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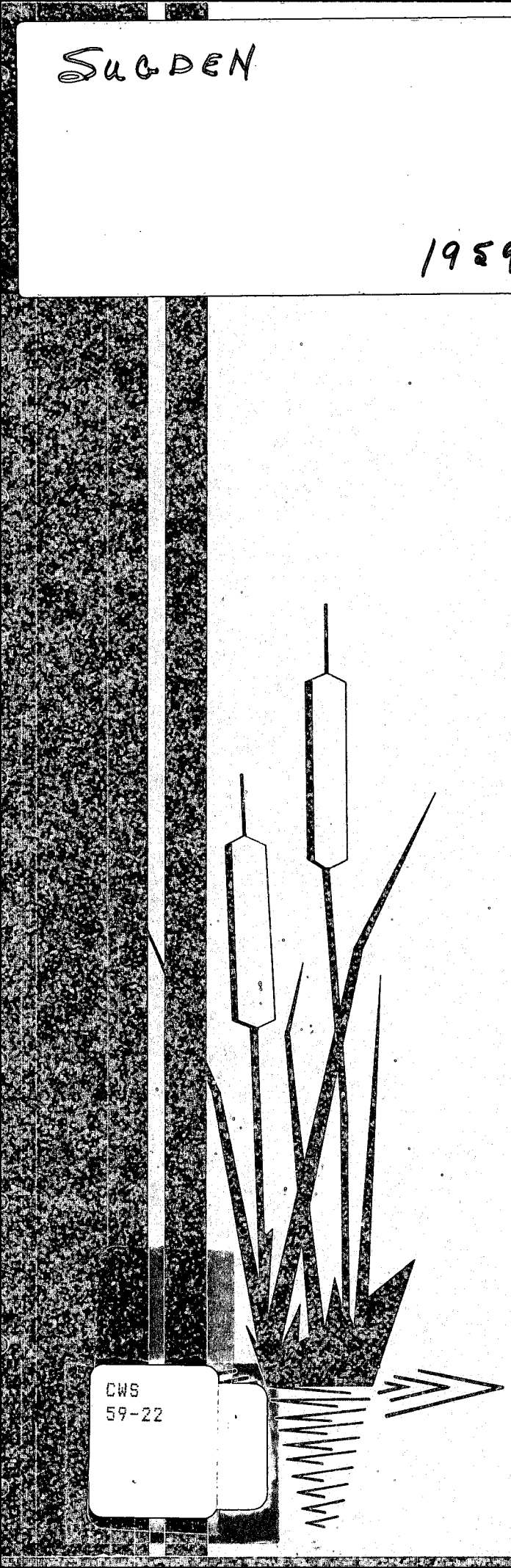

CANADIAN WILDLIFE SERVICE

Sugden, Lawson G.

Analysis of recoveries of local ducks banded in south-central British Columbia during the summers of 1957 and 1958. [By] Lawson G. Sugden [and] Patrick W. Martin. [n.p., 1959]

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WRL 62-10

ANALYSIS OF RECOVERIES OF LOCAL DUCKS BANDED IN SOUTH-CENTRAL BRITISH COLUMBIA DURING THE SUMMERS OF 1957 and 1958

Interim Report

Lawson G. Sugden

Patrick W. Martin

INTRODUCTION

A three-year waterfowl banding program was instituted by the British Columbia Fish and Game Branch in 1957 in the Kamloops and Cariboo regions - the most important breeding areas for these game species in southern British Columbia. Whereas emphasis had been placed on banding large numbers of diving ducks by Dr. I. MacT. Cowan during his five-year program between 1948 and 1952, it was hoped that greater proportions of the surface-feeding species could be banded during this project.

The principal objectives of this program are as follows:

(a) To determine the relative degree of hunting pressure on the various species of locally raised ducks;

(b) To determine the geographic and time distribution of the kill of ducks hatched in Central British Columbia, and

(c) To further the knowledge of waterfowl ecology in the Pacific Flyway.

METHOD

Banding was done by two, three-man crews; one operating out of Kamloops and led by P.W. Martin, and the other operating out of Williams Lake and led by L.G. Sugden. At times, additional help was obtained from other individuals. Notably among these were J. Lesowski of the Fish and Game Branch and Dr. A.J. Erskine, graduate student of the Department of Zoology, University of British Columbia.

Most of the ducks were caught in net, drive traps, variously modified from the type described by Cowan and Hatter (Jour. Wild. Man't, 16(4);438-441; 1952). A small number was captured on land by hand.

While emphasis was placed on trapping surface-feeding species, it was inevitable that large numbers of divers would sometimes by caught since the latter are usually much easier trapped.

Banding took place during the month of July. Banding operations were restricted to the grassland and parkland pothole country in both regions. A breakdown of waterfowl species (including a few Canada geese and coots) banded in the two regions during three years is shown in Table 1.

Table 1.

Waterfowl banded in south-central British Columbia during 1957, 1958 and 1959.

Region	1957	1958	1959	Totals
Kamloops	928	1092	894	3844
Cariboo	766	2134	1692	4592
TOTALS	1694	3226	2586	7506

The species, age and sex composition of those birds banded in 1957 and 1958 is shown in Table 2.

Table 2.

Age and sex of waterfowl banded in south-central British Columbia during summers of 1957 and 1958

Species	Adult M	Adult F	Adult ?	Local M	Local F	Local ?	Totals
Barrow's Golden-eye	21	107	-	132	134	1219	1613
Blue-winged Teal	248	48	1	57	56	348	758
Baldpate	12	11	-	54	53	406	536
Mallard	11	23	-	100	100	226	460
Lesser Scaup	11	16	-	-	-	403	430
Bufflehead	3	19	-	112	84	60	278
Redhead	-	16	-	7	9	200	232
Pintail	4	17	1	24	39	89	174
Green-winged Teal	73	16	-	11	16	42	158
American Coot	-	-		-	-		131
Shoveller	1	-	-	8	10	26	45
Canvasback	-	3	-	4	7	38	52
Gadwall	-	1	-	-	-	12	13
Canada Goose	1	1	-	8	3	-	13
Ringneck Duck	-	3	-	-	-	8	11
Ruddy Duck	4	2	-	-	-	-	6
White-winged Scoter	-	-	-	-	-	3	3
Hooded Merganser	-	1	-	-	-	-	1
Coot	-	-	24	-	-	51	75
TOTALS	389	284	26	517	511	3131	4989

ANALYSIS

Inasmuch as relatively few adults were banded for most species, this analysis will deal only with "local" ducks. These are birds which are banded as juveniles before they acquire the power of flight. Data on adults as well as related bag

check information will be considered for a later final report. Addition of the 1959 bandings will increase the sample sizes in most instances.

Since the data for second-year recoveries are incomplete for those birds banded in 1958, this analysis will deal only with first-year returns for both years. Bandings for both years are lumped and treated as one since sample sizes for a single year are small for most species. There is no reason to suspect that recovery rates will change markedly from one year to the next for any of the species under consideration. For the same reason, data from the two banding stations will be treated as one.

The rate of first-year, hunting recoveries for a given species is an index to the kill experienced by that species during the hunting season in question. Kill indices are expressed in terms of the number of recoveries per thousand banded birds. Table 3 give the calculated kill indices for those species of ducks in which over 100 locals were banded during the two years. These indices are graphed in Figure 1, showing the proportion of birds killed in British Columbia as well as that killed outside the Province.

The geographic distribution of band recoveries is given in Table 4. Because of limited data, no analysis of the time distribution of recoveries will be made in this report. It is apparent, however, that most of the birds taken locally (within 100 miles of the banding stations) are killed within the first two weeks of the hunting season (September 15 tp 30).

Many factors determine the degree of gunning pressure to which a particular species population is subjected. Probably most important are availability during the hunting season, species vulnerability to hunting and hunters' preferences. It is beyond the scope of this study to analyze these factors in detail. Lack of information on the relative abundance of the various species available to hunters throughout the season renders such analysis virtually impossible.

Mallard

Mallards show the highest band recovery rate. Although one of the least vulnerable to hunters by reason of wariness, this species is probably available to more hunters for longer periods than other species - at least in British Columbia. In addition, some selection on the part of hunters tends to increase the mallard kill. This may not be an important factor in British Columbia.

Hunting probably accounts for a major part of the annual mortality of mallards raised on the banding areas. Second and third-year returns will throw more light on this aspect.

Table 3.

Calculation of Kill Indices for Local Waterfowl Banded in South-Central British Columbia in 1957 and 1958.

BASIC DATA	Barrow's Golden-eye	Baldpate	Blue-winged Teal	Mallard	Lesser Scaup	Bufflehead	Redhead	Pintail
Number banded	1485	513	461	426	403	256	216	152
Total recoveries	140	67	25	86	28	32	33	14
B. C. recoveries	132	9	17	50	5	14	16	2
KILL INDICES								
Total kill indices	95	130	54	202	70	125	153	92
B. C. kill indices	89	17	37	117	12	53	74	13
Percent kill in B.C.	94.4	13.4	68.0	58.2	17.9	43.8	48.5	14.3

Table 4.

Geographic Distribution of first-year, Hunting Season Recoveries of Local Waterfowl Banded in South-Central British Columbia during 1957 and 1958

REGION	Barrow's Golden-eye		Blue-winged Teal		Baldpate		Mallard		Lesser Scaup		Buffle-head		Redhead		Pintail	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
PACIFIC FLYWAY																
B.C. (local) *	99	70.7	16	64.0	4	6.0	34	39.6	5	17.9	11	34.4	12	36.4	1	7.1
B.C. (total)	132	94.3	17	68.0	9	13.4	50	58.2	5	17.9	14	43.8	16	48.5	2	14.3
Washington	7	5.0	1	4.0	17	25.4	25	29.1	4	14.3	11	34.4	5	15.1	1	7.1
Oregon	1	0.7	-		18	26.9	7	8.1	4	14.3	1	3.1	2	6.1	5	35.7
California	-		1	4.0	19	28.4	1	1.2	12	42.9	5	15.6	3	9.1	4	28.6
Nevada	-		-		3	4.5	-		-		-		-		-	
Idaho	-		-		1	1.5	2	2.3	-		-		1	3.0	-	
Utah	-		1	4.0	-		-		-		-		-		1	7.1
CENTRAL FLYWAY																
Alberta	-		-		-		-		-		1	3.1	1	3.0	-	
N. Dakota	-		-		-		-		1	3.6	-		-		-	
Texas	-		-		-		-		-		-		3	9.1	-	
Arizona	-		-		-		-		-		-		1	3.0	-	
MISSISSIPPI FLYWAY																
Louisiana	-		-		-		3	1.2	-		-		-		-	
Ohio	-		-		-		-		1	3.6	-		-		-	
SOUTH OF U.S.A.																
Mexico	-		5	20.0	-		-		1	3.6	-		1	3.0	1	7.1
TOTALS	140		25		67		86		28		32		33		14	

*within 100 miles of banding station

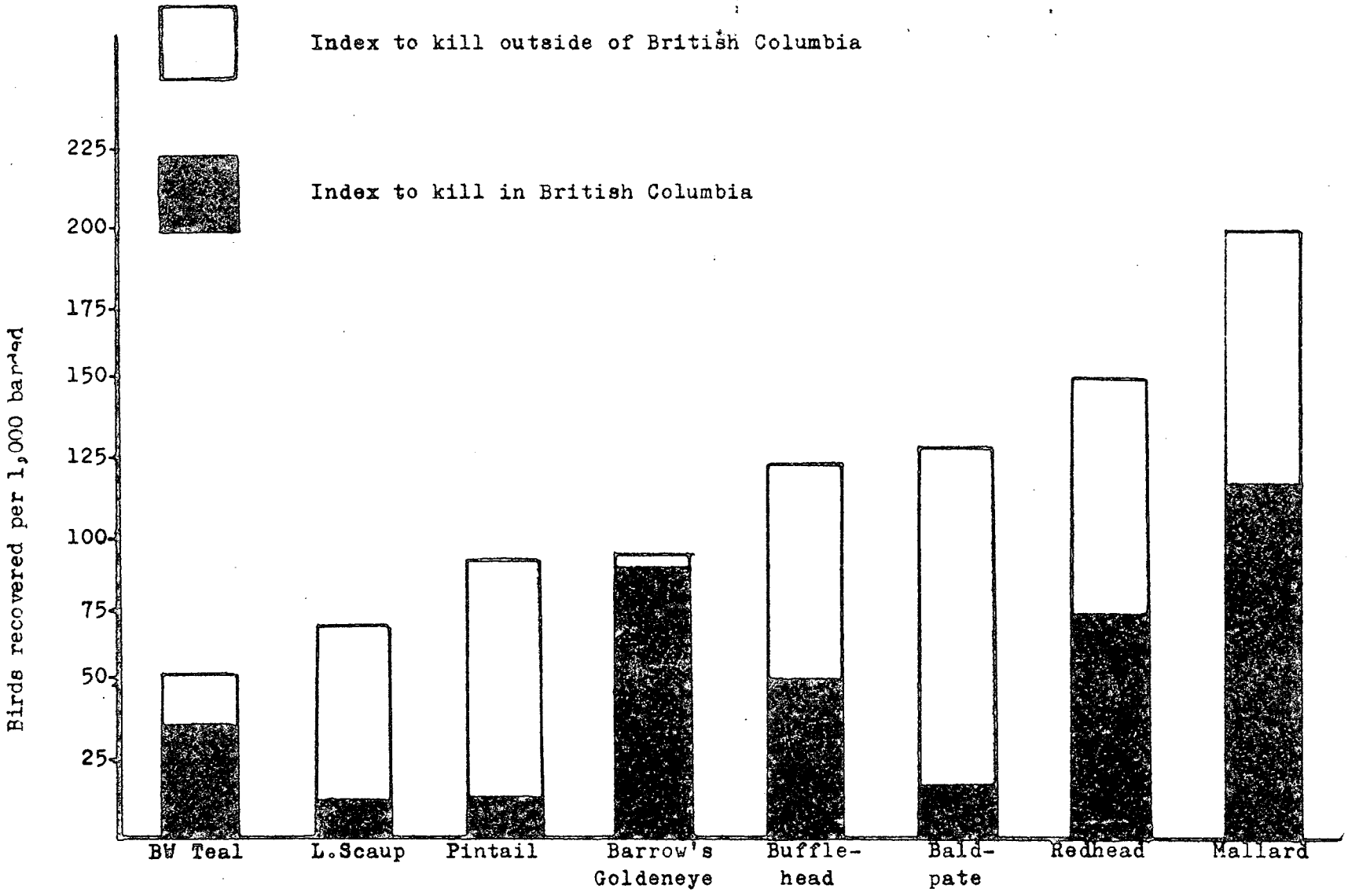


Figure 1. Graph showing kill indices for eight species of "local" ducks banded in South-central British Columbia. Indices are based on first-season band recoveries.

The data show that 58 percent of the Mallard killed are taken in B.C. Of these, 68 percent are taken within 100 miles of their natal sloughs. Migration is restricted for the most part, to the Pacific Northwest, and few fly south of Oregon if band recoveries are indicative of winter distribution. That some winter, however, is indicated by the single recovery from Louisiana.

Redhead

A first-season kill index of 148 is indicated for B.C. - produced redheads. Almost half (47 percent) occurs in the Province. The data show that 80 percent of the B.C kill takes place within 100 miles of the banding stations. Five recoveries (15.6 percent) were obtained from the Central Flyway and 1 from Mexico.

Baldpate

The baldpate kill index is 130 of which only 13.4 percent occurs in British Columbia. The B.C.kill is about evenly distributed between the interior production areas and the southern coastal areas. Eighty percent of the baldpate recoveries was made from the states of California, Oregon and Washington.

Bufflehead

Surprisingly, the kill index for Bufflehead is among the higher and is calculated at 125. Fourty-four percent of the kill occurs within the Province and most of this takes place in the interior.

Barrow's Golden-eye

This species shows a kill index of 95. Unlike other species, the bulk of the kill (94.4 percent) takes place in B.C. The balance of the recoveries were obtained from Washington and Oregon. Thus, the Barrow's Golden-eyeproduced in the interior can, for management purposes, be considered a resident species. Seventy-nine percent of the total recoveries was made in the interior before the birds reached their coastal wintering areas. Interior birds do not have fishy taste characteristic of wintering golden-eye on the coast and are regularly taken by interior hunters. While on small interior lakes these birds are relatively vulnerable to hunting and rather heavy local kills have been encountered.

A distinct fall northward movement from the production areas is indicated from band recoveries. Kamloops birds are taken in the Cariboo and Chilcotin (Williams Lake region) and Williams Lake birds have been taken in the Quesnel, Prince George and Vanderhoof areas. This, plus the fact that these birds are seldom taken any distance south of the banding stations in the interior, suggests that they have a direct westerly fall migration to the coast. This is substantiated by the numbers of coastal recoveries occuring well north of Burrard Inlet.

The kill index for Kamloops golden-eye is 101 whereas that for Williams Lake birds is 88. How significant this difference is, is not known. It is probable that the Kamloops birds are subjected to more hunting pressure since they are hunted not only near their natal lakes, but also during their fall movements through the Cariboo and Chilcotin. On the other hand, birds raised in the Cariboo apparently receive little hunting pressure after they leave the area. The differential kill appears to continue, however (to a lesser degree) after the birds reach their wintering ground - particularly south of British Columbia. The difference of recovery incidence here, may not be significant.

Pintail

The pintail has one of the lower kill indices (92). The kill distribution is similar to that of the baldpate with only 14 percent being reported from B.C. Most of the recoveries were made in Oregon and California.

Lesser Scaup

Of the common divers which were banded in numbers, the Lesser Scaup has the lowest kill index (70). Eighteen percent of these recoveries were made in the Province, all being taken within 100 miles of the banding station. The recovery distribution of this duck resembles that of the Redhead with most being made in the three Pacific states and a few eastward as far as the Mississippi Flyway. Apart from the direct recovery in the Mississippi Flyway, there are records of two retraps - one in Michigan and the other in Louisiana. Both were trapped within a year of being banded as locals in B. C.

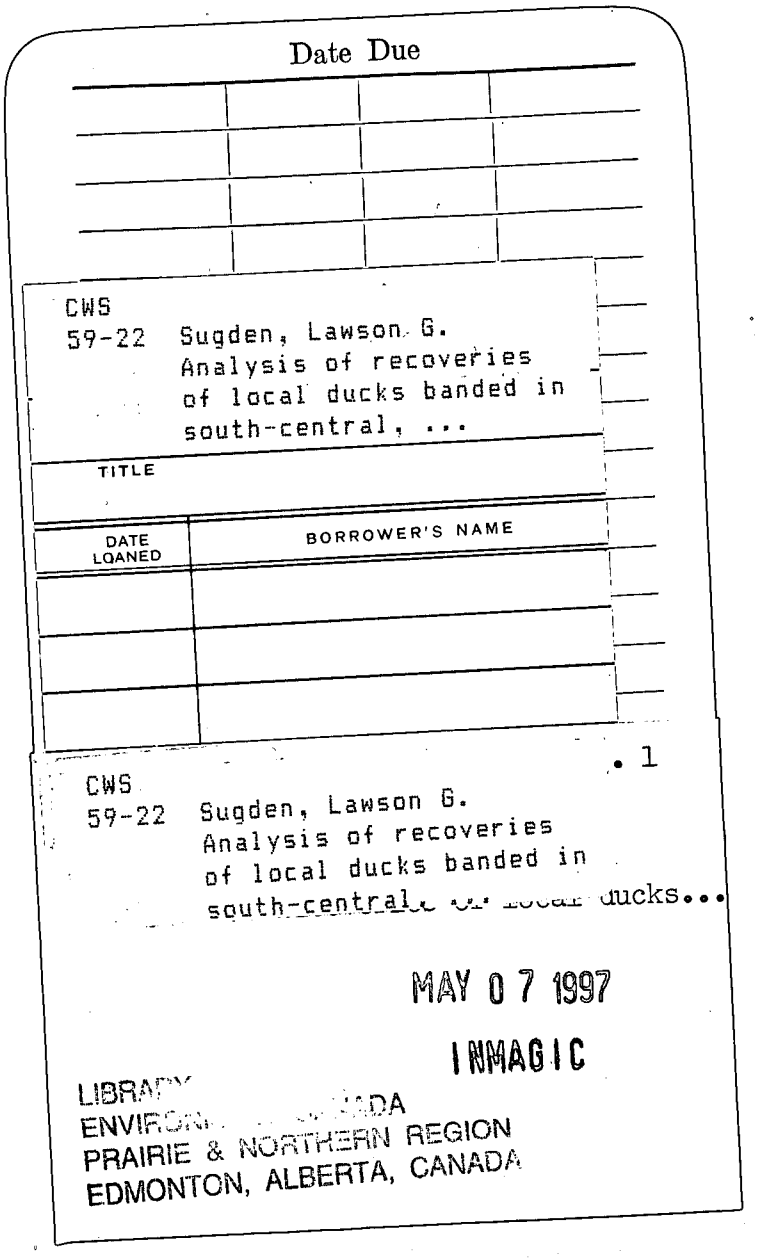
Blue-winged Teal

Blue-winged teal show the lowest kill index of all the species considered. Only 54 for every 1000 birds banded were reported. However, percentage wise, this species has one of the highest B.C. kill ratios (68 percent). All of the B.C. Recoveries were taken in the interior.

The analysis thus far indicates some marked differences in the recovery rates and distribution of the various species considered. With the inclusion of the 1959 banding data, plus the analysis of second and third-year returns and the data on adults, the results should be much more significant. It will also be possible to present analysis on band recoveries for Canvasback, Shoveller and Green-winged Teal in a future report.

It is recommended that a brief progress report incorporating the 1959 returns be prepared one year from now.

October 29, 1959



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