

# Assessing Waterfowl Use of Agricultural Lands in Delta & Richmond, BC

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Winter 2023-2024



*Photo 1: A flock of Mallards and American Wigeon taking flight from a grassland set-aside field in Delta, February 2024.*

## Project Background

The Fraser River Delta is a productive agricultural area and a significant region for migratory birds, especially waterfowl. Delta Farmland & Wildlife Trust administers the Cover Crop Stewardship Program to support farmers and wildlife. The Cover Crop program helps farmers establish vegetative cover on their fields after harvest in late summer/early fall. Cover cropped fields provide feeding habitat for waterfowl and shorebirds, reduces erosion, and improves soil quality.

Since 2017, the Delta Farmland & Wildlife Trust has conducted a survey of wintering waterfowl abundance throughout the Delta and south Richmond regions. The waterfowl survey objectives are to estimate the distribution and population of migratory waterfowl in the Delta region and evaluate the effectiveness of the Cover Crop program in providing feeding habitat for waterfowl.

## Survey Methods

Surveys were conducted by the roadside along a standardized route and waterfowl populations were estimated visually using binoculars and a spotting scope. The survey route (Figure 1) was designed to efficiently survey agricultural fields across Delta, emphasizing surveying fields enrolled in the Cover Crop program. Field technicians surveyed 708 fields, of which 315 were enrolled in either the Cover Crop program or Cereal Habitat Enhancement Program (CHEP). Surveys were conducted weekly from October 16, 2023, to April 1, 2024, between 8:00 AM and 4:00 PM.

With the 2023 expansion of Cover Crop program to include all of Metro Vancouver and Abbotsford, the survey area was expanded to monitor newly enrolled Cover Crop fields. Fields in Surrey and Langley were visited individually, and a new survey route of Sumas Prairie was designed to monitor Cover Cropped and adjacent fields in Abbotsford (Figure 2).



Figure 1. Waterfowl survey route and Cover Crop fields in Delta and Richmond



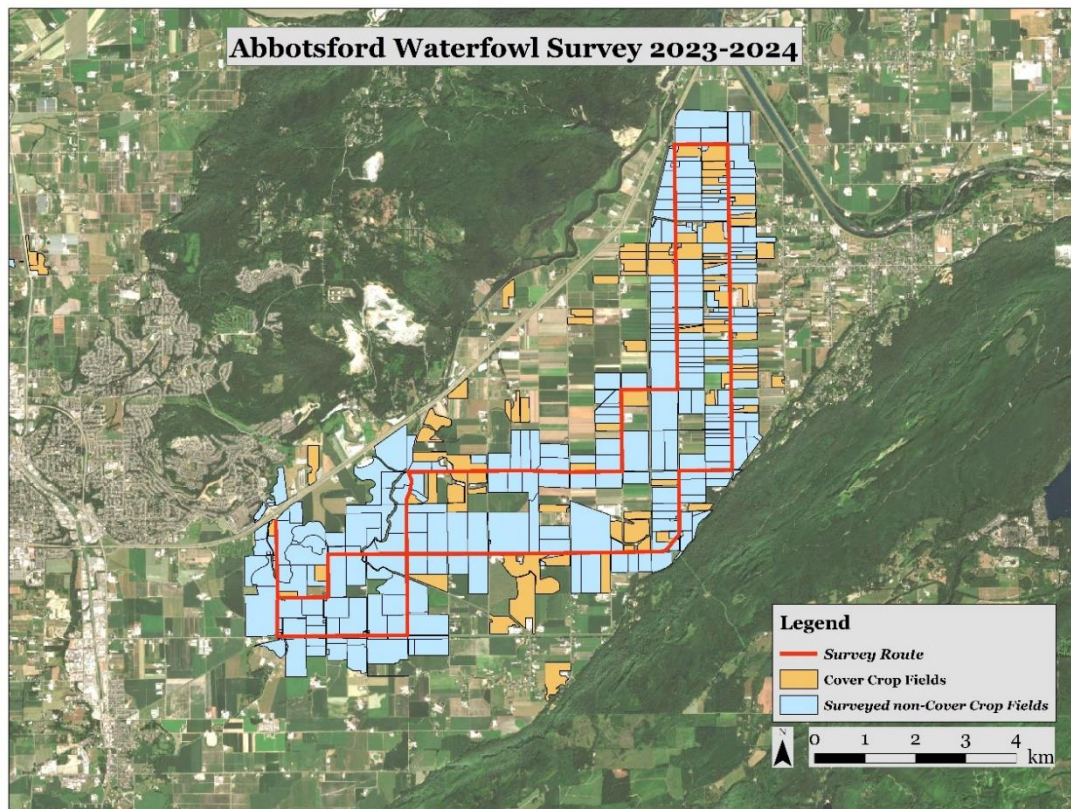


Figure 2. Waterfowl survey route and Cover Crop fields in Abbotsford

## Survey Results

A total of 99,517 individual waterfowl of 11 species were observed over the season. The weekly average number of waterfowl observed across all fields was 4,560. From most to least abundant, the waterfowl observed were Snow Goose (*Anser caerulescens*), Mallard (*Anas platyrhynchos*), American Wigeon (*Mareca americana*), Trumpeter Swan (*Cygnus buccinator*), Cackling Goose (*Branta hutchinsii*), Canada Goose (*Branta canadensis*), Green-winged Teal (*Anas crecca*), Gadwall (*Mareca strepera*), Northern Pintail (*Anas acuta*), Greater White-fronted Goose (*Anser albifrons*) and Eurasian Wigeon (*Mareca penelope*).

Snow Geese were the most observed species overall, accounting for 36.8% across the study area, ranging from 38% in Delta and Richmond to 5% in Abbotsford (*Figure 3*). In Abbotsford, Trumpeter Swans and Mallards were observed in much higher proportions than in Delta, and Snow Geese were the fourth-most observed waterfowl species.

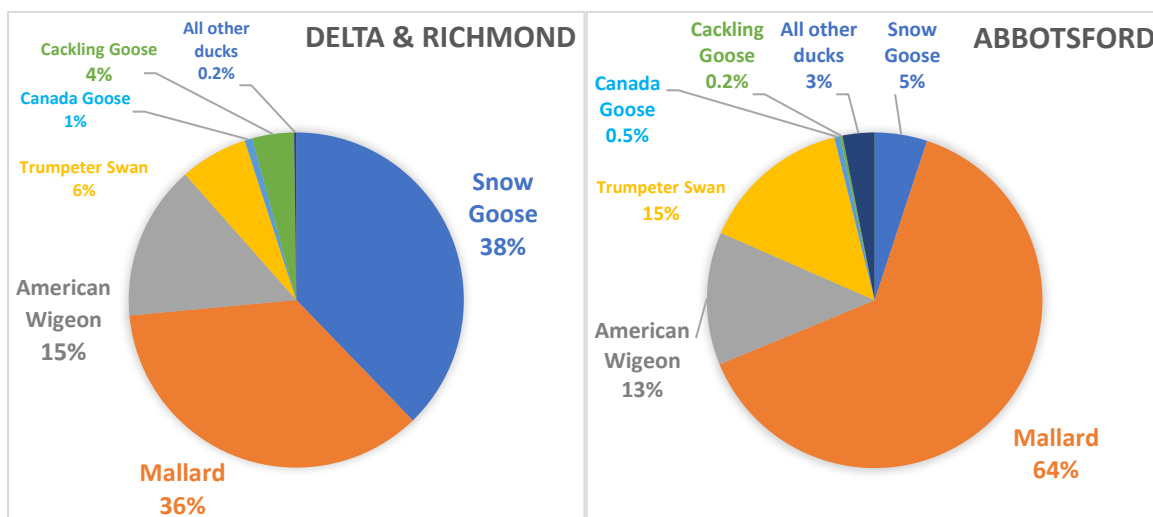


Figure 3. Waterfowl observations by species on Delta/ Richmond and Abbotsford survey routes.

A total of 38,212 acres of farmland were surveyed across all transect routes, with 20,711 acres surveyed in Abbotsford (54%), 16,881 acres in Delta and Richmond (44%), 239 acres in Langley (0.6%) and 381 acres in Surrey (1.0%). Waterfowl density was highest in Delta and Richmond, with a weekly average count of 17.8 per 100 acres surveyed, compared with 7.7 waterfowl per 100 acres surveyed in Abbotsford.

In Delta and Richmond, the 2023-2024 waterfowl survey observed an increase of all species compared with the 2022-23 season (Figure 4). Weekly counts of total waterfowl were 175.0% higher during this wintering season compared to previous seasons, with some species such as Cackling Geese and Canada Geese having even greater increases.

Average weekly waterfowl counts (Delta & Richmond   October 2023 - March 2024)								
	All waterfowl	Snow Goose	Mallard	American Wigeon	Trumpeter Swan	Canada Goose	Cackling Goose	All other ducks
2022-2023	1069.3	646.5	222.9	119.3	17.8	3.5	12.3	0.7
2023-2024	2940.7	1151.3	761.3	323.6	27.7	12.3	180.7	6.4
% change	175.0	139.9	241.5	171.1	55.5	249.4	1373.4	818.8

Figure 4. Change of waterfowl observations between the 2022-23 and 2023-24 seasons (Delta & Richmond only)

The increase in waterfowl observations of this season is likely a factor of better cover crop coverage compared to the previous season. The fall of 2022 had very poor cover crop establishment due to drought conditions, however the fall of 2023 had regular rainfall and cover crop growth throughout the winter was more typical. Cover cropped fields compose a significant amount (21.6%) of all fields surveyed and are a valuable foraging resource for many migratory waterfowl.

We are continuing to trial the use of autonomous recording units (ARUs) to monitor migratory waterfowl, since night-time foraging continues to be a very common behaviour, especially for Snow Geese.