	W-f Goose	199	4/26/89	R-n Grebe	57
4/12/89	Wigeon	1575	4/26/89	Redhead	467
4/12/89	Wood Duck	194	4/26/89	Ruddy Duck	32
4/12/89	TOTAL	37774	4/26/89	Scaup	207
4/19/89	Bufflehead	860	4/26/89	Shoveler	164
4/19/89	C Goose	722	4/26/89	Swan	16
4/19/89	C Merganser	11	4/26/89	Teal	434
4/19/89	C Teal	63	4/26/89	W Grebe	16
4/19/89	Canvasback	159	4/26/89	Wigeon	1217
4/19/89	Coot	14969	4/26/89	Wood Duck	23
4/19/89	Ducks	3006	4/26/89	TOTAL	11895
4/19/89	G-w Teal	13	5/3/89	Birds	41
4/19/89	Gadwall	297	5/3/89	Bufflehead	216
4/19/89	Goldeneye	517	5/3/89	C Goose	619
4/19/89	Gulls	90	5/3/89	C Teal	69
4/19/89	Heron	31	5/3/89	Coot	4344
4/19/89	Mallard	1557	5/3/89	Ducks	250
4/19/89	Pintail	442	5/3/89	F Tern	35
4/19/89	R-n Duck	252	5/3/89	G-w Teal	264
4/19/89	R-n Grebe	22	5/3/89	Gadwall	423
4/19/89	Redhead	793	5/3/89	Goldeneye	162
4/19/89	Ruddy Duck	90	5/3/89	Grebes	29

Table 5. (continued).

Date	Species	Number	Date	Species	Number
5/3/89	Gulls	5	5/17/89	Canvasback	22
5/3/89	H Merganser	36	5/17/89	Coot	1759
5/3/89	Heron	63	5/17/89	Ducks	1189
5/3/89	Mallard	1018	5/17/89	F Tern	103
5/3/89	P-b Grebe	30	5/17/89	Gadwall	103
5/3/89	Pintail	113	5/17/89	Goldeneye	122
5/3/89	R-n Duck	332	5/17/89	Grebes	16
5/3/89	R-n Grebe	192	5/17/89	Gulls	5
5/3/89	Redhead	1062	5/17/89	Heron	155
5/3/89	Ruddy Duck	116	5/17/89	Mallard	1080
5/3/89	Scaup	114	5/17/89	P-b Grebe	13
5/3/89	Shoveler	43	5/17/89	R-n Duck	47
5/3/89	Swan	39	5/17/89	R-n Grebe	81
5/3/89	Teal	64	5/17/89	Redhead	599
5/3/89	W Grebe	254	5/17/89	Ruddy Duck	67
5/3/89	Wigeon	521	5/17/89	Teal	66
5/3/89	Wood Duck	29	5/17/89	W Grebe	95
5/3/89	TOTAL	10483	5/17/89	Wigeon	48
5/10/89	B Tern	180	5/17/89	Wood Duck	9
5/10/89	Birds	268	5/17/89	TOTAL	7008
5/10/89	Bufflehead	23	5/31/89	B Tern	685
5/10/89	C Goose	417	5/31/89	Birds	8
5/10/89	C Teal	82	5/31/89	Bufflehead	56
5/10/89	Coot	845	5/31/89	C Goose	388
5/10/89	Ducks	117	5/31/89	C Merganser	10
5/10/89	Gadwall	196	5/31/89	C Teal	305
5/10/89	Goldeneye	293	5/31/89	Coot	1669
5/10/89	Grebes	27	5/31/89	Ducks	387
5/10/89	Gulls	41	5/31/89	F Tern	18
5/10/89	Heron	33	5/31/89	Gadwall	221
5/10/89	Mallard	587	5/31/89	Goldeneye	32
5/10/89	R-n Duck	28	5/31/89	Gulls	11
5/10/89	R-n Grebe	36	5/31/89	Heron	59
5/10/89	Redhead	640	5/31/89	Mallard	2339
5/10/89	Ruddy Duck	60	5/31/89	P-b Grebe	14
5/10/89	Scaup	84	5/31/89	R-n Duck	270
5/10/89	Shoveler	31	5/31/89	R-n Grebe	168
5/10/89	Teal	69	5/31/89	Redhead	738
5/10/89	Wigeon	84	5/31/89	Ruddy Duck	110
5/10/89	TOTAL	4141	5/31/89	Swan	7
5/17/89	B Tern	201	5/31/89	W Grebe	158
5/17/89	Birds	243	5/31/89	Wigeon	5
5/17/89	C Goose	676	5/31/89	Wood Duck	15
5/17/89	C Teal	309	5/31/89	TOTAL	7673

Table 5. (continued).

Date	Species	Number	Date	Species	Number
6/7/89	B Tern	256	6/14/89	Ruddy Duck	136
6/7/89	B-w Teal	25	6/14/89	Scaup	33
6/7/89	Birds	106	6/14/89	Teal	142
6/7/89	C Goose	406	6/14/89	W Grebe	582
6/7/89	C Merganser	20	6/14/89	Wigeon	101
6/7/89	C Teal	118	6/14/89	Wood Duck	168
6/7/89	Coot	820	6/14/89	TOTAL	12921
6/7/89	Ducks	317	6/28/89	B Tern	431
6/7/89	F Tern	34	6/28/89	B-w Teal	19
6/7/89	Gadwall	82	6/28/89	Birds	79
6/7/89	Goldeneye	30	6/28/89	C Goose	738
6/7/89	Grebes	19	6/28/89	C Merganser	50
6/7/89	Gulls	16	6/28/89	Coot	2471
6/7/89	Heron	48	6/28/89	Ducks	2903
6/7/89	Mallard	516	6/28/89	F Tern	1
6/7/89	P-b Grebe	26	6/28/89	Gadwall	8
6/7/89	R-n Duck	42	6/28/89	Goldeneye	11
6/7/89	R-n Grebe	42	6/28/89	Grebes	115
6/7/89	Redhead	578	6/28/89	Gulls	149
6/7/89	Ruddy Duck	68	6/28/89	Heron	73
6/7/89	Scaup	22	6/28/89	Mallard	1215
6/7/89	Shoveler	26	6/28/89	R-n Duck	204
6/7/89	Teal	35	6/28/89	R-n Grebe	115
6/7/89	W Grebe	220	6/28/89	Redhead	993
6/7/89	Wood Duck	35	6/28/89	Ruddy Duck	65
6/7/89	TOTAL	3907	6/28/89	Teal	350
6/14/89	B Tern	1021	6/28/89	W Grebe	145
6/14/89	B-w Teal	23	6/28/89	Wigeon	9
6/14/89	Birds	115	6/28/89	TOTAL	10144
6/14/89	Bufflehead	11	7/5/89	B Tern	592
6/14/89	C Goose	655	7/5/89	B-w Teal	6
6/14/89	C Teal	73	7/5/89	Birds	128
6/14/89	Coot	2974	7/5/89	C Goose	246
6/14/89	Ducks	2471	7/5/89	C Merganser	28
6/14/89	F Tern	103	7/5/89	C Teal	15
6/14/89	Gadwall	36	7/5/89	Coot	3256
6/14/89	Grebes	27	7/5/89	Ducks	2100
6/14/89	Gulls	242	7/5/89	F Tern	10
6/14/89	Heron	120	7/5/89	Gadwall	223
6/14/89	Mallard	3130	7/5/89	Goldeneye	20
6/14/89	P-b Grebe	11	7/5/89	Gulls	54
6/14/89	R-n Duck	161	7/5/89	Heron	101
6/14/89	R-n Grebe	113	7/5/89	Mallard	728
6/14/89	Redhead	473	7/5/89	P-b Grebe	9

Table 5. (continued).

Date	Species	Number	Date	Species	Number
7/5/89	R-n Grebe	286	7/19/89	W Grebe	480
7/5/89	Redhead	619	7/19/89	Wood Duck	11
7/5/89	Ruddy Duck	49	7/19/89	TOTAL	16377
7/5/89	Scaup	226	7/26/89	B Tern	194
7/5/89	Shoveler	13	7/26/89	Birds	339
7/5/89	Swan	7	7/26/89	C Goose	105
7/5/89	Teal	50	7/26/89	Coot	2152
7/5/89	W Grebe	230	7/26/89	Ducks	1210
7/5/89	TOTAL	8996	7/26/89	F Tern	6
7/12/89	B Tern	451	7/26/89	Gulls	136
7/12/89	Birds	173	7/26/89	Heron	66
7/12/89	C Goose	518	7/26/89	Mallard	351
7/12/89	C Merganser	28	7/26/89	R-n Grebe	171
7/12/89	Coot	3237	7/26/89	Swan	1
7/12/89	Ducks	3181	7/26/89	W Grebe	673
7/12/89	F Tern	29	7/26/89	TOTAL	5404
7/12/89	Gadwall	123	8/2/89	B Tern	175
7/12/89	Gulls	194	8/2/89	B-w Teal	39
7/12/89	Heron	25	8/2/89	Birds	449
7/12/89	Mallard	241	8/2/89	C Goose	510
7/12/89	P-b Grebe	27	8/2/89	C Merganser	11
7/12/89	R-n Duck	19	8/2/89	Coot	8555
7/12/89	R-n Grebe	70	8/2/89	Ducks	4246
7/12/89	Redhead	799	8/2/89	F Tern	1
7/12/89	W Grebe	153	8/2/89	Grebes	57
7/12/89	TOTAL	9268	8/2/89	Gulls	391
7/19/89	B Tern	413	8/2/89	Heron	123
7/19/89	Birds	1832	8/2/89	Mallard	4584
7/19/89	C Goose	527	8/2/89	P-b Grebe	9
7/19/89	C Merganser	62	8/2/89	R-n Grebe	105
7/19/89	C Teal	9	8/2/89	Redhead	2152
7/19/89	Coot	4908	8/2/89	Shoveler	18
7/19/89	Ducks	4333	8/2/89	Swan	1
7/19/89	F Tern	13	8/2/89	Teal	49
7/19/89	Gadwall	8	8/2/89	W Grebe	265
7/19/89	Grebes	22	8/2/89	TOTAL	21740
7/19/89	Gulls	414	8/9/89	B Tern	173
7/19/89	Heron	300	8/9/89	Birds	691
7/19/89	Mallard	51	8/9/89	C Goose	59
7/19/89	P-b Grebe	68	8/9/89	Coot	2892
7/19/89	R-n Duck	130	8/9/89	Ducks	2785
7/19/89	R-n Grebe	200	8/9/89	Grebes	5
7/19/89	Redhead	2580	8/9/89	Gulls	132
7/19/89	Ruddy Duck	16	8/9/89	Heron	81

Table 5. (continued).

Date	Species	Number	Date	Species	Number
8/9/89	Mallard	259	8/30/89	Coot	8986
8/9/89	R-n Grebe	93	8/30/89	Ducks	6157
8/9/89	W Grebe	362	8/30/89	Gulls	119
8/9/89	TOTAL	7532	8/30/89	Heron	96
8/16/89	B Tern	61	8/30/89	Mallard	1499
8/16/89	B-w Teal	50	8/30/89	R-n Duck	28
8/16/89	Birds	362	8/30/89	R-n Grebe	78
8/16/89	C Goose	12	8/30/89	Redhead	113
8/16/89	Coot	8607	8/30/89	Swan	7
8/16/89	Dabblers	95	8/30/89	Teal	79
8/16/89	Ducks	7253	8/30/89	W Grebe	76
8/16/89	Grebes	3	8/30/89	TOTAL	17565
8/16/89	Gulls	152	9/13/89	B-w Teal	80
8/16/89	Heron	189	9/13/89	Birds	436
8/16/89	Mallard	1617	9/13/89	C Goose	1274
8/16/89	R-n Duck	440	9/13/89	Coot	15946
8/16/89	R-n Grebe	59	9/13/89	Ducks	13398
8/16/89	Redhead	792	9/13/89	Gadwall	421
8/16/89	Swan	0	9/13/89	Grebes	20
8/16/89	W Grebe	153	9/13/89	Gulls	112
8/16/89	TOTAL	19845	9/13/89	Heron	119
8/23/89	B Tern	92	9/13/89	Mallard	3171
8/23/89	B-w Teal	8	9/13/89	P-b Grebe	7
8/23/89	Birds	1513	9/13/89	Pintail	95
8/23/89	C Goose	67	9/13/89	R-n Duck	159
8/23/89	C Teal	23	9/13/89	R-n Grebe	10
8/23/89	Coot	9474	9/13/89	Redhead	6314
8/23/89	Ducks	6756	9/13/89	Teal	308
8/23/89	Gadwall	330	9/13/89	W Grebe	237
8/23/89	Grebes	11	9/13/89	Wigeon	299
8/23/89	Gulls	180	9/13/89	TOTAL	42406
8/23/89	Heron	166	9/20/89	Birds	122
8/23/89	Mallard	1627	9/20/89	C Goose	242
8/23/89	P-b Grebe	30	9/20/89	Coot	9853
8/23/89	R-n Duck	56	9/20/89	Ducks	12016
8/23/89	R-n Grebe	55	9/20/89	Gadwall	1005
8/23/89	Redhead	941	9/20/89	Gulls	1087
8/23/89	Swan	7	9/20/89	Heron	62
8/23/89	Teal	394	9/20/89	Mallard	908
8/23/89	W Grebe	50	9/20/89	P-b Grebe	17
8/23/89	Wigeon	10	9/20/89	R-n Duck	301
8/23/89	TOTAL	21790	9/20/89	R-n Grebe	11
8/30/89	Birds	194	9/20/89	Redhead	1483
8/30/89	C Goose	133	9/20/89	Shoveler	15

Table 5. (continued).

Date	Species	Number	Date	Species	Number
9/20/89	Teal	478	10/4/89	Wood Duck	460
9/20/89	W Grebe	120	10/4/89	TOTAL	56102
9/20/89	W-f Goose	2582	10/11/89	Birds	121
9/20/89	Wigeon	7697	10/11/89	C Goose	2287
9/20/89	TOTAL	37999	10/11/89	Canvasback	129
9/27/89	B-w Teal	72	10/11/89	Coot	14579
9/27/89	Birds	15	10/11/89	Ducks	29328
9/27/89	C Goose	454	10/11/89	Gadwall	101
9/27/89	C Merganser	35	10/11/89	Gulls	55
9/27/89	Coot	17163	10/11/89	Heron	42
9/27/89	Ducks	24223	10/11/89	Mallard	2870
9/27/89	G-w Teal	116	10/11/89	Redhead	497
9/27/89	Gadwall	688	10/11/89	Scaup	56
9/27/89	Grebes	28	10/11/89	Teal	198
9/27/89	Gulls	425	10/11/89	Wigeon	7024
9/27/89	Heron	110	10/11/89	TOTAL	57287
9/27/89	Mallard	5217	10/18/89	B-w Teal	37
9/27/89	P-b Grebe	23	10/18/89	Birds	324
9/27/89	R-n Duck	19	10/18/89	Bufflehead	401
9/27/89	Redhead	2485	10/18/89	C Goose	946
9/27/89	Shoveler	33	10/18/89	Canvasback	226
9/27/89	Teal	796	10/18/89	Coot	8399
9/27/89	W Grebe	398	10/18/89	Ducks	7364
9/27/89	W-f Goose	516	10/18/89	E Grebe	9
9/27/89	Wigeon	3620	10/18/89	Gadwall	122
9/27/89	TOTAL	56436	10/18/89	Grebes	9
10/4/89	B-w Teal	116	10/18/89	Gulls	98
10/4/89	Birds	486	10/18/89	Heron	28
10/4/89	C Goose	979	10/18/89	Mallard	2014
10/4/89	C Merganser	76	10/18/89	P-b Grebe	14
10/4/89	Canvasback	113	10/18/89	Pintail	70
10/4/89	Coot	16135	10/18/89	Redhead	373
10/4/89	Ducks	25492	10/18/89	Swan	6
10/4/89	Gadwall	749	10/18/89	Teal	331
10/4/89	Grebes	15	10/18/89	W Grebe	11
10/4/89	Gulls	659	10/18/89	W-f Goose	143
10/4/89	Heron	130	10/18/89	Wigeon	2506
10/4/89	Mallard	2453	10/18/89	Wood Duck	235
10/4/89	Redhead	2315	10/18/89	TOTAL	23666
10/4/89	Shoveler	11	10/25/89	Birds	31
10/4/89	Teal	247	10/25/89	C Goose	469
10/4/89	W Grebe	191	10/25/89	C Merganser	23
10/4/89	W-f Goose	551	10/25/89	Canvasback	118
10/4/89	Wigeon	4924	10/25/89	Coot	2986

Table 5. (continued).

Date	Species	Number	Date	Species	Number
10/25/89	Ducks	11763	11/15/89	W Grebe	16
10/25/89	Gulls	190	11/15/89	Wigeon	4337
10/25/89	Heron	26	11/15/89	TOTAL	7816
10/25/89	Mallard	2226	11/15/89	TOTAL	595898
10/25/89	Redhead	181			
10/25/89	Swan	4			
10/25/89	W Grebe	143			
10/25/89	W-f Goose	867			
10/25/89	Wood Duck	22			
10/25/89	TOTAL	19049			
11/1/89	Birds	18			
11/1/89	C Goose	2234			
11/1/89	Canvasback	22			
11/1/89	Coot	3499			
11/1/89	Ducks	8483			
11/1/89	Gulls	151			
11/1/89	Heron	22			
11/1/89	Mallard	1931			
11/1/89	Redhead	50			
11/1/89	Swan	11			
11/1/89	W Grebe	11			
11/1/89	W-f Goose	2207			
11/1/89	TOTAL	18639			
11/8/89	Birds	20			
11/8/89	C Goose	632			
11/8/89	Coot	1901			
11/8/89	Ducks	5164			
11/8/89	Grebes	11			
11/8/89	Gulls	29			
11/8/89	Heron	58			
11/8/89	Mallard	2684			
11/8/89	Redhead	659			
11/8/89	W Grebe	11			
11/8/89	W-f Goose	2543			
11/8/89	TOTAL	13712			
11/15/89	Birds	51			
11/15/89	Bufflehead	1109			
11/15/89	C Goose	770			
11/15/89	Coot	787			
11/15/89	Ducks	30			
11/15/89	Gulls	33			
11/15/89	H Merganser	104			
11/15/89	Mallard	465			
11/15/89	Swan	114			

Table 6. Aerial survey data collected on the CVWMA in 1990.

Date	Species	Number	Date	Species	Number
3/14/90	Birds	1000	4/11/90	C Merganser	57
3/14/90	C Goose	333	4/11/90	Coot	27563
3/14/90	Coot	1000	4/11/90	Ducks	16669
3/14/90	Ducks	3082	4/11/90	G-w Teal	827
3/14/90	Heron	1	4/11/90	Gadwall	424
3/14/90	Mallard	50	4/11/90	Goldeneye	2542
3/14/90	Swan	470	4/11/90	Gulls	23
3/14/90	TOTAL	5936	4/11/90	Heron	146
3/21/90	Bufflehead	1592	4/11/90	Mallard	1415
3/21/90	C Goose	9507	4/11/90	P-b Grebe	15
3/21/90	Coot	3484	4/11/90	Pintail	1231
3/21/90	Ducks	2165	4/11/90	R-n Duck	197
3/21/90	Goldeneye	183	4/11/90	R-n Grebe	81
3/21/90	Gulls	459	4/11/90	Redhead	1051
3/21/90	Heron	27	4/11/90	Scaup	877
3/21/90	Mallard	10490	4/11/90	Shoveler	11
3/21/90	Pintail	5447	4/11/90	Swan	10
3/21/90	Redhead	142	4/11/90	Teal	169
3/21/90	Swan	1187	4/11/90	W-f Goose	40
3/21/90	Wigeon	56	4/11/90	Wigeon	3184
3/21/90	TOTAL	34739	4/11/90	Wood Duck	63
3/28/90	Bufflehead	236	4/11/90	TOTAL	58479
3/28/90	C Goose	7543	4/18/90	B-w Teal	33
3/28/90	Coot	1067	4/18/90	Bufflehead	440
3/28/90	Ducks	7636	4/18/90	C Goose	1066
3/28/90	Heron	23	4/18/90	C Merganser	260
3/28/90	Mallard	8985	4/18/90	C Teal	398
3/28/90	Pintail	788	4/18/90	Coot	16359
3/28/90	Redhead	972	4/18/90	Ducks	1083
3/28/90	Swan	610	4/18/90	G-w Teal	453
3/28/90	TOTAL	27860	4/18/90	Gadwall	229
4/4/90	Bufflehead	796	4/18/90	Goldeneye	421
4/4/90	C Goose	1320	4/18/90	Grebes	11
4/4/90	Coot	8514	4/18/90	Gulls	37
4/4/90	Ducks	19174	4/18/90	H Merganser	15
4/4/90	Heron	74	4/18/90	Mallard	2429
4/4/90	Mallard	6517	4/18/90	P-b Grebe	11
4/4/90	Pintail	226	4/18/90	Pintail	1391
4/4/90	Redhead	558	4/18/90	R-n Duck	539
4/4/90	Swan	166	4/18/90	R-n Grebe	154
4/4/90	Wigeon	190	4/18/90	Redhead	929
4/4/90	TOTAL	37535	4/18/90	Ruddy Duck	9
4/11/90	Bufflehead	235	4/18/90	Scaup	1597
4/11/90	C Goose	1649	4/18/90	Shoveler	28

Table 6. (continued).

Date	Species	Number	Date	Species	Number
4/18/90	Swan	12	5/2/90	Heron	64
4/18/90	Teal	875	5/2/90	Mallard	1762
4/18/90	W Grebe	104	5/2/90	N. Harrier	5
4/18/90	Wigeon	2838	5/2/90	P-b Grebe	23
4/18/90	TOTAL	31721	5/2/90	Pintail	162
4/25/90	Bufflehead	673	5/2/90	R-n Duck	203
4/25/90	C Goose	922	5/2/90	R-n Grebe	87
4/25/90	C Merganser	33	5/2/90	Redhead	1592
4/25/90	C Teal	14	5/2/90	Ruddy Duck	390
4/25/90	Canvasback	94	5/2/90	Scaup	1642
4/25/90	Coot	7398	5/2/90	Shoveler	184
4/25/90	Ducks	840	5/2/90	Teal	20
4/25/90	G-w Teal	147	5/2/90	W Grebe	468
4/25/90	Gadwall	149	5/2/90	Wigeon	555
4/25/90	Goldeneye	209	5/2/90	Wood Duck	72
4/25/90	Heron	75	5/2/90	TOTAL	18275
4/25/90	Mallard	728	5/9/90	Bufflehead	87
4/25/90	P-b Grebe	7	5/9/90	C Goose	1530
4/25/90	Pintail	522	5/9/90	C Teal	146
4/25/90	R-n Duck	129	5/9/90	Coot	2417
4/25/90	R-n Grebe	99	5/9/90	Ducks	2221
4/25/90	Redhead	1225	5/9/90	F Tern	9
4/25/90	Ruddy Duck	105	5/9/90	Gadwall	41
4/25/90	Scaup	490	5/9/90	Goldeneye	105
4/25/90	Shoveler	137	5/9/90	Grebes	175
4/25/90	Swan	11	5/9/90	Gulls	9
4/25/90	Teal	116	5/9/90	Heron	30
4/25/90	W Grebe	22	5/9/90	Loon	22
4/25/90	Wigeon	878	5/9/90	Mallard	1909
4/25/90	Wood Duck	30	5/9/90	R-n Duck	17
4/25/90	TOTAL	15053	5/9/90	R-n Grebe	48
5/2/90	Birds	21	5/9/90	Redhead	1608
5/2/90	Bufflehead	567	5/9/90	Scaup	59
5/2/90	C Goose	813	5/9/90	Shoveler	50
5/2/90	C Merganser	90	5/9/90	Swan	1
5/2/90	C Teal	240	5/9/90	Teal	30
5/2/90	Canvasback	48	5/9/90	W Grebe	37
5/2/90	Coot	7276	5/9/90	Wigeon	60
5/2/90	Ducks	1282	5/9/90	Wood Duck	46
5/2/90	G-w Teal	279	5/9/90	TOTAL	10657
5/2/90	Gadwall	193	5/16/90	B Tern	177
5/2/90	Goldeneye	212	5/16/90	C Goose	880
5/2/90	Gulls	5	5/16/90	C Merganser	1
5/2/90	H Merganser	20	5/16/90	C Teal	257

Table 6. (continued).

Date	Species	Number	Date	Species	Number
5/16/90	C Tern	53	5/30/90	C Teal	29
5/16/90	C Tern	7	5/30/90	Canvasback	23
5/16/90	Coot	2431	5/30/90	Coot	587
5/16/90	Ducks	1068	5/30/90	Ducks	1873
5/16/90	F Tern	37	5/30/90	Gadwall	27
5/16/90	Gadwall	35	5/30/90	Goldeneye	70
5/16/90	Goldeneye	104	5/30/90	Grebes	113
5/16/90	Heron	66	5/30/90	Heron	40
5/16/90	Mallard	1284	5/30/90	Mallard	1120
5/16/90	R-n Grebe	159	5/30/90	R-n Duck	36
5/16/90	Redhead	925	5/30/90	R-n Grebe	69
5/16/90	Ruddy Duck	22	5/30/90	Redhead	414
5/16/90	Scaup	18	5/30/90	Ruddy Duck	7
5/16/90	Shoveler	10	5/30/90	Scaup	25
5/16/90	Teal	11	5/30/90	Shoveler	26
5/16/90	W Grebe	22	5/30/90	Teal	35
5/16/90	Wigeon	9	5/30/90	W Grebe	56
5/16/90	TOTAL	7576	5/30/90	Wood Duck	17
5/23/90	B Tern	461	5/30/90	TOTAL	5012
5/23/90	B-w Teal	46	6/6/90	B Tern	464
5/23/90	Bufflehead	86	6/6/90	Bittern	11
5/23/90	C Goose	563	6/6/90	Bufflehead	14
5/23/90	C Merganser	223	6/6/90	C Goose	397
5/23/90	C Teal	203	6/6/90	C Teal	116
5/23/90	Coot	1841	6/6/90	Coot	1337
5/23/90	Ducks	219	6/6/90	Ducks	2228
5/23/90	F Tern	40	6/6/90	F Tern	1
5/23/90	Gadwall	149	6/6/90	Gadwall	3
5/23/90	Goldeneye	224	6/6/90	Goldeneye	29
5/23/90	Heron	111	6/6/90	Grebes	50
5/23/90	Mallard	1138	6/6/90	Heron	335
5/23/90	P-b Grebe	13	6/6/90	Loon	5
5/23/90	R-n Duck	48	6/6/90	Mallard	1227
5/23/90	R-n Grebe	226	6/6/90	R-n Duck	22
5/23/90	Redhead	1018	6/6/90	R-n Grebe	120
5/23/90	Ruddy Duck	153	6/6/90	Redhead	1073
5/23/90	Scaup	29	6/6/90	Ruddy Duck	79
5/23/90	Shoveler	62	6/6/90	Scaup	7
5/23/90	Teal	19	6/6/90	Teal	18
5/23/90	W Grebe	234	6/6/90	W Grebe	169
5/23/90	Wigeon	18	6/6/90	TOTAL	7705
5/23/90	TOTAL	7124	6/13/90	B Tern	367
5/30/90	B Tern	196	6/13/90	Bufflehead	37
5/30/90	C Goose	249	6/13/90	C Goose	635

Table 6. (continued).

Date	Species	Number	Date	Species	Number
6/13/90	C Merganser	26	6/27/90	C Teal	6
6/13/90	C Teal	59	6/27/90	Coot	791
6/13/90	Canvasback	9	6/27/90	Ducks	2710
6/13/90	Coot	2216	6/27/90	F Tern	8
6/13/90	Ducks	2921	6/27/90	Gadwall	45
6/13/90	F Tern	26	6/27/90	Gulls	11
6/13/90	Gadwall	54	6/27/90	Heron	137
6/13/90	Goldeneye	12	6/27/90	Mallard	1080
6/13/90	Grebes	311	6/27/90	R-n Grebe	68
6/13/90	Heron	235	6/27/90	Redhead	134
6/13/90	Mallard	972	6/27/90	Ruddy Duck	10
6/13/90	R-n Duck	9	6/27/90	Scaup	12
6/13/90	R-n Grebe	151	6/27/90	Shoveler	10
6/13/90	Redhead	1116	6/27/90	W Grebe	74
6/13/90	Ruddy Duck	188	6/27/90	TOTAL	5777
6/13/90	Scaup	60	7/4/90	B Tern	619
6/13/90	Shoveler	22	7/4/90	B-w Teal	32
6/13/90	Teal	59	7/4/90	Bufflehead	5
6/13/90	W Grebe	158	7/4/90	C Goose	58
6/13/90	Wood Duck	40	7/4/90	C Merganser	4
6/13/90	TOTAL	9683	7/4/90	Coot	1055
6/20/90	B Tern	132	7/4/90	Divers	15
6/20/90	B-w Teal	10	7/4/90	Ducks	4997
6/20/90	Bufflehead	13	7/4/90	F Tern	24
6/20/90	C Goose	563	7/4/90	Gadwall	23
6/20/90	C Teal	26	7/4/90	Goldeneye	22
6/20/90	Coot	589	7/4/90	Gulls	56
6/20/90	Ducks	3874	7/4/90	Heron	175
6/20/90	F Tern	26	7/4/90	Mallard	912
6/20/90	Gadwall	10	7/4/90	R-n Grebe	206
6/20/90	Grebes	39	7/4/90	Redhead	518
6/20/90	Gulls	2	7/4/90	Ruddy Duck	6
6/20/90	Heron	129	7/4/90	Scaup	5
6/20/90	Mallard	490	7/4/90	Shoveler	7
6/20/90	R-n Grebe	20	7/4/90	Teal	16
6/20/90	Redhead	854	7/4/90	W Grebe	301
6/20/90	Ruddy Duck	30	7/4/90	TOTAL	9056
6/20/90	Scaup	18	7/11/90	B Tern	249
6/20/90	Teal	30	7/11/90	C Goose	1052
6/20/90	W Grebe	14	7/11/90	Coot	867
6/20/90	TOTAL	6869	7/11/90	Ducks	6346
6/27/90	B Tern	461	7/11/90	Goldeneye	76
6/27/90	C Goose	219	7/11/90	Grebes	394
6/27/90	C Merganser	1	7/11/90	Heron	334

Table 6. (continued).

Date	Species	Number	Date	Species	Number
7/11/90	Loon	5	8/1/90	F Tern	9
7/11/90	Mallard	342	8/1/90	Heron	100
7/11/90	R-n Grebe	16	8/1/90	Mallard	1143
7/11/90	Redhead	155	8/1/90	R-n Grebe	84
7/11/90	Ruddy Duck	16	8/1/90	Redhead	1538
7/11/90	Scaup	15	8/1/90	W Grebe	97
7/11/90	W Grebe	66	8/1/90	TOTAL	12450
7/11/90	TOTAL	9933	8/8/90	B Tern	60
7/18/90	B Tern	163	8/8/90	B-w Teal	7
7/18/90	C Goose	368	8/8/90	C Goose	53
7/18/90	Coot	1971	8/8/90	Coot	4900
7/18/90	Ducks	5618	8/8/90	Ducks	4509
7/18/90	Gadwall	16	8/8/90	Heron	126
7/18/90	Grebes	370	8/8/90	Mallard	2141
7/18/90	Heron	193	8/8/90	R-n Grebe	69
7/18/90	Mallard	551	8/8/90	Redhead	767
7/18/90	R-n Grebe	63	8/8/90	W Grebe	91
7/18/90	Redhead	62	8/8/90	Wood Duck	11
7/18/90	Ruddy Duck	28	8/8/90	TOTAL	12734
7/18/90	Scaup	16	8/15/90	B Tern	34
7/18/90	Shoveler	10	8/15/90	C Goose	65
7/18/90	W Grebe	33	8/15/90	Coot	8436
7/18/90	Wood Duck	21	8/15/90	Ducks	6397
7/18/90	TOTAL	9483	8/15/90	Gadwall	357
7/25/90	B Tern	327	8/15/90	Gulls	210
7/25/90	B-w Teal	35	8/15/90	Heron	180
7/25/90	C Goose	916	8/15/90	Mallard	2303
7/25/90	C Merganser	3	8/15/90	P-b Grebe	11
7/25/90	Coot	4450	8/15/90	R-n Duck	170
7/25/90	Ducks	10206	8/15/90	R-n Grebe	103
7/25/90	F Tern	6	8/15/90	Redhead	852
7/25/90	Gadwall	5	8/15/90	Shorebirds	754
7/25/90	Grebes	43	8/15/90	Teal	155
7/25/90	Mallard	355	8/15/90	W Grebe	152
7/25/90	R-n Grebe	130	8/15/90	Wigeon	20
7/25/90	Redhead	101	8/15/90	Wood Duck	14
7/25/90	Scaup	55	8/15/90	TOTAL	20213
7/25/90	W Grebe	239	8/22/90	B Tern	25
7/25/90	Wood Duck	101	8/22/90	B-w Teal	272
7/25/90	TOTAL	16972	8/22/90	C Goose	140
8/1/90	B Tern	68	8/22/90	Coot	7815
8/1/90	C Goose	401	8/22/90	Ducks	7673
8/1/90	Coot	2647	8/22/90	F Tern	8
8/1/90	Ducks	6363	8/22/90	Gadwall	30

Table 6. (continued).

Date	Species	Number	Date	Species	Number
8/22/90	Heron	140	9/12/90	B-w Teal	9
8/22/90	Mallard	3865	9/12/90	C Goose	69
8/22/90	Pintail	11	9/12/90	C Merganser	8
8/22/90	R-n Grebe	88	9/12/90	C Teal	18
8/22/90	Redhead	953	9/12/90	Coot	5353
8/22/90	Scaup	254	9/12/90	Ducks	7261
8/22/90	Teal	136	9/12/90	Heron	165
8/22/90	W Grebe	38	9/12/90	Heron	15
8/22/90	Wood Duck	17	9/12/90	Mallard	8004
8/22/90	TOTAL	21465	9/12/90	Redhead	1360
8/29/90	B Tern	7	9/12/90	Teal	41
8/29/90	B-w Teal	9	9/12/90	W Grebe	74
8/29/90	C Goose	630	9/12/90	Wigeon	3561
8/29/90	Coot	7974	9/12/90	TOTAL	25938
8/29/90	Ducks	4250	9/19/90	B-w Teal	20
8/29/90	Gadwall	500	9/19/90	C Goose	1098
8/29/90	Heron	216	9/19/90	Coot	11392
8/29/90	Mallard	2300	9/19/90	Ducks	6773
8/29/90	Pintail	8	9/19/90	Gadwall	43
8/29/90	R Merganser	84	9/19/90	Heron	91
8/29/90	R-n Grebe	49	9/19/90	Mallard	2965
8/29/90	Redhead	1939	9/19/90	R-n Grebe	0
8/29/90	Scaup	23	9/19/90	Redhead	3170
8/29/90	W Grebe	418	9/19/90	Teal	317
8/29/90	TOTAL	18407	9/19/90	W Grebe	276
9/5/90	B-w Teal	22	9/19/90	Wigeon	2371
9/5/90	C Goose	31	9/19/90	TOTAL	28516
9/5/90	C Teal	16	9/26/90	B-w Teal	9
9/5/90	Coot	11208	9/26/90	C Goose	1556
9/5/90	Cormorant	5	9/26/90	Coot	13678
9/5/90	Ducks	8770	9/26/90	Ducks	6058
9/5/90	Gadwall	408	9/26/90	Heron	191
9/5/90	Gulls	56	9/26/90	Mallard	6803
9/5/90	Heron	127	9/26/90	Pintail	172
9/5/90	Mallard	1012	9/26/90	Redhead	9390
9/5/90	R-n Grebe	11	9/26/90	Scaup	119
9/5/90	Redhead	2038	9/26/90	Teal	208
9/5/90	Scaup	2	9/26/90	W Grebe	243
9/5/90	Shoveler	8	9/26/90	Wigeon	7879
9/5/90	Teal	214	9/26/90	TOTAL	46306
9/5/90	W Grebe	271	10/3/90	C Goose	277
9/5/90	W-f Goose	103	10/3/90	Coot	15550
9/5/90	Wigeon	3987	10/3/90	Ducks	5625
9/5/90	TOTAL	28289	10/3/90	Gadwall	155

Table 6. (continued).

Date	Species	Number	Date	Species	Number
10/3/90	Goldeneye	113	10/17/90	Redhead	380
10/3/90	H Merganser	28	10/17/90	Scaup	209
10/3/90	Heron	53	10/17/90	Shorebirds	153
10/3/90	Mallard	1979	10/17/90	Shoveler	21
10/3/90	Pintail	258	10/17/90	Teal	2079
10/3/90	R-n Duck	181	10/17/90	W Grebe	12
10/3/90	Redhead	1166	10/17/90	W-f Goose	277
10/3/90	Scaup	534	10/17/90	Wigeon	17418
10/3/90	Teal	917	10/17/90	TOTAL	40931
10/3/90	W Grebe	11	10/24/90	Bufflehead	425
10/3/90	W-f Goose	1670	10/24/90	C Goose	3356
10/3/90	Wigeon	15429	10/24/90	Canvasback	769
10/3/90	TOTAL	43946	10/24/90	Coot	12235
10/10/90	C Goose	6530	10/24/90	Ducks	5950
10/10/90	Canvasback	322	10/24/90	Gadwall	751
10/10/90	Coot	7463	10/24/90	Goldeneye	220
10/10/90	Ducks	17277	10/24/90	Gulls	129
10/10/90	Gadwall	283	10/24/90	Heron	42
10/10/90	Goldeneye	113	10/24/90	Mallard	8622
10/10/90	Gulls	76	10/24/90	P-b Grebe	6
10/10/90	Heron	11	10/24/90	Pintail	546
10/10/90	Mallard	3038	10/24/90	Redhead	2681
10/10/90	Pintail	820	10/24/90	Scaup	320
10/10/90	Redhead	1240	10/24/90	Swan	1
10/10/90	Scaup	13	10/24/90	Teal	521
10/10/90	Shorebirds	357	10/24/90	W Grebe	192
10/10/90	Teal	305	10/24/90	W-f Goose	331
10/10/90	W Grebe	45	10/24/90	Wigeon	24977
10/10/90	W-f Goose	1103	10/24/90	TOTAL	62074
10/10/90	Wigeon	10665	10/31/90	Bufflehead	1242
10/10/90	TOTAL	49661	10/31/90	C Goose	85
10/17/90	Bufflehead	225	10/31/90	Canvasback	486
10/17/90	C Goose	2029	10/31/90	Coot	10032
10/17/90	C Merganser	1	10/31/90	Ducks	5078
10/17/90	Canvasback	112	10/31/90	Gulls	6
10/17/90	Coot	9197	10/31/90	H Merganser	83
10/17/90	Ducks	4327	10/31/90	Heron	31
10/17/90	Gadwall	507	10/31/90	Mallard	4927
10/17/90	Goldeneye	28	10/31/90	Pintail	588
10/17/90	Gulls	186	10/31/90	R-n Duck	56
10/17/90	H Merganser	19	10/31/90	Redhead	1348
10/17/90	Heron	40	10/31/90	Scaup	426
10/17/90	Mallard	2961	10/31/90	Swan	20
10/17/90	Pintail	750	10/31/90	Teal	383

Table 6. (continued).

Date	Species	Number
10/31/90	W Grebe	96
10/31/90	Wigeon	21633
10/31/90	TOTAL	46520
11/14/90	Bufflehead	397
11/14/90	C Goose	300
11/14/90	C Merganser	27
11/14/90	Coot	4468
11/14/90	Ducks	921
11/14/90	Goldeneye	90
11/14/90	Heron	54
11/14/90	Mallard	2528
11/14/90	Redhead	1370
11/14/90	Scaup	311
11/14/90	Swan	423
11/14/90	Teal	153
11/14/90	W Grebe	185
11/14/90	Wigeon	12279
11/14/90	TOTAL	23506
11/14/90	TOTAL	816401

Table 7. Aerial survey data collected on the CVWMA in 1991.

Date	Species	Number	Date	Species	Number
4/3/91	Birds	925	4/17/91	B-w Teal	11
4/3/91	Bufflehead	755	4/17/91	Bufflehead	625
4/3/91	C Goose	777	4/17/91	C Goose	372
4/3/91	C Merganser	169	4/17/91	C Merganser	66
4/3/91	Coot	2017	4/17/91	C Teal	38
4/3/91	Ducks	1701	4/17/91	Coot	6550
4/3/91	Goldeneye	543	4/17/91	Ducks	3685
4/3/91	Gulls	130	4/17/91	Gadwall	232
4/3/91	Heron	10	4/17/91	Goldeneye	182
4/3/91	Mallard	3187	4/17/91	Gulls	64
4/3/91	Pintail	2081	4/17/91	H Merganser	39
4/3/91	R-n Duck	2	4/17/91	Heron	45
4/3/91	Redhead	4097	4/17/91	Mallard	1318
4/3/91	Scaup	847	4/17/91	Pintail	930
4/3/91	Shoveler	45	4/17/91	R-n Duck	46
4/3/91	Swan	46	4/17/91	R-n Grebe	47
4/3/91	Teal	356	4/17/91	Redhead	1103
4/3/91	W-f Goose	125	4/17/91	Ruddy Duck	11
4/3/91	Wigeon	7006	4/17/91	Scaup	1255
4/3/91	TOTAL	24819	4/17/91	Shoveler	67
4/10/91	Bufflehead	1216	4/17/91	Swan	72
4/10/91	C Goose	436	4/17/91	Teal	784
4/10/91	C Merganser	144	4/17/91	W-f Goose	122
4/10/91	Canvasback	36	4/17/91	Wigeon	1822
4/10/91	Coot	3733	4/17/91	TOTAL	19486
4/10/91	Ducks	3686	4/24/91	B-w Teal	9
4/10/91	Gadwall	260	4/24/91	Bufflehead	384
4/10/91	Goldeneye	741	4/24/91	C Goose	366
4/10/91	Gulls	114	4/24/91	C Merganser	77
4/10/91	H Merganser	13	4/24/91	C Teal	28
4/10/91	Heron	61	4/24/91	Canvasback	92
4/10/91	Mallard	1782	4/24/91	Coot	4075
4/10/91	Pintail	2150	4/24/91	Ducks	877
4/10/91	R-n Duck	36	4/24/91	G-w Teal	731
4/10/91	Redhead	2281	4/24/91	Gadwall	156
4/10/91	Ruddy Duck	35	4/24/91	Goldeneye	92
4/10/91	Scaup	1006	4/24/91	Gulls	68
4/10/91	Shoveler	1	4/24/91	Heron	82
4/10/91	Swan	85	4/24/91	Mallard	832
4/10/91	Teal	557	4/24/91	Pintail	654
4/10/91	W-f Goose	428	4/24/91	R-n Duck	137
4/10/91	Wigeon	3199	4/24/91	R-n Grebe	33
4/10/91	Wood Duck	16	4/24/91	Redhead	855
4/10/91	TOTAL	22016	4/24/91	Ruddy Duck	172

Table 7. (continued).

Date	Species	Number	Date	Species	Number
4/24/91	Scaup	417	5/8/91	Heron	63
4/24/91	Shoveler	176	5/8/91	Mallard	1069
4/24/91	Swan	48	5/8/91	Pintail	4
4/24/91	Teal	639	5/8/91	R-n Duck	78
4/24/91	W Grebe	5	5/8/91	R-n Grebe	354
4/24/91	Wigeon	652	5/8/91	Redhead	1017
4/24/91	Wood Duck	31	5/8/91	Ruddy Duck	468
4/24/91	TOTAL	11688	5/8/91	Scaup	1485
5/1/91	Bufflehead	1069	5/8/91	Shoveler	121
5/1/91	C Goose	509	5/8/91	Swan	17
5/1/91	C Merganser	2	5/8/91	Teal	67
5/1/91	C Teal	83	5/8/91	W Grebe	745
5/1/91	Canvasback	56	5/8/91	Wigeon	484
5/1/91	Coot	2132	5/8/91	Wood Duck	153
5/1/91	Ducks	171	5/8/91	TOTAL	14100
5/1/91	Gadwall	10	5/15/91	B Tern	43
5/1/91	Goldeneye	31	5/15/91	Birds	7
5/1/91	Heron	157	5/15/91	Bufflehead	29
5/1/91	Mallard	2281	5/15/91	C Goose	691
5/1/91	Pintail	151	5/15/91	C Teal	11
5/1/91	R-n Duck	11	5/15/91	Canvasback	18
5/1/91	R-n Grebe	20	5/15/91	Coot	2831
5/1/91	Redhead	1057	5/15/91	Ducks	432
5/1/91	Ruddy Duck	194	5/15/91	F Tern	7
5/1/91	Scaup	562	5/15/91	G-w Teal	185
5/1/91	Shoveler	131	5/15/91	Gadwall	23
5/1/91	Swan	55	5/15/91	Goldeneye	135
5/1/91	Teal	188	5/15/91	Heron	76
5/1/91	W Grebe	141	5/15/91	Mallard	2697
5/1/91	Wigeon	898	5/15/91	Pintail	19
5/1/91	Wood Duck	71	5/15/91	R-n Duck	58
5/1/91	TOTAL	9980	5/15/91	R-n Grebe	48
5/8/91	B-w Teal	57	5/15/91	Redhead	1868
5/8/91	Bufflehead	747	5/15/91	Ruddy Duck	6
5/8/91	C Goose	233	5/15/91	Scaup	365
5/8/91	C Merganser	412	5/15/91	Shoveler	42
5/8/91	C Teal	263	5/15/91	Swan	6
5/8/91	Canvasback	11	5/15/91	Teal	176
5/8/91	Coot	4855	5/15/91	W Grebe	713
5/8/91	Ducks	855	5/15/91	Wigeon	354
5/8/91	G-w Teal	156	5/15/91	Wood Duck	23
5/8/91	Gadwall	154	5/15/91	TOTAL	10863
5/8/91	Goldeneye	217	5/22/91	B Tern	428
5/8/91	H Merganser	15	5/22/91	C Goose	247

Table 7. (continued).

Date	Species	Number	Date	Species	Number
5/22/91	C Merganser	10	6/5/91	B-w Teal	46
5/22/91	C Teal	137	6/5/91	Bufflehead	22
5/22/91	Coot	867	6/5/91	C Goose	42
5/22/91	Ducks	67	6/5/91	C Merganser	12
5/22/91	F Tern	32	6/5/91	C Teal	76
5/22/91	Gadwall	108	6/5/91	Coot	974
5/22/91	Goldeneye	9	6/5/91	Ducks	16
5/22/91	Heron	77	6/5/91	F Tern	46
5/22/91	Mallard	634	6/5/91	Gadwall	41
5/22/91	R-n Duck	127	6/5/91	Gulls	42
5/22/91	R-n Grebe	71	6/5/91	Heron	140
5/22/91	Redhead	599	6/5/91	Mallard	1197
5/22/91	Ruddy Duck	36	6/5/91	R-n Duck	91
5/22/91	Scaup	129	6/5/91	R-n Grebe	129
5/22/91	Shoveler	16	6/5/91	Redhead	1134
5/22/91	Swan	2	6/5/91	Ruddy Duck	84
5/22/91	Teal	111	6/5/91	Scaup	19
5/22/91	W Grebe	22	6/5/91	Teal	85
5/22/91	Wigeon	9	6/5/91	W Grebe	112
5/22/91	Wood Duck	11	6/5/91	Wood Duck	49
5/22/91	TOTAL	3749	6/5/91	TOTAL	4707
5/29/91	B Tern	117	6/12/91	B Tern	111
5/29/91	B-w Teal	8	6/12/91	B-w Teal	7
5/29/91	Bufflehead	53	6/12/91	C Goose	338
5/29/91	C Goose	263	6/12/91	C Merganser	22
5/29/91	C Teal	48	6/12/91	C Teal	64
5/29/91	Coot	1091	6/12/91	Coot	363
5/29/91	G-w Teal	21	6/12/91	Ducks	137
5/29/91	Gadwall	15	6/12/91	F Tern	38
5/29/91	Goldeneye	11	6/12/91	Gulls	15
5/29/91	H Merganser	24	6/12/91	Heron	40
5/29/91	Heron	95	6/12/91	Mallard	1534
5/29/91	Mallard	1345	6/12/91	Pelicans	2
5/29/91	R-n Duck	8	6/12/91	R-n Grebe	43
5/29/91	R-n Grebe	74	6/12/91	Redhead	367
5/29/91	Redhead	995	6/12/91	Ruddy Duck	27
5/29/91	Scaup	55	6/12/91	Scaup	62
5/29/91	Shoveler	10	6/12/91	Swan	7
5/29/91	Teal	196	6/12/91	Teal	112
5/29/91	W Grebe	344	6/12/91	W Grebe	11
5/29/91	Wigeon	59	6/12/91	Wigeon	95
5/29/91	Wood Duck	29	6/12/91	Wood Duck	30
5/29/91	TOTAL	4861	6/12/91	TOTAL	3425
6/5/91	B Tern	350	6/19/91	B Tern	267

Table 7. (continued).

Date	Species	Number	Date	Species	Number
6/19/91	C Goose	173	7/3/91	B-w Teal	391
6/19/91	C Teal	20	7/3/91	Bufflehead	25
6/19/91	Coot	664	7/3/91	C Goose	320
6/19/91	Ducks	181	7/3/91	C Merganser	46
6/19/91	F Tern	17	7/3/91	C Teal	57
6/19/91	Gadwall	118	7/3/91	Coot	1186
6/19/91	Goldeneye	10	7/3/91	Ducks	32
6/19/91	Gulls	31	7/3/91	Goldeneye	90
6/19/91	Heron	129	7/3/91	Gulls	128
6/19/91	Mallard	1313	7/3/91	Heron	152
6/19/91	R-n Duck	47	7/3/91	Mallard	3229
6/19/91	R-n Grebe	81	7/3/91	Pintail	146
6/19/91	Redhead	388	7/3/91	R-n Grebe	38
6/19/91	Ruddy Duck	47	7/3/91	Redhead	2545
6/19/91	Scaup	312	7/3/91	Scaup	6
6/19/91	Shoveler	10	7/3/91	Swan	9
6/19/91	Swan	12	7/3/91	Teal	74
6/19/91	Teal	36	7/3/91	W Grebe	78
6/19/91	W Grebe	117	7/3/91	Wigeon	715
6/19/91	Wigeon	30	7/3/91	Wood Duck	23
6/19/91	TOTAL	4003	7/3/91	TOTAL	9290
6/26/91	B Tern	322	7/10/91	B-w Teal	352
6/26/91	Birds	165	7/10/91	Birds	9
6/26/91	C Goose	202	7/10/91	Bufflehead	51
6/26/91	C Merganser	17	7/10/91	C Goose	537
6/26/91	C Teal	42	7/10/91	C Merganser	35
6/26/91	Coot	861	7/10/91	C Teal	38
6/26/91	Ducks	705	7/10/91	Coot	2130
6/26/91	F Tern	27	7/10/91	Ducks	89
6/26/91	Gulls	37	7/10/91	G-w Teal	8
6/26/91	Heron	84	7/10/91	Gadwall	9
6/26/91	Mallard	1442	7/10/91	Goldeneye	348
6/26/91	R-n Duck	122	7/10/91	Grebes	22
6/26/91	R-n Grebe	121	7/10/91	Gulls	166
6/26/91	Redhead	398	7/10/91	Heron	367
6/26/91	Ruddy Duck	38	7/10/91	Mallard	5212
6/26/91	Scaup	106	7/10/91	R-n Grebe	174
6/26/91	Shorebirds	9	7/10/91	Redhead	2287
6/26/91	Shoveler	20	7/10/91	Ruddy Duck	46
6/26/91	Teal	89	7/10/91	Scaup	73
6/26/91	W Grebe	213	7/10/91	Swan	10
6/26/91	Wigeon	11	7/10/91	Teal	133
6/26/91	Wood Duck	15	7/10/91	W Grebe	327
6/26/91	TOTAL	5046	7/10/91	Wigeon	358

Table 7. (continued).

Date	Species	Number	Date	Species	Number
7/10/91	TOTAL	12781	7/31/91	B Tern	38
7/17/91	B Tern	367	7/31/91	C Goose	848
7/17/91	B-w Teal	10	7/31/91	C Merganser	1
7/17/91	Bufflehead	68	7/31/91	Coot	3364
7/17/91	C Goose	972	7/31/91	Ducks	1366
7/17/91	C Merganser	45	7/31/91	Goldeneye	36
7/17/91	Coot	2983	7/31/91	Gulls	206
7/17/91	Ducks	3052	7/31/91	Heron	201
7/17/91	F Tern	9	7/31/91	Mallard	5143
7/17/91	Gadwall	30	7/31/91	R-n Grebe	63
7/17/91	Goldeneye	27	7/31/91	Redhead	1181
7/17/91	Gulls	113	7/31/91	Scaup	96
7/17/91	Heron	388	7/31/91	Shorebirds	21
7/17/91	Mallard	4563	7/31/91	Teal	232
7/17/91	R-n Grebe	94	7/31/91	W Grebe	90
7/17/91	Redhead	1975	7/31/91	Wigeon	211
7/17/91	Scaup	532	7/31/91	Wood Duck	82
7/17/91	Shoveler	6	7/31/91	TOTAL	13179
7/17/91	Teal	140	8/7/91	B Tern	84
7/17/91	W Grebe	147	8/7/91	Birds	22
7/17/91	Wigeon	61	8/7/91	C Goose	86
7/17/91	Wood Duck	52	8/7/91	C Merganser	30
7/17/91	TOTAL	15634	8/7/91	Coot	2174
7/24/91	B Tern	320	8/7/91	Ducks	1667
7/24/91	C Goose	1250	8/7/91	Gulls	109
7/24/91	C Merganser	22	8/7/91	Heron	77
7/24/91	C Teal	11	8/7/91	Mallard	1615
7/24/91	Coot	2052	8/7/91	R-n Duck	110
7/24/91	Cormorant	5	8/7/91	R-n Grebe	67
7/24/91	Ducks	2551	8/7/91	Redhead	1371
7/24/91	F Tern	33	8/7/91	Scaup	742
7/24/91	Gadwall	28	8/7/91	Shorebirds	24
7/24/91	Gulls	667	8/7/91	Teal	100
7/24/91	Heron	180	8/7/91	W Grebe	153
7/24/91	Mallard	1078	8/7/91	Wood Duck	31
7/24/91	R-n Duck	21	8/7/91	TOTAL	8462
7/24/91	R-n Grebe	48	8/14/91	B Tern	44
7/24/91	Redhead	465	8/14/91	B-w Teal	191
7/24/91	Ruddy Duck	93	8/14/91	Bald Eagles	2
7/24/91	Scaup	86	8/14/91	Birds	154
7/24/91	Swan	9	8/14/91	C Goose	88
7/24/91	Teal	15	8/14/91	C Merganser	48
7/24/91	W Grebe	146	8/14/91	Coot	3839
7/24/91	TOTAL	9080	8/14/91	Ducks	1786

Table 7. (continued).

Date	Species	Number	Date	Species	Number
8/14/91	Gadwall	28	8/28/91	Redhead	1990
8/14/91	Goldeneye	7	8/28/91	Scaup	180
8/14/91	Gulls	50	8/28/91	Swan	1
8/14/91	Heron	184	8/28/91	Teal	359
8/14/91	Loon	1	8/28/91	W Grebe	72
8/14/91	Mallard	5419	8/28/91	Wigeon	1070
8/14/91	P-b Grebe	9	8/28/91	Wood Duck	22
8/14/91	R-n Duck	23	8/28/91	TOTAL	17779
8/14/91	R-n Grebe	22	9/4/91	B Tern	14
8/14/91	Redhead	1664	9/4/91	C Goose	253
8/14/91	Ruddy Duck	56	9/4/91	C Merganser	5
8/14/91	Shorebirds	3	9/4/91	Coot	4010
8/14/91	Shorebirds	20	9/4/91	Cormorants	3
8/14/91	Teal	243	9/4/91	Ducks	5199
8/14/91	W Grebe	22	9/4/91	Gulls	58
8/14/91	Wigeon	129	9/4/91	Heron	126
8/14/91	Wood Duck	29	9/4/91	Mallard	1097
8/14/91	TOTAL	14061	9/4/91	Pintail	16
8/21/91	B Tern	7	9/4/91	R-n Duck	11
8/21/91	C Goose	7	9/4/91	R-n Grebe	18
8/21/91	C Merganser	25	9/4/91	Redhead	1785
8/21/91	Coot	1411	9/4/91	Shoveler	9
8/21/91	Ducks	2895	9/4/91	Teal	83
8/21/91	Gadwall	28	9/4/91	W Grebe	95
8/21/91	Gulls	257	9/4/91	Wigeon	306
8/21/91	Heron	97	9/4/91	TOTAL	13088
8/21/91	Mallard	763	9/11/91	Birds	113
8/21/91	R-n Grebe	42	9/11/91	C Goose	244
8/21/91	Redhead	1615	9/11/91	C Merganser	5
8/21/91	Scaup	35	9/11/91	Coot	7085
8/21/91	Shorebird	1	9/11/91	Cormorants	4
8/21/91	Teal	35	9/11/91	Ducks	5090
8/21/91	W Grebe	50	9/11/91	Gadwall	35
8/21/91	Wigeon	217	9/11/91	Gulls	389
8/21/91	TOTAL	7485	9/11/91	Heron	74
8/28/91	B-w Teal	28	9/11/91	Mallard	1460
8/28/91	C Goose	18	9/11/91	R-n Grebe	33
8/28/91	Coot	7376	9/11/91	Redhead	416
8/28/91	Ducks	2258	9/11/91	Scaup	228
8/28/91	Gulls	27	9/11/91	Shoveler	9
8/28/91	Heron	69	9/11/91	Teal	222
8/28/91	Mallard	4233	9/11/91	W Grebe	140
8/28/91	R-n Duck	60	9/11/91	W-f Goose	20
8/28/91	R-n Grebe	16	9/11/91	Wigeon	4196

Table 7. (continued).

Date	Species	Number	Date	Species	Number
9/11/91	TOTAL	19763	10/8/91	Ducks	19479
9/19/91	C Goose	546	10/8/91	Gulls	206
9/19/91	C Merganser	34	10/8/91	Heron	109
9/19/91	Coot	4162	10/8/91	Mallard	2996
9/19/91	Ducks	5786	10/8/91	Pintail	118
9/19/91	Gadwall	225	10/8/91	R-n Grebe	16
9/19/91	Gulls	87	10/8/91	Redhead	3398
9/19/91	H Merganser	17	10/8/91	Scaup	152
9/19/91	Heron	14	10/8/91	Swan	2
9/19/91	Mallard	1204	10/8/91	Teal	164
9/19/91	P-b Grebe	33	10/8/91	W Grebe	197
9/19/91	R-n Duck	357	10/8/91	W-f Goose	100
9/19/91	R-n Grebe	19	10/8/91	Wigeon	6480
9/19/91	Redhead	554	10/8/91	TOTAL	41408
9/19/91	Swan	1	10/17/91	Birds	23
9/19/91	Teal	84	10/17/91	Bufflehead	50
9/19/91	W-f Goose	51	10/17/91	C Goose	1923
9/19/91	Wigeon	1973	10/17/91	Coot	185
9/19/91	TOTAL	15147	10/17/91	Ducks	13124
9/25/91	C Goose	1957	10/17/91	Goldeneye	45
9/25/91	C Merganser	2	10/17/91	Gulls	564
9/25/91	Canvasback	11	10/17/91	H Merganser	8
9/25/91	Coot	8502	10/17/91	Heron	56
9/25/91	Cormorants	4	10/17/91	Mallard	4185
9/25/91	Ducks	5764	10/17/91	Pintail	1036
9/25/91	Gadwall	36	10/17/91	Redhead	1743
9/25/91	Gulls	697	10/17/91	Swan	28
9/25/91	Heron	19	10/17/91	Teal	158
9/25/91	Mallard	805	10/17/91	W-f Goose	300
9/25/91	P-b Grebe	9	10/17/91	Wigeon	6922
9/25/91	Pintail	28	10/17/91	TOTAL	30350
9/25/91	R-n Duck	14	10/23/91	Bufflehead	165
9/25/91	R-n Grebe	5	10/23/91	C Goose	2420
9/25/91	Redhead	4171	10/23/91	Canvasback	49
9/25/91	Scaup	244	10/23/91	Coot	5772
9/25/91	Teal	176	10/23/91	Ducks	6447
9/25/91	W Grebe	152	10/23/91	Goldeneye	36
9/25/91	W-f Goose	100	10/23/91	Heron	38
9/25/91	Wigeon	11392	10/23/91	Mallard	11678
9/25/91	TOTAL	34088	10/23/91	Pintail	19
10/8/91	C Goose	2016	10/23/91	R-n Duck	113
10/8/91	C Merganser	25	10/23/91	Redhead	1723
10/8/91	Canvasback	22	10/23/91	Scaup	113
10/8/91	Coot	5928	10/23/91	Swan	402

Table 7. (continued).

Date	Species	Number	Date	Species	Number
10/23/91	Teal	156	11/13/91	Heron	57
10/23/91	W-f Goose	100	11/13/91	Mallard	8580
10/23/91	Wigeon	8871	11/13/91	Pintail	238
10/23/91	TOTAL	38102	11/13/91	R-n Grebe	12
10/30/91	Bufflehead	207	11/13/91	Redhead	2300
10/30/91	C Goose	757	11/13/91	Scaup	839
10/30/91	C Merganser	52	11/13/91	Swan	868
10/30/91	Canvasback	11	11/13/91	Teal	210
10/30/91	Coot	4697	11/13/91	W Grebe	51
10/30/91	Ducks	15559	11/13/91	Wigeon	10544
10/30/91	Gulls	35	11/13/91	TOTAL	39733
10/30/91	H Merganser	20	11/13/91	TOTAL	571912
10/30/91	Heron	49			
10/30/91	Mallard	9878			
10/30/91	Pintail	716			
10/30/91	Redhead	1868			
10/30/91	Scaup	79			
10/30/91	Swan	1201			
10/30/91	Teal	105			
10/30/91	W Grebe	16			
10/30/91	Wigeon	8162			
10/30/91	TOTAL	43412			
11/6/91	Bufflehead	304			
11/6/91	C Goose	2288			
11/6/91	C Merganser	2			
11/6/91	Canvasback	52			
11/6/91	Coot	5513			
11/6/91	Ducks	31579			
11/6/91	H Merganser	56			
11/6/91	Heron	130			
11/6/91	Mallard	6372			
11/6/91	Pintail	1039			
11/6/91	Redhead	200			
11/6/91	Scaup	698			
11/6/91	Swan	395			
11/6/91	Wigeon	1699			
11/6/91	TOTAL	50327			
11/13/91	Bufflehead	113			
11/13/91	C Goose	2963			
11/13/91	C Merganser	497			
11/13/91	Coot	1046			
11/13/91	Ducks	11245			
11/13/91	Goldeneye	51			
11/13/91	H Merganser	119			

Table 8. Use of nesting islands by waterfowl, 1972-1979.

	1972	1973	1974	1975	1976	1977	1978	1979
DLNA:								
Number islands available	95	95	95	95	95	95	95	95
Goose nests	0	0	0	2	3	6	10	16
Number abandoned				0	0	0	0	0
Number depredated				0	0	0	0	2
Number successful	0	0	0	2	3	6	10	14
Duck nests								
Mallard		4	7	11	10	8	14	4
Teal		2	3	6	8	3		
Shoveler								1
Redhead						2		
Total	0	6	10	17	18	13	14	5
Number abandoned	0	2	0	2	0	0	0	0
Number depredated	0	0	17	13	4	6	2	
Number successful	0	6	8	0	3	9	8	3
CCM 2:								
Number islands available							10	
Goose nests							2	
Number abandoned							0	
Number depredated							0	
Number successful							2	
Duck nests								
Mallard							1	
Total							1	
Number abandoned							0	
Number depredated							1	
Number successful							0	
LL1:								
Number islands available						15	15	
Goose nests							3	
Number abandoned							0	
Number depredated							0	
Number successful							3	
Duck nests								
Mallard						11	5	
Teal						3		
R-n Duck						1		
Total						15	5	
Number abandoned						1	0	
Number depredated						2	1	
Number successful						12	4	
LL 2:								
Number islands available						5	5	
Goose nests						0	0	
Duck nests						0	0	
Total						0	0	

Table 9. Use of nesting islands by waterfowl, 1980-1986.

	1980	1981	1982	1983	1984	1985	1986
DLNA:							
Number islands available	95	95	95	95	95	95	95
Goose nests	9	32	38	50	31	29	39
Number abandoned	0	0	0	0	0	0	0
Number depredated	0	3	2	2	1	5	4
Number successful	9	29	36	48	30	24	35
Duck nests							
Mallard	3	14	10	38	3	8	4
Teal	2	2	1	9	3	3	5
Shoveler				1			
Gadwall		1			1		
Pintail				2			
Redhead				3			
Total	5	17	11	53	7	11	9
Number abandoned	0	1	0	2	0	0	0
Number depredated	4	12	5	37	6	7	3
Number successful	1	4	6	14	1	4	6
CCM 2:							
Number islands available	12	12	12	12	11	11	11
Goose nests	0	1	0	1	0	1	1
Number abandoned	0			0		0	0
Number depredated	0			0		0	0
Number successful	1			1		1	1
Duck nests							
Mallard	1						
Teal	1		1				
Total	2	0	1	0	0	0	0
Number abandoned	0		0				
Number depredated	1		1				
Number successful	1		0				
LL 1:							
Number islands available	15	15	22	22	22	22	22
Goose nests	3	1	2	5	2	2	1
Number abandoned	0	0	0	0	0	0	0
Number depredated	0	0	0	0	0	0	0
Number successful	3	1	2	5	2	2	1
Duck nests							
Mallard	7	2		4	1		3
Teal		1					1
Gadwall						1	
Total	7	3	0	4	1	1	4
Number abandoned	0	0		0	0	0	0
Number depredated	5	2		2	0	0	3
Number successful	2	1		2	1	1	1

Table 9. (continued).

	1980	1981	1982	1983	1984	1985	1986
LL 2:							
Number islands available	5	5	5	5	5	5	5
Goose nests	0	0	0	0	0	0	0
Duck nests							
Teal			1				
Total	0	0	1	0	0	0	0
Number successful			1				
LL 6:							
Number islands available	14	14	14	14	14	14	14
Goose nests	0	0	0	0	0	1	0
Number successful						1	
Duck nests	0	0	0	0	0	0	0
SMS 4:							
Number islands available	11	11	11	11	11	11	11
Goose nests	0	1	3	2	1	2	0
Number abandoned	0	0	0	0	0	0	
Number depredated	0	0	1	0	0	0	
Number successful	1	3	1	1	1	2	
Duck nests							
Mallard	1	5	1	4	1		
Teal	1	3	1	2	0		
Gadwall	1	1					
Total	3	9	2	6	1	0	0
Number abandoned	1	0	0	0	0		
Number depredated	2	6	1	4	0		
Number successful	0	3	1	2	1		
SMS 5:							
Number islands available	6	6	6	6	6	6	6
Goose nests	1	1	2	4	1	1	0
Number abandoned	1	0	0	0	0	0	
Number depredated	0	0	0	1	0	0	
Number successful	0	1	2	3	1	1	
Duck nests							
Mallard	3	1	2		6		
Teal			1				
Shoveler					1		
Redhead		1					
Total	3	2	3	0	7	0	0
Number abandoned	1	0	0		0		
Number depredated	1	0	2		2		
Number successful	1	2	1		5		

Table 10. Waterfowl nests found in upland nesting areas.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Duck Lake:										
Area searched (ha)	20.0	34.0	34.0	9.4	9.0	13.5	0.0	30.8	32.8	35.9
Mallard		4	6	1	0	0		1	2	3
Teal		2	6	2	0	0		2	7	5
Shoveler		1	2			1		1		
Wigeon								1		
Gadwall								3		
Pintail										1
Total nests found	0	7	14	3	0	1	0	8	10	8
Number deserted	0	0	0			0		0	0	0
Number depredated	3	11	2			0		3	8	7
Number successful	0	4	3	1	0	1	0	5	2	1
DLNA:										
Area searched (ha)	31.0	33.0	33.0	5.0	10.5	22.0	25.5	19.8	26.2	25.2
Mallard	4	2	21	1	23	12	5	4	12	18
Teal	1	10	43	1	2	5	16	3	13	4
Shoveler		1	2		3	1	1	1	3	3
Wigeon			1							
Gadwall			1			1	5	2		2
Pintail							1		1	
Redhead			4							1
Total nests found	5	13	72	2	29	24	24	8	32	31
Number deserted	0	0	0	1	1	0	4	0	0	0
Number depredated	5	8	35	1	10	17	13	3	16	13
Number successful	0	5	37	0	18	7	7	5	16	18
SMS 2:										
Area searched (ha)				2.9	8.3	6.6				
Mallard				1	2	1				
Teal				1	1	3				
Shoveler						2				
Total nests found				2	3	6				
Number deserted				0	0	0				
Number depredated				2	3	5				
Number successful				0	0	1				
SMS 3:										
Area searched (ha)				8.6	14.2	6.8				
Mallard				1	1	1				
Teal				2		4				
Shoveler						2				
Total nests found				3	1	7				
Number deserted				0	0	0				
Number depredated				1	0	6				
Number successful				2	1	1				

Table 10. (continued).

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
SMS 4:										
Area searched (ha)				3.0	6.1	13.5				
Teal					1	4				
Shoveler						1				
Gadwall					1					
Ring-necked						1				
Total nests found				0	2	6				
Number deserted										
Number depredated					2	3				
Number successful				0	0	3				
SMS 5:										
Area searched (ha)				4.0	10.6	13.9			54.9	70.6
Mallard										1
Teal					3	3			4	12
Shoveler										1
Total nests found				0	3	3			4	14
Number deserted					0	0			0	0
Number depredated					2	2			1	4
Number successful				0	1	1			3	10
LL 1:										
Area searched (ha)				4.5	5.3	13.8				
Mallard					1	2				
Teal					5	5				
Total nests found				0	6	7				
Number deserted					0	0				
Number depredated					2	4				
Number successful				0	4	3				
LL 2:										
Area searched (ha)				1.6	3.4	6.6				
Mallard				1						
Teal						1				
Total nests found				1	0	1				
Number deserted				0		0				
Number depredated				1		1				
Number successful				0	0	0				
LL 3:										
Area searched (ha)				3.0	3.0	3.5				
Mallard						1				
Teal				1		2				
Total nests found				1	0	3				
Number deserted				0		0				
Number depredated				1		1				
Number successful				0	0	2				

Table 10. (continued).

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
LL 4:										
Area searched (ha)				2.3	2.6	5.3				
Mallard					1					
Teal				1	1	2				
Total nests found				1	2	2				
Number deserted				0	0	0				
Number depredated				1	1	1				
Number successful				0	1	1				
LL 6&7:										
Area searched (ha)				4.0	4.9	15.5				
Mallard				1						
Teal						2				
Total nests found				1	0	2				
Number deserted				0		0				
Number predated				1		2				
Number successful				0	0	0				
CCM 1:										
Area searched (ha)					3.1	5.3				
Total nests found					0	0				
CCM 2:										
Area searched (ha)				10.0	6.8	12.9				
Mallard					3	1				
Teal				1	7	6				
Wigeon					1					
Ring-necked					1					
Total nests found				1	12	7				
Number deserted				0	1	0				
Number depredated				0	5	7				
Number successful				1	6	0				
CCM 3:										
Area searched (ha)					0.2					
Total nests found					0					

Table 11. Pair counts conducted from aircraft, 1991.

Pond	Mallards	Redheads
CCM 2A	13	0
CCM 2B	5	0
CCM 3	25	0
DLNA	12	26
LL 1	43	2
LL 2	37	48
LL 3	26	0
LL 4	5	6
SMS 1	2	9
SMS 2	5	12
SMS 3	2	0
SMS 4	12	0
SMS 5	43	16
TOTAL	230	119

Table 12. Use of nest boxes by cavity-nesting waterfowl.

Year	Wood Duck	C Goldeneye	H Merganser	No. of boxes
1972	10	16	0	142
1973	15	10	4	450
1974	22	27	7	445
1975	26	43	6	409
1976	32	49	16	440
1977	25	47	13	434
1978	18	39	5	421
1979	13	43	7	418
1980	11	24	5	323
1981	6	24	5	295
1982				
1983	8	15	3	280
1984	12	13	1	265
1985	11	13	0	244
1986				
1987				
1988	20	5	4	195
1989	21	8	1	190
1990	8	7	0	153

Table 13. Goose nests found on nest surveys, 1973-1981.

	1973	1974	1975	1976	1977	1978	1979	1980	1981
CCM 1:									
structures						1	1		1
total						1	1		1
CCM 2:									
structures									4
islands							2		1
muskrat houses									10
total					3	7	9	13	15
CCM 3:									
structures									6
total						2	2		6
CCM 4:									
total									0
DLNA:									
structures	1	1	2	1	3	3	3	2	9
islands	0	0	2	3	6	10	16	9	32
muskrat houses									0
total	1	1	4	4	9	13	19	11	41
LL 1:									
structures									3
islands						0	3	3	1
muskrat houses									1
total						0	3	3	5
LL 2:									
total						0	0	0	0
LL 3:									0
total									0
LL 4:									
total									0
LL 6:									
structures									2
islands									0
total									2
LL 7:									
total									0

Table 13. (continued).

	1973	1974	1975	1976	1977	1978	1979	1980	1981
SMS 1:									
muskrat houses								3	
total								3	
SMS 2:									
total								0	
SMS 3:								0	
total								0	
SMS 4:									
islands						0		1	
muskrat houses								1	
uplands								0	
total						0		2	
SMS 5:									
structures						0		0	
islands							1	1	
muskrat houses								2	
uplands								0	
total						1		3	

Table 14. Goose nests found on nest surveys, 1982-1991.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
CCM 1:										
total	0	0	0	0						
CCM 2A:										
structures	4	5	3	6						
islands	0	1	0	1						
muskrat houses	7	7	4	4						
uplands	0	1	0							
total	11	14	7	11						1
CCM 2B:										
structures										4
islands										6
muskrat houses										4
uplands										14
bales										
total										
CCM 3:										
structures	5	9	8	8						1
islands	0	0	0	0						
muskrat houses	0	0	0	0						2
uplands	0	0	0	0						
total	5	9	8	8						3
CCM 4:										
structures	0	0	0	0						
islands	0	0	0	0						
muskrat houses	0	0	0	0						2
uplands	0	0	0	0						
total	0	0	0	0						2
Corn Creek Total	32	46	30	38				19	18	39
DLNA:										
structures	0	1	1	2				14	16	17
islands	38	50	31	29				24	38	19
muskrat houses	2	9	5	3	39			5		
total	40	60	37	34				43	54	36

Table 14. (continued).

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
LL 1:											
structures	4	3	2	4							
islands	2	4	2	1						4	
muskrat houses	1	4	7	5						2	
uplands	0	0	0	0							
total	7	11	11	10						6	
LL 2:											
structures	0	1	1	4							
islands	0	0	0	0							
muskrat houses	0	3	4	8						1	
uplands	0	0	0								
total	0	4	5	12						1	
LL 3:											
structures	0	0	0	0							
islands	0	0	0	0							
muskrat houses	0	0	0	0							
uplands	0	0	0	0							
total	0	0	0	0							
LL 4:											
structures	0	0	0	0							
islands	0	0	0	0							
muskrat houses	0	0	2	2							
uplands	0	0	0	0							
total	0	0	2	2							
LL 6:											
structures	0	1	2	3							
islands	0	0	0	1							
muskrat houses	0	0	1	0							
uplands	0	0	0	0							
total	0	1	3	4							
LL 7:											
structures	0	0	0	0							
islands	0	0	0	0							
muskrat houses	0	0	0	0							
uplands	0	0	0	0							
total	0	0	0	0							
Leach Lake Total	14	32	42	56					8	6	14

Table 14. (continued).

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
SMS 1:										
structures	0	0	0	0						
islands	0	0	0	0						
muskrat houses	0	0	0	0						1
uplands	0	0	0	0						
total	0	0	0	0						1
SMS 2:										
structures	0	0	0	0						
islands	0	0	0	0						1
muskrat houses	0	1	0	4						3
uplands	0	0	0	0						
total	0	1	0	4						4
SMS 3:										
structures	0	0	0	0						
islands	0	0	0	0						
muskrat houses	0	0	0	4						
bales										2
uplands	0	0	0	0						
total	0	0	0	4						3
SMS 4:										
structures	0	0	0	0						
islands	3	2	1	2						1
muskrat houses	0	1	0	1						
uplands	0	0	0	0						
bales										4
total	3	3	1	3						5
SMS 5:										
structures	0	0	0	0						
islands	2	4	1	1						
muskrat houses	0	1	1	0						
uplands	0	0	0	0						
total	2	5	2	1						
Six Mile Total	10	18	6	24				11	9	25

Table 15. Use of nesting structures by waterfowl, 1973-1985.

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Duck Lake:													
No. of structures	6	12	11	8									
C Goose nests	1												
successful	1												
No. of duck nests	1	1	1	2									
successful	1	1	1	2									
DLNA:													
No. of structures	21	21	46	46	46	37	39	39	35	0	10	10	10
C Goose nests	1	1	2	1	3	3	3	2	9	0	1	1	2
successful	1	1	2	1	3	3	3	2	8	0	0	1	2
No. of duck nests	2	3	12	23	18	13	5	4	1	0	2	1	
successful	2	3	12	18	15	6	4	4	1	0	2	1	
CCM 1:													
No. of structures	3	3	7	6	5	2	6	6	6	5	5	5	5
C Goose nests	1	1	1	2	2	1	1	1					
successful	1	1	1	2	2	1	1	1					
No. of duck nests	1						1	2					
successful							1	2					
CCM 2:													
No. of structures	5	20	20	18	17	19	19	19	19	19	19	19	14
C Goose nests	0	2	3	2	2	5	4	4	4	5	3	3	6
successful	0	2	2	2	2	4	4	4	4	5	3	3	6
No. of duck nests	2	2	1	4	4	2	2	5	6	1	1		
successful	2	2	1	2	4	2	2	4	5	1	0		
CCM 3:													
No. of structures	16	16	17	17	15	15	5	6	13	16	16	16	16
C Goose nests	1	2	1	1	1	1	4	6	5	9	8	8	
successful	1	2	1	1	1	1	3	6	5	9	8	8	
No. of duck nests	2	3	2	3	1	1	1	1	2	2	1	1	
successful	2	3	2	3	1	1	1	2	2	1	0		

Table 15. (continued).

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
LL 1:													
No. of structures							6	6	6	6	6	6	6
C Goose nests							3	4	3	2	4		
successful							3	4	3	2	4		
No. of duck nests								1	0				
successful									1				
LL 2:													
No. of structures									6	6	6	6	6
C Goose nests									1	1	4		
successful									1	1	4		
No. of duck nests									1				
successful										1			
LL 6:													
No. of structures							14	14	14	14	14	14	14
C Goose nests							2	0	1	2	3		
successful							2		1	2	3		
No. of duck nests									2				
successful										1			
SMS 3:													
No. of structures											6		
C Goose nests											0		
successful													
No. of duck nests											0		
successful													

Table 16. Brood surveys conducted on the CVWMA.

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Duck Lake:													
Transect length (km)	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	12.8	12.8	12.8	12.8
Mallard	5	9	4	5	4	2	2	3	5	3	0	4	2
Shoveler	0	3	2	1	0	0	0	0	1	1	0	0	0
Gadwall	0	2	0	0	0	1	0	0	3	0	1	0	0
Teal	0	5	3	9	1	6	1	1	0	1	0	1	1
Wood Duck	0	3	1	2	0	0	5	2	0	1	2	1	0
Redhead	5	4	2	2	2	7	4	0	7	1	4	8	4
Canvasback	0	0	0	0	1	0	0	0	0	0	0	0	0
Goldeneye	11	18	7	9	4	3	4	1	1	11	6	5	1
Ruddy Duck	2	1	1	1	0	0	0	0	0	0	0	0	0
Hooded Merganser	0	2	0	0	0	0	0	0	0	0	0	0	0
Common Merganser	0	3	0	0	0	0	0	0	0	0	0	0	0
Ring-necked Duck	0	0	0	0	3	5	0	0	0	0	3	3	0
Goose	12	12	8	7	8	11	13	22	7	17	5	18	6
DLNA:													
Transect length (km)	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	14.2	14.2	14.2	14.2
Mallard	18	12	7	5	3	13	5	0	6	1	0	2	1
Pintail	0	0	0	0	0	1	0	0	0	0	0	0	0
Shoveler	2	0	0	0	0	0	0	0	0	1	0	0	0
Teal	4	6	2	1	1	7	5	1	4	1	0	0	0
G.W. Teal	0	0	0	0	0	0	0	0	0	1	0	0	0
Wood Duck	1	0	1	0	1	0	0	0	0	0	0	0	1
Redhead	1	1	1	1	1	7	1	0	0	1	4	2	2
Scaup	0	0	0	0	0	2	0	0	0	0	0	0	0
Goldeneye	5	1	2	4	4	5	0	3	0	1	1	0	1
Ruddy Duck	0	0	0	0	0	0	0	0	0	0	0	0	1
Hooded Merganser	0	0	0	0	0	0	0	0	0	0	0	0	1
Ring-necked Duck	0	0	0	0	1	12	0	1	1	0	0	2	1
Goose	0	2	1	1	1	1	1	3	0	3	0	1	0
CCM 1:													
Transect length (km)	4	4	4	4	4								
Mallard	3	7	8	0	2								
Shoveler	0	0	0	0	1								
Teal	0	0	8	1	2								
Wood Duck	2	3	8	3	0								
Redhead	0	0	1	0	0								
Bufflehead	0	1	0	0	0								
Goldeneye	0	9	7	2	1								
Hooded Merganser	0	4	2	0	0								
CCM 2:													
Transect length (km)	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	9.8		12.9	12.9
Mallard	0	0	0	0	0	0	0	0	0	0		0	1
Pintail	0	0	0	0	0	0	0	0	0	0		0	1
Teal	0	0	0	0	0	0	0	0	0	0		0	4
Wood Duck	0	0	0	0	0	0	0	0	0	0		0	4
Ring-necked Duck	0	0	0	0	0	0	0	0	0	0		0	1

Table 16. (continued).

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
CCM 3:													
Transect length (km)	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	8.1	8.1	8.1	8.1
Mallard	0	5	1	6	2	8	3	1	3	2	0	1	3
Shoveler	0	0	0	1	0	0	0	1	0	0	0	0	0
Teal	0	0	0	9	1	3	2	0	2	0	2	0	1
Wood Duck	0	4	3	2	1	4	1	3	2	5	2	2	3
Redhead	0	0	0	3	0	0	0	0	1	1	0	0	0
Goldeneye	1	2	4	2	2	3	3	1	2	2	0	2	1
Hooded Merganser	1	0	3	0	0	3	2	1	0	0	0	0	1
Ring-necked Duck	0	0	0	1	0	0	1	1	1	0	0	0	1
Goose	2	3	2	3	1	0	0	2	2	2	0	0	5
LL 1:													
Transect length (km)	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	15.3	15.3	15.3	15.3	15.3
Mallard	5	0	3	7	4	3	6	2	1	3			
Shoveler	0	1	0	3	0	0	3	0	0	0			
Teal	0	5	2	6	4	6	13	4	0	18			
G.W. Teal	0	0	0	0	0	0	0	1	0	0			
Wood Duck	2	1	4	4	4	0	2	0	0	0			
Redhead	0	0	1	6	3	2	2	5	6	1			
Scaup	0	0	0	0	0	0	0	1	0	0			
Goldeneye	6	1	6	6	0	0	0	0	0	0			
Ruddy Duck	0	0	0	0	0	0	0	1	0	0			
Hooded Merganser	0	0	0	0	1	0	0	0	0	0			
Ring-necked Duck	0	0	0	3	0	0	3	0	2	2			
Goose	0	0	1	6	1	1	6	5	3	2			
LL 2:													
Transect length (km)	14.6	14.6	14.6	14.6	14.6	14.6	14.6	13.6	13.6	13.6	13.6	13.6	13.6
Mallard	6	3	1			0	2	1	0	2	5		
Shoveler	0	1	1			0	0	0	0	0	1		
Gadwall	0	0	0			1	0	0	0	0	3		
Teal	3	3	1			1	1	0	1	7	4		
Wood Duck	2	0	0			0	0	0	1	0	1		
Redhead	0	0	0			0	0	0	0	5	0		
Scaup	0	0	0			0	1	0	0	0	0		
Goldeneye	3	0	4			3	1	1	1	3	3		
Ring-necked Duck	0	0	0			1	0	0	0	1	2		
Goose	0	0	0			3	0	1	2	3	3		

Table 16. (continued).

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
LL 3:													
Transect length (km)	7.6		7.6		7.6		7.6	7.6		1.6	8	8	
Mallard	1		0		2		3	3		0	3	1	
Shoveler	0		0		0		0	1		0	0	0	
Gadwall	0		0		1		0	0		0	1	0	
Teal	0		2		5		3	7		0	4	4	
Wood Duck	3		0		1		1	1		0	0	0	
Redhead	0		1		1		0	3		1	3	3	
Goldeneye	2		1		1		0	2		0	0	1	
Hooded Merganser	0		0		0		0	0		0	1	0	
Common Merganser	1		0		0		0	0		0	0	0	
Ring-necked Duck	0		0		1		0	0		1	1	0	
Goose	0		0		0		0	1		0	1	2	
LL 4:													
Transect length (km)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	7.5	6.1	6.1	
Mallard	3	11	2	1	0	4	7	1	1	1	2	0	
Pintail	0	0	0	0	0	0	0	0	0	0	0	1	
Shoveler	1	0	2	0	0	0	0	1	0	0	0	0	
Gadwall	0	0	0	0	0	0	0	0	0	0	0	1	
Teal	5	1	5	6	1	1	6	1	0	2	0	0	
Wood Duck	1	6	6	2	5	3	0	0	0	0	0	0	
Redhead	0	0	0	0	0	0	1	2	0	0	0	1	
Scaup	0	0	0	0	0	0	1	0	0	0	0	0	
Goldeneye	4	2	0	0	2	2	6	2	4	4	4	1	
Hooded Merganser	1	1	0	0	0	0	0	0	0	0	1	0	
Common Merganser	2	1	0	0	0	0	0	0	0	0	0	0	
Ring-necked Duck	0	0	0	0	0	0	1	0	1	2	0	0	
Goose	0	1	0	0	0	0	1	0	0	0	0	0	
LL 6:													
Transect length (km)										8.3	8.3	8.3	
Mallard										2	1	3	
Shoveler										0	0	1	
Teal										7	0	9	
Wood Duck										3	5	2	
Redhead										2	4	0	
Goldeneye										1	0	0	
Ring-necked Duck										1	1	0	
LL 7													
Transect length (km)										2.5	2.5	2.5	
Mallard										0	0	1	
Pintail										0	0	1	
Wigeon										1	0	1	
Teal										5	1	4	
G.W. Teal										2	0	0	
Wood Duck										5	3	2	
Goldeneye										0	0	1	
Hooded Merganser										1	0	0	
Ring-necked Duck										0	0	1	

Table 16. (continued).

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
LL 6 & 7													
Transect length (km)	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.8				
Mallard	0	3	6	5	9	9	2						
Pintail	0	1	0	0	0	0	0						
Shoveler	0	0	0	0	0	0	1						
Wigeon	0	0	0	0	0	0	1						
Gadwall	0	0	0	1	0	0	0						
Teal	0	7	11	5	11	11							
G.W. Teal	0	0	0	0	0	0	2						
Wood Duck	1	8	13	9	11	11	8						
Redhead	0	1	2	0	1	1	2						
Goldeneye	1	0	3	1	1	1	2						
Ruddy Duck	0	0	0	0	0	0	0						
Hooded Merganser	1	0	0	0	0	0	1						
Ring-necked Duck	0	0	8	1	1	1							
Goose	0	0	0	1	1	1	0						
SMS 2:													
Transect length (km)	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.8	10.8	10.8	10.8	
Mallard	3	5	11	9	5	9	3	0	3	0	3	1	
Shoveler	0	0	1	0	1	0	0	0	0	0	0	0	
Wigeon	0	0	0	0	0	0	0	0	1	1	1	0	
Gadwall	0	0	0	0	0	0	2	0	0	0	0	0	
Teal	11	0	5	0	3	3	2	3	2	3	2	3	
G.W. Teal	0	0	0	0	0	0	0	0	0	0	1	0	
Wood Duck	1	2	1	0	0	0	1	2	1	2	1	0	
Redhead	1	0	3	3	1	1	2	3	1	1	1	1	
Canvasback	0	0	0	0	1	0	0	0	0	0	0	0	
Scaup	0	0	2	0	1	0	0	0	0	0	0	0	
Goldeneye	4	2	2	2	2	1	1	1	1	1	3	4	
Ruddy Duck	0	0	1	0	0	0	0	0	0	0	0	0	
Common Merganser	0	0	1	0	0	0	0	0	0	0	0	0	
Ring-necked Duck	0	0	3	0	1	1	1	0	0	0	0	0	
Goose	0	0	2	1	0	0	1	0	1	0	1	1	
SMS 3:													
Transect length (km)	10.9	10.9	10.9	10.9	10.9	10.9	9.3	9.3	9.3	9.3	9.3	9.3	
Mallard	10	2	0	9	1	5	4	2	3	1			
Shoveler	2	0	0	2	0	0	0	0	0	0	0	0	
Teal	17	0	1	3	0	4	0	6	3	2			
Wood Duck	2	1	0	2	0	2	3	1	0	1			
Redhead	1	0	1	2	1	1	1	5	1	2			
Goldeneye	4	1	3	8	1	1	0	0	3	6			
Ruddy Duck	0	0	0	0	0	0	0	1	0	0			
Ring-necked Duck	0	0	0	0	0	0	0	3	1	0			
Goose	3	0	1	0	2	4	1	0	0	0			

Table 16. (continued).

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
SMS 4:													
Transect length (km)	11.3	11.3	11.3	11.3	11.3	11.3	7.3	11.5	11.5	11.5	11.5	11.5	11.5
Mallard	5	0	4	2	0	1	1	1	1	1	1	1	1
Pintail	0	0	0	0	0	0	0	1	0	0	0	0	0
Shoveler	0	0	0	0	0	0	0	0	0	0	0	0	1
Gadwall	0	0	0	0	0	0	0	1	2	1	2	1	1
Teal	2	3	5	0	7	2	1	2	0	1	1	2	0
Wood Duck	3	0	1	1	0	1	0	1	0	1	0	1	1
Redhead	0	0	1	0	1	1	1	0	1	0	1	3	
Goldeneye	4	3	4	8	2	2	0	1	1	0	1	1	
Ring-necked Duck	1	0	0	0	1	0	0	0	0	0	0	1	
Goose	0	0	1	4	2	0	0	0	0	0	0	0	
SMS 5:													
Transect length (km)	14.6	14.6	14.6	14.6	14.6	14.6	8.5	13.7	13.7	13.7	13.7	13.7	13.7
Mallard	4	10	7	2	2	2	2	0	1	0	1	0	0
Shoveler	0	0	0	0	1	0	0	0	0	0	0	0	0
Wigeon	0	0	0	0	0	0	0	0	0	0	0	0	1
Gadwall	0	2	1	0	2	0	2	0	0	2	0	0	0
Teal	1	4	0	0	3	1	1	1	1	1	1	3	
Wood Duck	1	2	0	0	0	0	1	0	0	0	0	0	
Redhead	2	3	4	0	2	0	0	1	0	1	0	1	
Goldeneye	1	0	0	0	3	2	0	3	2	0	3	2	
Ruddy Duck	0	0	0	0	0	0	1	0	0	0	0	0	
Common Merganser	0	0	1	0	0	0	0	0	0	0	0	0	
Ring-necked Duck	0	2	2	0	2	1	1	0	0	0	0	1	
Goose	0	0	1	0	1	1	1	1	0	0	0	0	

Table 17. Great Blue Heron nests counted on the CVWMA.

Year	Number	Year	Number
1975	122	1984	84
1976		1985	
1977	93	1986	
1978		1987	89
1979	65	1988	
1980	58	1989	105
1981	61	1990	41
1982	74	1991	1
1983	78		

Table 18. Anecdotal records of mammals sighted on the CVWMA.

Date	Species	Unit	Number	Date	Species	Unit	Number
1/6/77	Elk	CCM 2	8	12/10/82	Elk	CCM 1	43
1/6/77	Coyotes	LL 1	1	12/13/82	Deer	CCM 2	3
1/6/77	Elk	LL 1	9	12/13/82	Elk	CCM 2	18
1/6/77	Deer	SMS 2	5	12/13/82	Coyotes	LL 1	2
1/6/77	Coyotes	SMS 5	1	1/3/83	Elk	CCM 1	7
4/17/78	Elk	LL 7	5	1/3/83	Coyotes	CCM 2	1
11/22/79	Deer	CCM 2	1	1/3/83	Deer	CCM 2	4
1/7/82	Elk	CCM 3	28	1/3/83	Elk	CCM 3	19
1/7/82	Elk	DL	14	1/3/83	Coyotes	DL	1
1/7/82	Elk	LL 1	6	1/3/83	Elk	DL	7
1/11/82	Elk	CCM 3	26	1/3/83	Elk	LL 1	14
1/11/82	Coyotes	CVWMA	1	1/3/83	Coyotes	SMS	2
1/11/82	Elk	DL	4	1/8/83	Elk	CCM 3	18
1/11/82	Deer	KR	3	1/8/83	Elk	DL	8
1/11/82	Deer	LL	2	1/11/83	Elk	CCM 3	17
1/11/82	Deer	SMS	5	1/11/83	Coyotes	SMS 2	3
1/13/82	Elk	CCM 3	30	1/16/83	Coyotes	SMS 3	2
1/22/82	Elk	CCM 1	13	1/20/83	Coyotes	CCM 2	1
1/22/82	Elk	CCM 3	24	1/20/83	Elk	CCM 2	9
1/22/82	Elk	LL 1	2	1/20/83	Elk	KL	14
2/4/82	Elk	CCM 3	4	1/24/83	Deer	CCM 2	4
2/12/82	Elk	CCM 3	20	1/27/83	Elk	CCM 3	17
2/24/82	Elk	CCM 3	19	1/31/83	Deer	CCM 2	9
2/24/82	Coyotes	LL	1	2/1/83	Coyotes	CCM 1	1
2/24/82	Elk	SMS 2	10	2/1/83	Deer	CCM 2	7
3/17/82	Elk	SMS 4	17	2/1/83	Elk	CCM 3	15
3/17/82	Coyotes	SMS 5	1	2/1/83	Deer	LL	7
7/3/82	Deer	DL	4	2/1/83	Coyotes	LL 1	1
7/3/82	Moose	DL	1	2/1/83	Elk	SMS 2	15
7/3/82	Bear	LL	2	2/1/83	Coyotes	SMS 5	2
7/3/82	Calves Elk	LL	5	2/9/83	Elk	CCM 3	19
7/3/82	Deer	LL	20	2/9/83	Coyotes	LL 1	4
7/3/82	Elk	LL	23	2/9/83	Deer	LL 3	11
7/3/82	Deer	SMS	35	2/9/83	Elk	SMS 2	8
7/3/82	Moose	SMS	1	2/9/83	Coyotes	SMS 5	2
7/20/82	Deer	SMS 5	2	2/15/83	Deer	CCM 2	8
11/12/82	Elk	CCM 2	7	3/17/83	Elk	KL	2
11/12/82	Deer	SMS 4	3	3/17/83	Deer	SMS	17
11/12/82	Coyotes	SMS 5	1	3/22/83	Elk	CCM 3	19
11/28/82	Elk	CCM 2	11	3/22/83	Deer	SMS	20
11/28/82	Coyotes	CVWMA	3	5/4/83	Elk	CCM 3	8
11/28/82	Deer	SMS 2	7	5/4/83	Deer	CCM 4	2
12/2/82	Coyotes	CVWMA	2	5/15/83	Deer	LL	22
12/2/82	Deer	LL 2 3	7	5/15/83	Elk	LL	11

Table 18. (continued).

Date	Species	Unit	Number	Date	Species	Unit	Number
5/19/83	Bear	SCC	1	1/28/85	Coyotes	DL	2
5/19/83	Grizzly	SCC	1	1/28/85	Coyotes	LL	3
5/24/83	Moose	CCM 3	4	1/28/85	Coyotes	SMS	2
6/17/83	Deer	CCM	4	2/26/85	Elk	DL	7
6/17/83	Deer	DL	7	3/7/85	Deer	DL	2
6/17/83	Deer	LL	12	4/24/85	Elk	CCM	8
6/17/83	Elk	LL 6	7	4/24/85	Elk	DL	4
6/17/83	Deer	SMS	15	4/24/85	Elk	LL	23
6/24/83	Deer	CCM 2	5	4/24/85	Elk	SMS	9
6/24/83	Deer	CCM 3	4	5/6/85	Bear	CCM 4	1
6/24/83	Moose	CCM 3	3	5/6/85	Deer	CVWMA	30
6/24/83	Deer	DU	2	5/6/85	Elk	CVWMA	41
6/24/83	Deer	DL	6	6/14/85	Deer	CCM	4
6/24/83	Deer	DLNA	4	6/14/85	Elk	CCM 3	4
6/24/83	Deer	KR	3	6/14/85	Deer	LL	14
6/24/83	Deer	LL	7	6/14/85	Calves Elk	LL 6	2
6/24/83	Elk	LL 6	11	6/14/85	Elk	LL 6	14
6/24/83	Deer	SMS	19	6/14/85	Deer	SMS	16
7/7/83	Deer	CVWMA	43	6/14/85	Elk	SMS	7
7/7/83	Elk	CVWMA	17	6/22/85	Calves Elk	CCM 3	4
7/7/83	Bear	SMS 1	1	6/22/85	Fawn Deer	SMS 3	1
7/7/83	Moose	SMS 5	1	6/22/85	Calves Elk	SMS 4	6
2/16/84	Coyotes	DL	4	7/29/85	Coyotes	CVWMA	4
2/16/84	Deer	DL	2	7/29/85	Deer	CVWMA	17
3/5/84	Deer	DL	7	7/29/85	Elk	LL 6	9
3/5/84	Elk	KL	4	7/29/85	Moose	SMS 2	1
3/5/84	Elk	SMS	3	11/26/85	Deer	CCM 2	1
3/28/84	Coyotes	CVWMA	1	11/26/85	Elk	CCM 2	19
3/28/84	Deer	CVWMA	11	11/26/85	Elk	CCM 3	1
3/28/84	Elk	CVWMA	26	11/26/85	Deer	CVWMA	35
4/6/84	Deer	CCM 1	7	12/12/85	Elk	CCM 2	51
4/6/84	Elk	CCM 1	11	12/12/85	Deer	CVWMA	25
4/6/84	Elk	LL 6	5	12/12/85	Coyotes	LL 1	2
11/14/84	Coyotes	SMS 5	2	1/17/86	Elk	CCM 3	45
12/19/84	Elk	CCM 1	6	1/17/86	Deer	LL 1	30
12/19/84	Elk	CCM 3	7	1/17/86	Elk	SMS 4	2
12/19/84	Coyotes	CVWMA	3	1/28/86	Coyotes	CCM 2	3
12/19/84	Elk	DL	7	1/28/86	Elk	CCM 4	20
12/19/84	Elk	SMS 5	2	1/28/86	Deer	LL 1	11
1/3/85	Coyotes	CVWMA	3	1/28/86	Coyotes	LL 2	1
1/3/85	Deer	CVWMA	11	2/5/86	Coyotes	CCM	5
1/3/85	Elk	CVWMA	36	2/5/86	Elk	CCM 2	22
1/10/85	Elk	CCM 1	11	2/5/86	Coyotes	LL	6
1/28/85	Coyotes	CCM	5	2/5/86	Coyotes	SMS	4

Table 18. (continued).

Date	Species	Unit	Number	Date	Species	Unit	Number
2/5/86	Elk	SMS 4	11	3/14/86	Moose	SMS	1
3/6/86	Elk	CCM 4	18	7/8/86	Deer	CVWMA	31
3/6/86	Coyotes	CVWMA	6	7/8/86	Calves Elk	LL 6	4
3/6/86	Deer	SMS	2	11/25/86	Elk	CCM 3	30
3/12/86	Coyotes	CCM 2	3	11/25/86	Elk	DL	4
3/12/86	Elk	CCM 2	43	11/25/86	Elk	SMS 2	8
3/14/86	Elk	CCM 2	50	12/3/86	Elk	CCM 1	3
3/14/86	Coyotes	SMS	3	12/3/86	Elk	CCM 3	25
3/14/86	Deer	SMS	6	12/3/86	Deer	CVWMA	3
3/14/86	Elk	SMS	2				

Table 19. Muskrat houses counted on the CVWMA, 1973-1981.

	1973	1974	1975	1976	1977	1978	1979	1980	1981
Duck Lake					247	98	26	2	84
Duck Creek									
DLNA	83	154	48	150	235	88	26	2	84
LL 1	0	0	0	0	0	2	14	75	114
LL 2	0	0	0	0	0	1	0	0	103
LL 3	0	0	0	0	0	0	0	0	32
LL 4	0	0	0	0	0	0	0	2	42
LL 5	0	0	0	0	0	0	0	1	2
LL 6	0	0	0	0	0	0	2	1	28
LL 7	0	0	0	0	0	0	0	0	5
Leach Lake Total	0	0	0	0	0	3	16	79	326
SMS 1	0	1	0	12	0	8	0	11	29
SMS 2	0	3	2	0	3	2	7	5	20
SMS 3	0	0	1	0	0	3	0	0	87
SMS 4	0	0	0	0	0	2	0	5	86
SMS 5	0	0	0	0	0	1	0	8	112
Six Mile Total	0	4	3	12	3	16	7	29	334
CCM 1	0	0	2	3	0	0	0	0	15
CCM 2	6	6	113	186	322	333	57	153	190
CCM 3			13	39	74	43	3	19	97
Corn Creek Total	6	6	128	228	396	376	60	172	302
CVWMA	89	164	179	390	640	488	109	282	1046

Table 20. Muskrat houses counted on the CVWMA, 1982-1991.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Duck Lake	242	137	26							
Duck Creek	50		33							
DLNA	192		76		19		5		40	
LL 1	135	60	14				4		0	
LL 2	128	75	33		20		2		0	
LL 3	48	4	6				0		3	
LL 4	77	0	12		20		1		0	
LL 5	0	0							0	
LL 6	23	4	11						0	
LL 7	2	2	4						0	
Leach Lake Total	413	145	80	71			12		3	
SMS 1	35	6							1	
SMS 2	41	44		6			0		7	
SMS 3	18	12		3			0		1	
SMS 4	42	15		10			1		1	
SMS 5	48	13					1		0	
Six Mile Total	184	90		37			2		10	
CCM 1	2	0	2						9	
CCM 2A	84	76	31				14		20	
CCM 2B							9		4	
CCM 3	32	28	14		12		43		65	
Corn Creek Total	118	104	47	19			66		98	
CVWMA	957	476	406	160			85		151	

Table 21. Waterfowl hunting activity on the CVWMA.

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
No. of hunters checked	197	263	279	193	254	327	136	307	302	312
No. of hunter days	1850	1918	2404	2345	2995	2299	2338	2748	2144	1254
Ducks bagged/hunter/day	1.9	1.8	1.4	2.0	1.4	2.0		1.4	2.3	1.5
Species composition (%):										
Mallard	19.3	21.7	21.4	42.9	21.1	37.2		43.1	61.4	26.0
Pintail	10.3	9.9	8.9	8.1	8.1	11.0		7.2	16.0	2.9
Shoveler	8.5	1.3	2.0	1.6	1.7	3.0		2.3	1.7	9.3
Baldpate	34.6	30.8	36.5	24.7	22.8	15.2		14.4	11.4	14.5
Gadwall	0.0	2.8	0.8	0.5	0.7	1.0		1.9	0.2	2.5
B-w Teal	5.0	3.5	2.0	5.2	10.2	7.7		5.6	0.2	24.3
G-w Teal	13.8	15.6	14.8	8.1	15.9	21.4		9.5	4.6	3.9
Wood Duck	1.3	0.0	0.0	0.5	0.0	0.3		2.9	0.0	0.0
Redhead	6.1	9.5	8.9	4.9	13.5	0.5		9.8	3.6	3.5
Canvasback	0.0	0.5	1.3	0.0	0.0	0.2		0.0	0.0	0.4
Scaup	0.0	2.0	1.8	0.9	1.6	0.2		0.0	0.2	3.2
Bufflehead	0.0	1.0	0.5	0.0	0.5	0.2		0.0	0.2	2.1
Goldeneye	0.8	1.0	0.8	0.3	0.5	0.8		1.0	0.5	2.1
Ring-necked Duck	0.2	0.0	0.3	0.5	2.1	0.8		2.3	0.0	2.5
Common Merganser	0.1	0.4	0.0	0.3	0.7	0.3		0.1	0.0	0.0
Hooded Merganser	0.0	0.0	0.0	1.5	0.6	0.2		0.0	0.0	1.4
Ruddy Duck	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	1.4
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. of hunters checked	347	261	236	160	104	12		55	57	81
No. of hunter days	1468	1514	981	753	900				887	585
Ducks bagged/hunter/day	1.0	1.9	2.2	2.0	2.2	2.9		4.3	3.1	3.5
Species composition (%):										
Mallard	28.4	46.3	30.1	18.9	7.1	8.6		21.9	34.8	38.8
Pintail	6.1	7.9	5.4	6.0	7.6	8.6		3.4	2.5	6
Shoveler	4.5	2.6	6.5	4.6	4.3	5.7		0.4	5.7	1.5
Baldpate	25.9	19.9	15.1	39.1	37.4	45.7		49.8	39.9	26.1
Gadwall	2.2	5.0	9.4	7.7	11.8	2.8		13.9	3.8	8.2
B-w Teal	8.7	2.3	4.9	6.0	4.3	0		2.9	3.8	3
G-w Teal	7.8	3.5	19.7	8.1	4.7	5.7		4.6	3.8	3.7
Wood Duck	0.6	0.3	0.0	0.0	0.9	0		0	0.6	0
Redhead	6.8	4.8	5.3	6.7	5.4	0		2.9	0	0.7
Canvasback	0.6	0.3	0.0	0.0	0.0	0		0	0	0
Scaup	0.3	2.9	0.0	2.2	2.8	8.6		0.8	0	4.4
Bufflehead	3.1	1.2	0.7	0.0	2.4	0		2.9	0	0
Goldeneye	2.2	0.9	0.7	0.4	4.3	0		0.4	0	1.5
Ring-necked Duck	2.2	0.0	1.1	0.5	4.3	2.8		0	0	6
Common Merganser	0.3	1.5	0.0	0.2	0.3	0		0	0	0
Hooded Merganser	0.3	0.6	0.2	0.0	2.4	0		0	0	0
Ruddy Duck	0.0	0.0	0.9	0.0	0.0	0		0	0	0

LITERATURE CITED

- Butler, R. W., B. G. Stushnoff, and E. McMackin. 1986. The birds of the Creston Valley and southeastern British Columbia. Can. Wildl. Serv. Occas. Pap. No. 58.
- Dzubin, A. 1969. Assessing breeding populations of ducks by ground counts. Can. Wildl. Serv. Rep. Series No. 6, pp. 178-230.
- Munro, J. A. 1950. The birds and mammals of the Creston region, British Columbia. BC Prov. Mus. Occas. Pap. No. 8.
- _____. 1957. The birds and mammals of the Creston region, British Columbia: a supplement. BC Prov. Mus. Nat. His. Anthropol. Rep.
- Province of British Columbia. 1979. Creston Valley Wildlife Act. R. S. B. C. 1979 c. 82.