

History of the Edmonton Christmas Bird Count, 1906–2013

The Christmas Bird Count has a long and storied history in Edmonton. The Edmonton CBC has been conducted 65 times from 1906 to 2013, and continuously since 1955.

The Christmas Bird Count tradition was initiated in 1900 by Frank Chapman, who was alarmed by the year-end tradition of the “side hunt,” in which any bird seen was shot, with points allotted to the shooter based on the scarcity of the kill. The first CBCs had few rules. By the 1950s the rules established a 15-mile diameter for each count, which was to be held on one calendar day during a two-week period that included Christmas Day, New Year’s Day, and three weekends. In 2013, 2,408 counts were conducted, mostly in North America, although the tradition has spread around the world. In 2013 the number of participants was 71,659 <<http://birds.audubon.org/114th-christmas-bird-count>>.

In Edmonton, Sidney S. S. Stansell, a local schoolteacher, conducted the first count in 1906, observing 11 species in 8 hours of searching (Holroyd and Palaschuk 1996a). The second count was in 1907 by J. A. Fyfe and J. M. Schreck; the third was in 1909 by S. Stansell; and three more counts were conducted in 1938, 1945, and 1946. The count was reinstated again in 1955 and has been an annual tradition ever since; 2014 was the 60th continuous year. The count circle was centred on the University farm and has been relatively constant.

The annual number of participants was under 100 until 1985 (Figure 1). When I moved to Edmonton from Banff in 1984, I was amazed how few birders participated in the Edmonton count. The Banff count had more participants and an evening pot-luck supper at which the results were tallied and we celebrated the season with birding friends. I pointed this out to Cam Finlay and Jim Butler at the January 1985 club meeting. Together with Mike Quinn, we agreed to help compiler Jim Lange to increase participation. Happily, this was just before the National Celebration of Wildlife '87. Cam headed a local committee that used to meet at 6:30 a.m. – no one can have a conflict at that time, Cam told us! His wife, Joy, provided coffee, tea, and muffins. Meetings were crisp and we were off to our respective jobs before 8 a.m.! In 1987 we recruited 135 bush beaters and 1,153 feeder watchers, setting a **WORLD record** of 1,288 participants that has never been broken (Holroyd 1991).

In fact, Edmonton has had more participants in its CBC than every other count since then except for an 8-year span when upstart North Bay exceeded our participation. But beware, participation in other counts is growing while our participation slowly declines. (Other historical notes can be found in Palaschuk and Holroyd 1994, Holroyd and Palaschuk 1996b, and Holroyd 2000.)

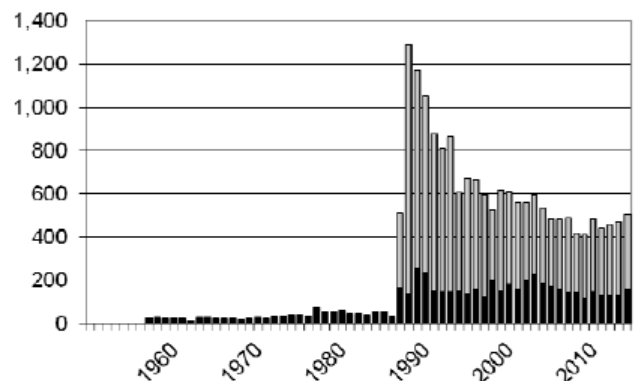


Figure 1. Number of participants on the Edmonton Christmas Bird Count from 1906 to 2013; solid bars are field party observers, light bars are feeder-watchers.

Now about our sightings. Over a million birds have been counted during the 65 counts. Which species has been seen most often? Bohemian Waxwings – 341,956; followed by House Sparrow –193,296; Black-capped Chickadee – 136,726; and Rock Pigeon – 108,210 as the only other species with over 100,000 sightings.

The number of species observed on the count increased steadily after 1986 when we first exceeded 50 species until the peak of 64 species in 2001. Then the number of species began to vary, with only 46 species in 2013. Throughout these counts a total of 119 species have been observed, 25 of them single birds seen only once! Only one species has been seen on all 65 counts – Black-capped Chickadee.

Numbers of some species have changed dramatically since 1906. I have prepared summary graphs of many species. Below is a discussion of some of the highlights from these graphs.

First, the technical details! For species such as some waterfowl and Bald Eagles, the actual count is shown. For the waterfowl every individual is counted on the limited open water on the North Saskatchewan River. The number of Bald Eagles is tallied for all sightings, with obvious duplicate sightings removed. For most other species the number of individuals counted depends in part on the number of hours spent by observers looking for them on count day. Prior to 1985 most observers were bush beaters, although the number of hours varied. From 1985 to the present the number of bush beaters increased dramatically, as did the number of feeder watchers. For those species that are observed at feeders and in the “bush,” I have divided the number of individual birds by the number of bush-beater hours + feeder-watcher hours. That number is multiplied by 10 to approximate a day’s birding and avoid small fractions.

The number of species of waterfowl has increased in the past 60 years. On the first 6 counts none were observed and we can assume the river was totally frozen. With the advent of sewage treatment, the city facility puts warm water into the river, maintaining open water. The University of Alberta also has a warm water outflow, which keeps another channel open upstream. Although the variety of species has increased, the number of ducks has varied dramatically, peaking at over 5,000 in 1990. These were mostly Mallards that increased in numbers after 1985 but crashed after 1991. A university study found the over-wintering Mallards were in poor shape by spring; many could not fly. By the time these ducks were healthy the breeding season was advanced and they did not breed. Any genetic tendency not to migrate was quickly selected against! Canada Geese were abundant for two years, 2002 and 2004, but the reasons for these two peaks are unknown.

Capitalizing on the waterfowl, Bald Eagles have become more regular winterers in Edmonton. Up to 8 have been recorded on our count. For waterfowl and eagles we compile an accurate count of the number present in the count circle. For other species we need to divide by the effort of birdwatchers.

Our counts of House Sparrows illustrate this point. The number counted skyrocketed to over 10,000 when the number of observers and observer hours increased from 1985 to 1986 (Figure 2). Clearly the number of sparrows within our count circle did not change that much. The comparison of number of House Sparrows to the observer hours shows a fairly linear relationship. The total number divided

by the hours searching by field parties plus hours watching by feeder watchers provides a much different graph (Figure 3). The number observed per unit effort appears to be fairly stable at about 50 per 10 observer hours.

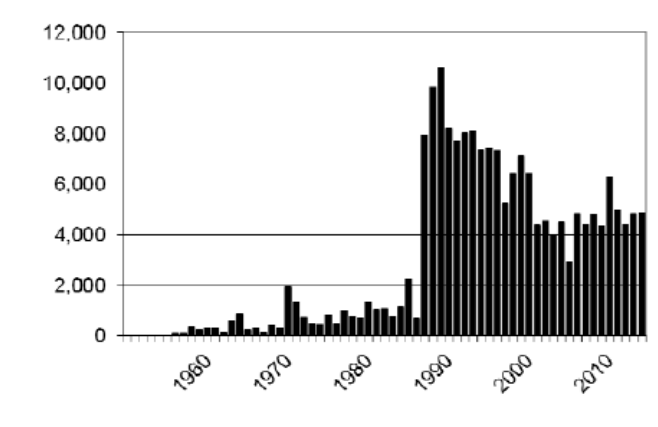


Figure 2: Number of House Sparrows reported on the Edmonton CBC from 1906 to 2013.

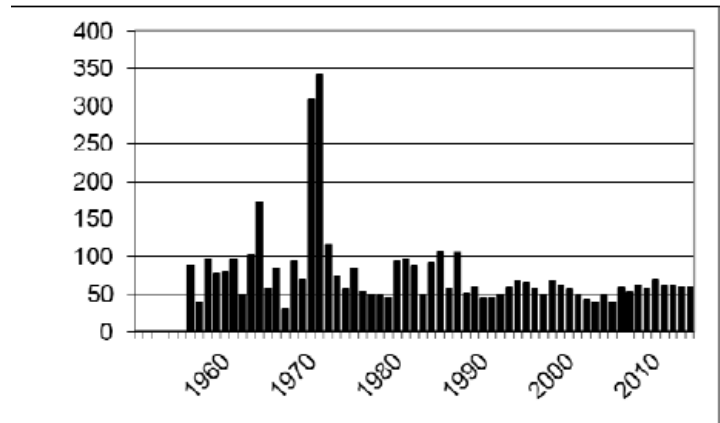


Figure 3: Index of House Sparrow abundance from 1906-2013 based on the number reported divided by (number of field party hours + feeder watcher hours) x 10.

The counts of Black-capped Chickadees appear to vary between 20 and 60 per 10 observer hours (Figure 4). In fact, we can almost see a long-term cycle with peaks and highs every 20–25 years. Merlins are much less abundant. Their index of abundance varies from below 0.5 to almost 1.5 per 10 observer hours. Space does not allow me to discuss the details of every species that we see regularly on our CBC, so I have grouped the species into three broad categories: the decreaseers, the increaseers, and those without a distinct trend.

First the decreaseers. As the city has grown since 1906, open farmland and wooded areas have declined. Farmland in the count circle has almost disappeared. The impact on bird populations is the decline of most open-country species and the disappearance of some within our count circle. Members of the grouse family have almost disappeared. Sharp-tailed Grouse were seen irregularly from 1945 to 2001, peaking at 15 in 1971, but none have been seen on our count since 2001. Ring-necked Pheasant and Gray Partridge are both introduced species that were first observed in 1945 and 1946, respectively. The pheasant has not been seen on the count since 2006 and the introductions in the Edmonton area ended sometime before that. Gray Partridge are still seen in the count circle, mostly in the northwest industrial area, but less commonly than before; compare the peak of 586 in 1989 to 41 in 2013.

Snowy Owl is another open-country decliner, seen only 3 years in the last 10 counts compared to 24 observed in 1993. Thirty Short-eared Owls were seen in 1988, but they were seen in only 3 years in the past decade. Although these owls have not been seen regularly in the count, there is now little habitat left in which to search for them. Snow Buntings are likewise in decline locally. The highest count was 631 in 1961, but only 5 were seen in 2013 and none in 2012.

Other decliners are forest birds. The causes of their lower numbers in Edmonton are less clear for some of these species. White-winged and Red Crossbills have both declined. White-winged

were first seen in 1938, with a record count of 1,374 in 1991, but none were counted in 2013. Likewise, Red Crossbills were more abundant in the 1970s but have been rare since 2000. Grosbeaks show a similar decline. Pine Grosbeaks were seen at far higher numbers per party hour from 1938 to the mid-1980s but much less often in the past three decades. The state of Evening Grosbeaks is even worse. Their abundance peaked between the mid-1970s and mid-1980s at almost 1,000, but the counts in the past two decades are less than 100. These species breed predominantly in the Boreal Forest north and west of Edmonton. What have we done to cause these declines? Have we overharvested the mature forests, created climate change, used pest control against insects, or some other action? I don't know, but the decline of these species is of great concern.

Another set comprises species that have oscillated in abundance but have not shown a distinctive increase or decrease despite the dramatic changes in the city and the natural habitats. Remember that these trends are in the species indices of abundance, i.e., the number per 10 party hours. This list includes Great Horned Owl, Downy and Hairy Woodpecker, Black-billed Magpie, Blue Jay, Red-breasted Nuthatch, White-breasted Nuthatch, and House Sparrow.

The discussion of the increasers is more hopeful and positive! Warmer winters and increasing numbers of bird feeders might explain increases in Northern Flicker, American Crow, Cedar Waxwing, Dark-eyed Junco, American Robin, and Pine Siskin. Increases in the abundance of Pileated Woodpecker might be related to the maturing of our urban forests. Over 100 years ago, Edmontonians burned wood and coal to stay warm in the winter. Some of the wood came from the river valleys. These forests have not been harvested for many decades. More and larger trees would provide nest and roost sites for this large woodpecker. Another increaser is Rock Pigeon. Have we left more waste seed for this introduced species, or are is it attracted by more numerous buildings and structures in our growing city?

The recent arrivals of two species are very dramatic. One Common Raven was recorded by Sidney Stansell on his first count but not seen again on the Edmonton CBC until 1984. By 1990 they were well re-established. In the past three years, 2011–2013, their abundance has doubled to over 1,000! At the 2014 Birds of Christmas ENC meeting we learned that a very large roost is in the conifer trees near Quesnell Bridge. Some of these ravens stream down the Whitemud Creek Valley in the mornings and evenings, presumably to feed south of the city. Other ravens head northwest to visit the landfill next to the Yellowhead Highway. Ravens have expanded their range south from the boreal forest across the prairies and east from the Rockies onto the Great Plains. Interestingly, ravens used to be common on the Great Plains, part of the food chain of buffalo, plains grizzly bears, and wolves. This range expansion appears to have occurred naturally over a broad geographic area at nearly the same time. "Why" remains a mystery.

The other recent arrival is the House Finch. Previously restricted to the southwest US and northwest Mexico, this species has expanded its range north as far as BC. House Finches were introduced to New York in 1941, when they were sold as "Hollywood finches." Escapees from these illegal sales became established in eastern North America and expanded west. The origin of the Edmonton population, from the east or west, is unknown, but they arrived about 2003. Their numbers increased rapidly, although their abundance index seems to have stabilized at about 12 per 10 party hours during the past 3 years. The Purple Finch looks very similar. Its occurrence on the Christmas Bird Count was

irregular and never very common. None have been recorded in the past 4 years, but we should not dismiss possible sightings out-of-hand. With today's digital photography, observers should be encouraged to document sightings of this species. Otherwise we might conclude that House Finch displaced Purple Finch, while in reality we simply stopped looking for Purple Finch in winter.

I must acknowledge all the participants in these past CBCs. The count compilers in particular deserve special recognition; in the past 30 years they have been Jim Lange, Mike Quinn, Gerry Lunn, Dave Ealey, and Kim Blomme. Cam Finley, the chair, and other members of the 1980s CBC committee that put Edmonton on the participation map also deserve credit. Congratulations to all the zone captains and bird counters who contributed their efforts to tallying over one million birds! And thank you to Alan Hingston, who provided valuable corrections to an earlier draft of this article.

What does the future hold for species in Edmonton in winter? My easy answer is more of the same. However, one new species is on the cusp of occurring on the Edmonton count – Eurasian Collared Dove. This new arrival to North America has been seen around Edmonton in the summer and at least one is in the Fort Saskatchewan count this winter.

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This article was originally published in the *Parkland Naturalist* January-April 2015