Articles

Twenty-five Years of the Detroit River (Michigan-Ontario) Christmas Bird Count

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INTRODUCTION

The Detroit River (Michigan-Ontario) Christmas Bird Count (CBC) was founded in 1978. The count circle is centred at the intersection of Warren Avenue and Interstate 94 in Detroit (42° 21' N, 83° 01' W), covering parts of Wayne County, Michigan and Essex County, Ontario, including the upper portion of the Detroit River. In Michigan, the count circle includes Belle Isle in Detroit, Greenfield Village in Dearborn, the campus and Natural Area of the University of Michigan-Dearborn, and Rouge and Palmer parks in Detroit. About 30% of the count circle lies in Ontario (ONC 2002), including Ojibway Prairie in Windsor. A large portion of the count circle is urban residential and industrial areas in the city of Detroit.

METHODS

The usefulness of CBC data to determine trends in bird populations is viewed with caution. CBCs have annual changes in effort, varying degrees of skill and diligence of observers, and biases in habitat coverage (Butcher 1990). In order to examine trends of relative abundance, actual numbers of individuals counted is often adjusted to individuals per party-hour—the number of hours spent looking for birds by a party of one or more observers. However, this assumes that increased effort will result in more birds counted, which is not always the case. Butcher and McCulloch (1990) noted that for some species, such as those that occur in habitats that can be covered in a few hours or birds that concentrate in certain areas, the amount of effort does not increase the number of birds counted. They recommended looking at the correlation between effort and numbers of birds counted. If the correlation was not positive, actual numbers of individuals counted should be used to examine relative abundance. If the correlation was positive, then actual numbers of birds could be corrected to a number that would be expected if the effort were standard (e.g., using the mean number of party-hours). While further refinements can and should be used for CBC analyses (Sauer and Link 2002), we used these Butcher and McCulloch recommendations for

looking at trends in a few species of interest. A simple linear regression was calculated using year as the independent variable, and either actual number of birds counted or standardized birds per 10 party-hours as the dependent variable.

RESULTS

Summary data

Table 1 gives summary statistics for the 25 years of the Detroit River CBC. The mean number of species per count is 70.5 (range 55 to 81) and the mean number of party-hours is 60.5 (range 32 to 93). The mean number of party-hours increased beginning in 1995, when the Rouge River Bird Observatory (RRBO) at the University of Michigan-Dearborn began coordinating parties covering the city of Dearborn. Since 1995, RRBO has averaged 4 parties and 22.4 party-hours within Dearborn. As a result, for the years 1978-1994, the mean number of party-hours for the Detroit River CBC was 49.2; for the years 1995-2002, it climbed to 84.8 ($p<0.001$, t-test).

Table 1: Summary statistics for the Detroit River CBC, 1978-2002.

	High N (year)	Low N (year)	Mean
Number of species	81 (1992)	55 (1982)	70.5
Number of individuals[1]	29,365 (1996)	2210 (1980)	11,293
Party-hours	93 (1997, 1999)	32 (1982)	60.5
Number of species per 10 party-hours	19.1 (1985)	8.0 (1997)	12.7
Number of individuals per 10 party-hours	3244.8 (1996)	937.2 (1982)	1776.6

[1]Excluding European Starling, whose huge numbers at the Ambassador Bridge roost were estimated.

The cumulative number of species recorded on the Detroit River CBC is 130. Of those, 4 were not recorded on count day, but rather count week (3 days before and 3 days after count day) or count period (the period designated by the National Audubon Society in which all counts must be held; once variable, beginning in 2000-2001 it was set at 14 December to 5 January). Table 2 summarizes the species recorded on the count, including species only recorded count week or count period. For species occurring on 5 or fewer counts, details rather than summary data are given.

The 10 most numerous species (as expressed in individuals per 10 party-hours) in descending order are European Starling (scientific names given in Table 1), Canvasback, Canada Goose, Mallard, Rock Pigeon, House Sparrow, American Crow, Ring-billed Gull, Common Goldeneye, and Herring Gull. It should be noted that European Starling numbers for this count are not accurate. Prior to 1990, a huge roost under the Ambassador Bridge spanning the Detroit River was visited and numbers were estimated, as it was done from shore. As security around the bridge increased, the area became more difficult to visit, and beginning in 2000 the roost site numbers were not included in the totals. Similarly, Rock Pigeon and House Sparrow numbers are no doubt inaccurate due to undercounts. A large portion of the count circle is highly urbanized and not surveyed at all. Presumably, however, Rock Pigeon and House Sparrow numbers in the portions of the count circles that are surveyed are relatively accurate.

Thirty-five species have been found on all 25 counts: Canada Goose, American Black Duck, Mallard, Canvasback, Redhead, Greater Scaup, Lesser Scaup, Bufflehead, Common Goldeneye, Common Merganser, Red-tailed Hawk, American Kestrel, Ring-necked Pheasant, Herring Gull, Rock Pigeon, Mourning Dove, Eastern Screech-Owl, Great Horned Owl, Downy Woodpecker, Hairy Woodpecker, Blue Jay, American Crow, Black-capped Chickadee, Tufted Titmouse, White-breasted Nuthatch, Brown Creeper, American Robin, European Starling, American Tree Sparrow, Song Sparrow, White-throated Sparrow, Dark-eyed Junco, Northern Cardinal, American Goldfinch, and House Sparrow.

Ten species have been found only in Ontario: Lesser Black-backed Gull, Long-eared Owl, Short-eared Owl, House Wren, Blue-gray Gnatcatcher, Ovenbird, Chipping Sparrow, White-crowned Sparrow, Lapland Longspur, and Baltimore Oriole. Details are provided in Table 2. Of the 10 Ontario-exclusive species, all occurred only on a single count except for Lapland Longspur (2 counts), Long-eared Owl (5 counts), and White-crowned Sparrow (11 counts). A Green-tailed Towhee (*Pipilo chlorurus*) that spent the winter of 1985-1986 in Windsor was in the count circle, but was not identified until after the count.

Trends and patterns

CANADA GOOSE – Canada Geese in southeast Michigan and southwestern Ontario are from 2 populations: migratory *Branta·canadensis interior* and resident *B. c. maxima* (Johnson 1991). Prior to reintroduction efforts begun in the 1930s in Ontario (Lumsden 1987a) and in the 1920s in Michigan (Johnson 1991), the resident race, or Giant Canada Goose, was not present in the region. In southern Ontario, restoration efforts began in earnest in 1968 (Lumsden 1987a).

Table 2: Species list for the Detroit River CBC, 1978-2002.

	# of counts[1]	Mean per count	High number/ year	Mean per 10 p-h[2]	Comments
Common Loon (*Gavia immer*)	The only count was 1993, a single bird seen on the Detroit River, just north of the Belle Isle bridge.				
Pied-billed Grebe (*Podilymbus podiceps*)	8	0.6	5 in 1995	0.10	
Horned Grebe (*Podiceps auritus*)	First count in 1988 (2 birds). Seen on 3 counts: 1988, 1990, 1992.				
Double-crested Cormorant (*Phalacrocorax auritus*)	2 counts: a bird seen cw[3] in 1993, and 2 birds in 2002.				
Great Blue Heron (*Ardea herodias*)	17	5.4	20 in 2001 and 2002	0.88	This species has been present each year since 1987 and the mean count since then is 8.3.
Black-crowned Night-Heron (*Nycticorax nycticorax*)	11	1.1	8 in 1985	0.18	
*Greater White-fronted Goose (*Anser albifrons*)	1 cp[4] in 1993 at Greenfield Village.				
Snow Goose (*Chen caerulescens*)	2 in 1997.				
Canada Goose (*Branta canadensis*)	25	1339.0	5689 in 2000	221.06	
Mute Swan (*Cygnus olor*)	18	36.8	263 in 2001	6.07	First count was in 1981 (2 birds).
Tundra Swan (*Cygnus columbianus*)	12	7.0	60 in 2001	1.16	
Wood Duck (*Aix sponsa*)	15	1.2	5 in 1985	0.20	
Gadwall (*Anas strepera*)	22	25.7	210 in 2001	4.24	
American Wigeon (*Anas americana*)	20	4.0	37 in 2002	0.67	
American Black Duck (*Anas rubripes*)	25	54.7	139 in 1981	9.03	

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
Mallard (*Anas platyrhynchos*)	25	1127.0	2334 in 2000	186.07	
Northern Shoveler (*Anas clypeata*)	2 counts: 2 birds in 1992 at Belle Isle, and a single bird in 2000, also at Belle Isle.				
Northern Pintail (*Anas acuta*)	13	0.8	6 in 1986	0.13	
Green-winged Teal (*Anas crecca*)	4 counts: 1978, 1988, 1999, 2001.				
Canvasback (*Aythya valisineria*)	25	1874.1	12,060 in 1996	309.41	
Redhead (*Aythya americana*)	25	227.6	3684 in 1996	37.58	
Ring-necked Duck (*Aythya collaris*)	15	16.7	100 in 1999	2.75	
Greater Scaup (*Aythya marila*)	25	43.2	144 in 1979	7.13	
Lesser Scaup (*Aythya affinis*)	25	13.5	42 in 1997	2.23	
White-winged Scoter (*Melanitta fusca*)	2 counts: 1993 (cw) and a single bird in 1996.				
Long-tailed Duck (*Clangula hyemalis*)	4 counts: 1980, 1990, 1995, 1996 (2 birds).				
Bufflehead (*Bucephala albeola*)	25	65.0	330 in 1992	10.72	
Common Goldeneye (*Bucephala clangula*)	25	360.8	1576 in 1992	59.56	
Hooded Merganser (*Lophodytes cucullatus*)	24	16.6	54 in 1996	2.75	
Common Merganser (*Mergus merganser*)	25	340.2	2758 in 2001	56.16	
Red-breasted Merganser (*Mergus serrator*)	25	35.6	552 in 2001	5.87	
Ruddy Duck (*Oxyura jamaicensis*)	8	1.2	12 in 2001	0.19	

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
Bald Eagle (*Haliaeetus leucocephalus*)	6	0.6	10 in 2001	0.11	
Northern Harrier (*Circus cyaneus*)	6	0.2	All single birds	0.04	
Sharp-shinned Hawk (*Accipiter striatus*)	15	1.0	4 in 2001	0.16	
Cooper's Hawk (*Accipiter cooperii*)	21	3.3	13 in 2001	0.55	
Northern Goshawk (*Accipiter gentilis*)	The only count was 1982, a single immature female in Rouge Park.				
Red-shouldered Hawk (*Buteo lineatus*)	11	0.6	2 several years	0.09	
Red-tailed Hawk (*Buteo jamaicensis*)	25	32.2	58 in 1990	5.32	
Rough-legged Hawk (*Buteo lagopus*)	13	0.8	3 several years	0.13	
American Kestrel (*Falco sparverius*)	25	11.9	29 in 1995	1.97	
Merlin (*Falco columbarius*)	3 counts: cw in 1992 at Belle Isle, 2001 in Windsor, cw in 2002 at Belle Isle.				
Peregrine Falcon (*Falco peregrinus*)	11	0.6	2 several years	0.09	
Ring-necked Pheasant (*Phasianus colchicus*)	25	39.0	111 in 1981	6.43	
Northern Bobwhite (*Colinus virginianus*)	3	2.5	35 in 1978	0.42	None counted since 1981.
American Coot (*Fulica americana*)	10	2.7	44 in 1995	0.45	
Killdeer (*Charadrius vociferus*)	2 counts: 1992 and cw 1998.				
*Dunlin (*Calidris alpina*)	1 cp in 1994 at Belle Isle.				
Wilson's Snipe (*Gallinago delicata*)	3 counts: 1988, 1991, 1992.				

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
Bonaparte's Gull (*Larus philadelphia*)	13	66.8	962 in 1995	11.04	
Ring-billed Gull (*Larus delawarensis*)	24	501.3	1918 in 1995	82.76	
Herring Gull (*Larus argentatus*)	25	352.5	1072 in 2001	58.19	
Iceland Gull (*Larus glaucoides*)	Single birds seen on 2 counts: 1981 and 1996.				
Glaucous Gull (*Larus hyperboreus*)	6	0.4	2 several years	0.06	
Lesser Black-backed Gull (*Larus fuscus*)	An adult seen in the Detroit River off Peche Island Marina in 1993.				
Great Black-backed Gull (*Larus marinus*)	23	15.5	44 in 1991	2.56	
Rock Pigeon (*Columba livia*)	25	913.6	2825 in 1997	150.83	
Mourning Dove (*Zenaida macroura*)	25	341.7	855 in 1981	56.42	
Eastern Screech-Owl (*Megascops asio*)	25	5.6	18 in 1992	0.92	
Great Horned Owl (*Bubo virginianus*)	25	3.8	7 in 1995	0.62	
Snowy Owl (*Bubo scandiacus*)	4 counts: 1979, 1984, 1993 (cw), 2002 (2).				
Long-eared Owl (*Asio otus*)	5	0.9	12 in 1992	0.15	All sightings have been in Ontario, most from a pine grove south of Windsor.
Short-eared Owl (*Asio flammeus*)	A single bird feeding over Peche Island in 2001.				
Northern Saw-whet Owl (*Aegolius acadicus*)	4 counts: 1991, 1993, 1995, and 2002. Birds in 1993 and 2002 were birds wintering at UM-Dearborn.				
Belted Kingfisher (*Ceryle alcyon*)	22	2.7	7 in 1999	0.44	

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	12	1.6	9 in 1984	0.27	With most of the dead elms from the area gone (legacy of Dutch elm disease), this species has virtually disappeared.
Red-bellied Woodpecker (*Melanerpes carolinus)*	22	7.2	33 in 2002	1.18	
Yellow-bellied Sapsucker (*Sphyrapicus varius*)	13	0.8	3 in 1995	0.13	
Downy Woodpecker (*Picoides pubescens*)	25	65.6	150 in 2001	10.84	
Hairy Woodpecker (*Picoides villosus*)	25	8.0	18 in 1987	1.32	
Northern Flicker (*Colaptes auratus*)	24	3.8	10 in 1990	0.62	
Northern Shrike (*Lanius excubitor*)	8	0.5	5 in 1996	0.09	
Blue Jay (*Cyanocitta cristata*)	25	196.6	417 in 2002	32.46	
American Crow *(Corvus brachyrhynchos*)	25	577.5	5000 in 1984	95.30	
Horned Lark (*Eremophila alpestris*)	15	58.6	981 in 1986	9.67	
Black-capped Chickadee (*Poecile atricapillus*)	25	130.4	373 in 2002	21.54	While not noted by local banding stations, the 2002 high total corresponds with an influx of chickadees east of the count circle in fall 2001.
Tufted Titmouse (*Baeolophus bicolor*)	25	39.6	85 in 1997	6.54	
Red-breasted Nuthatch (*Sitta canadensis*)	22	4.2	15 in 2000	0.70	

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
White-breasted Nuthatch (*Sitta carolinensis*)	25	40.0	123 in 1996	6.61	
Brown Creeper (*Certhia americana*)	25	6.6	24 in 1997	1.09	
Carolina Wren (*Thryothorus ludovicianus*)	15	5.8	28 in 1997	0.95	First noted cp in 1984, this species has been found annually since 1989. Mean per count since 1989 is 10.3.
House Wren (*Troglodytes aedon*)	A single bird in Windsor in 1995.				
Winter Wren (*Troglodytes troglodytes*)	15	1.2	5 in 1993	0.20	
Marsh Wren (*Cistothorus palustris*)	2 counts: 1992 and 1999.				
Golden-crowned Kinglet (*Regulus satrapa*)	19	4.0	19 in 1991	0.67	
Ruby-crowned Kinglet (*Regulus calendula*)	3 counts: 1978; 1980 and 1985 both cw.				
Blue-gray Gnatcatcher (*Polioptila caerulea*)	A single bird in Spring Garden Prairie, Windsor, in 1991.				
Eastern Bluebird (*Sialia sialis*)	5	1.1	8 in 1988	0.18	
Hermit Thrush (*Catharus guttatus*)	14	1.4	9 in 1990	0.22	
American Robin (*Turdus migratorius*)	25	182.6	758 in 1998	30.15	
Gray Catbird (*Dumetella carolinensis*)	3 counts: 1981 (Rouge Park), 1994 (Windsor), 1995 (Ojibway Prairie).				
Northern Mockingbird (*Mimus polyglottos*)	9	0.4	2 in 1996 and 1997	0.07	
Brown Thrasher (*Toxostoma rufum*)	3 counts: 1978 (Rouge Park), 1982 (a bird that overwintered at Greenfield Village), 1983 (Elmwood Cemetery).				

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
European Starling (*Stunus vulgaris)*	25	91,864.9	~320,000 in 1978	15,166.74	See text for caveats for starling numbers.
Cedar Waxwing (*Bombycilla cedrorum*)	23	62.8	271 in 1991	10.37	
*Orange-crowned Warbler (*Vermivora celata*)	cw in 1980 at Greenfield Village.				
Yellow-rumped Warbler (*Dendroica coronata*)	10	2.1	19 in 2001	0.35	
Pine Warbler (*Dendroica pinus*)	A single bird in 1980 at Rouge Park; another on 8 Jan 1983 near Greenfield Village just missed cp.				
Ovenbird (*Seiurus aurocapilla*)	A bird present at a feeder in Windsor for over a month in 1994.				
Common Yellowthroat (*Geothlypis trichas)*	4 counts: 1987, 1988, 1992, 1997.				
Eastern Towhee (*Pipilo erythrophthalmus*)	9	0.6	7 in 1981	0.09	
American Tree Sparrow (*Spizella arborea*)	25	184.9	531 in 1999	30.52	
Chipping Sparrow (*Spizella passerina*)	1997 in Windsor.				
Field Sparrow (*Spizella pusilla*)	10	0.8	5 in 1981	0.14	
Savannah Sparrow (*Passerculus sandwichensis*)	2 counts: 1991 (Windsor) and 1998 (Detroit).				
Fox Sparrow (*Passerella iliaca*)	4 counts: 1995 (2), 2000 (cw), 2001, 2002 (6). All 6 on the 2002 count were at Rouge Park, a traditional wintering area for this species.				
Song Sparrow (*Melospiza melodia*)	25	44.9	161 in 1995	7.42	
Lincoln's Sparrow (*Melospiza lincolnii*)	2 counts: 2000 and 2002, both downtown Detroit.				
Swamp Sparrow (*Melospiza georgiana*)	21	6.4	27 in 1992	1.06	

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
White-throated Sparrow (*Zonotrichia albicollis*)	25	24.9	86 in 1996	4.11	
White-crowned Sparrow (*Zonotrichia leucophrys*)	11	5.2	41 in 1995	0.85	All from Ontario.
Dark-eyed Junco (*Junco hyemalis*)	25	236.0	764 in 1999	38.96	
Lapland Longspur (*Calcarius lapponicus*)	2 counts: 1981 (3) and 1990 (4) in Ontario.				
Snow Bunting (*Plectrophenax nivalis*)	12	49.8	370 in 1990	8.23	
Northern Cardinal (*Cardinalis cardinalis*)	25	208.6	455 in 1991	34.43	
Red-winged Blackbird (*Agelaius phoeniceus*)	18	7.3	38 in 1995	1.21	
*Eastern Meadowlark (*Sturnella magna*)	cw in 1981.				
Rusty Blackbird (*Euphagus carolinus*)	12	2.7	18 in 1999	0.45	
Common Grackle (*Quiscalus quiscula*)	20	3.4	20 in 2000	0.55	
Brown-headed Cowbird (*Molothrus ater)*	23	60.5	254 in 2000	9.99	
Baltimore Oriole (*Icterus galbula*)	1992 in Windsor.				
Pine Grosbeak (*Pinicola enucleator*)	10 birds at Rouge Park in 1978.				
Purple Finch (*Carpodacus purpureus)*	16	2.2	16 in 1978	0.36	
House Finch (*Carpodacus mexicanus*)	20	156.0	657 in 1995	25.76	
White-winged Crossbill (*Loxia leucoptera*)	2 counts: 1981 (3) and 1996 (1).				

	# of counts	Mean per count	High number/ year	Mean per 10 p-h	Comments
Common Redpoll (*Carduelis flammea*)	7	5.5	52 in 1986	0.91	
Pine Siskin (*Carduelis pinus*)	11	10.7	62 in 1988	1.76	
American Goldfinch (*Carduelis tristis*)	25	146.0	326 in 1995	24.10	
Evening Grosbeak (*Coccothraustes vespertinus*)	5 counts: 1978 (14), 1979 (6), 1981(25), 1987 (cp), and 1991 (cw).				
House Sparrow (*Passer domesticus*)	25	830.5	1381 in 2001	137.11	

[1] Includes years when the species was only recorded during count week or count period
[2] p-h = party-hours
[3] cw = count week
* indicates a species only recorded during count week or count period
[4] cp = count period

According to Breeding Bird Survey data, the mean annual percent change in Ontario's Canada Goose population from 1967 to 2000 was +23.1% ($p<0.05$) (CWS 2002a). Michigan's *B. c. maxima* population has grown at 14% annually (MDNR 2001) and 80% of the population resides in the southern part of the state (SOM 2001).

The trend on the Detroit River CBC reflects these increasing numbers. While the mean number per 10 party-hours over the 25 years is 221.06, over the last decade it is 463.98. On the Detroit River CBC, there was a positive correlation between effort and birds counted. Thus, Figure 1 uses birds per 10 party-hours, corrected to a number that would be expected if effort were constant (Butcher and McCulloch 1990). Over the 25 years on the count, there has been a significant increase in Canada Goose numbers, even considering that in 2001 nearly all water was frozen, and the goose count for that year was the lowest since 1981.

AMERICAN BLACK DUCK – Black duck populations have been declining since the mid-1950s due to habitat loss, hunting, and competition and hybridization with the Mallard (LePage and Bordage 1998). Being much more adaptable to urbanization, Mallards occupy territory being vacated by black ducks (due to hunting or habitat changes), which increases hybridization opportunities; this appears to be especially prevalent in southern Ontario (Longcore et al. 2000). Continental wintering populations of American Black Ducks declined

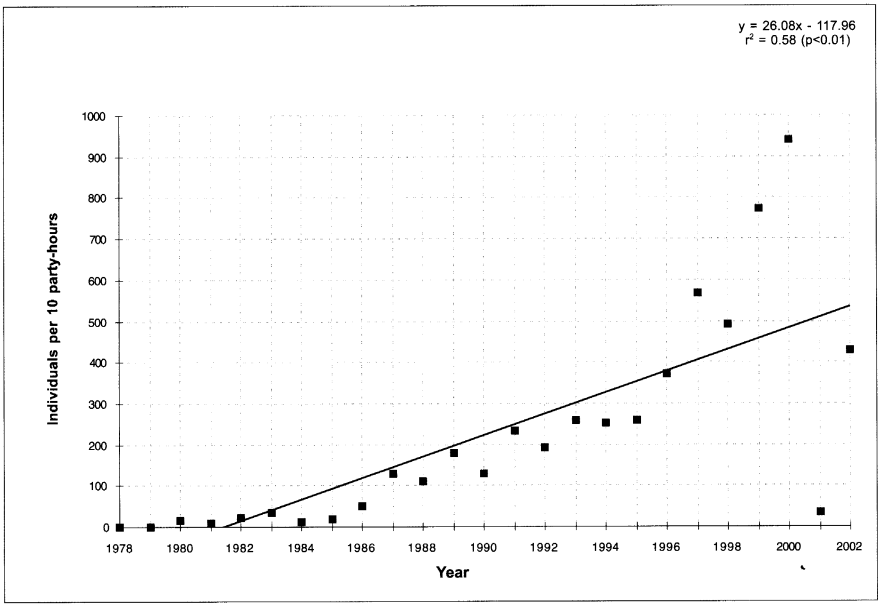

Figure 1: Canada Geese on the Detroit River CBC, 1978-2002. Birds per 10 party-hours are corrected to the number expected if effort were constant; see text for explanation.

50-60% from the 1950s to early 1980s (USGS 1998). Breeding Bird Survey data show the mean annual percent decrease in Ontario's black duck population from 1967 to 2000 was 4.2%, with the trend not significant (CWS 2002b), but Dennis (1987) states that "Canadian Wildlife Service surveys" put the decline in southern Ontario from 1951 to 1981 at 80%.

On the Detroit River CBC, there was no correlation between effort and birds counted; this was also noted by Butcher and McCulloch (1990) for black ducks. They surmised that because black ducks are scarcer in urbanized habitats and most CBCs are located close to human population centres, additional effort did not uncover more black ducks. Using the actual number of American Black Ducks counted, the regression equation was not significant (Figure 2). This agrees with trends in the U.S. Fish and Wildlife Service's continental Mid-winter Inventory, which shows stabilized numbers from 1980 to 2000, after harvest restrictions were put in place in 1983 in the U.S. and 1989-1990 in Canada (Longcore et al. 2000).

RING-NECKED PHEASANT – Ring-necked Pheasants, native to Eurasia, were first introduced in Ontario in the late 1800s (Lumsden 1987b) and in Michigan in 1885 (Belyea 1991);

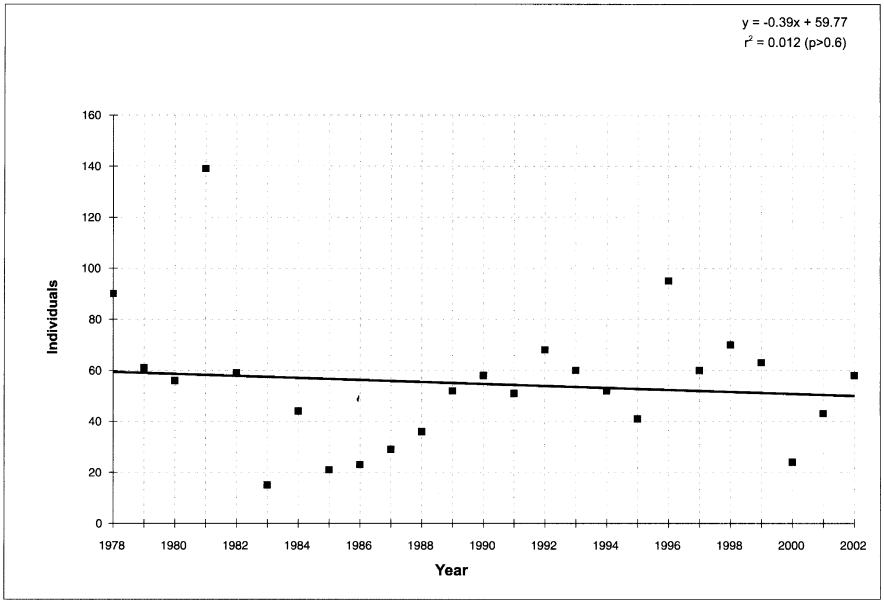

Figure 2: American Black Ducks on the Detroit River CBC, 1978-2002.

they reached their peak numbers in the mid-1940s. Populations have been declining since the mid-1950s, probably due primarily to habitat alteration (changing agricultural practices, loss of grasslands), with weather also playing a role (Tuovila et al. 2002). According to Breeding Bird Survey data, the mean annual percent decrease in Ontario's pheasant population from 1967 to 2000 was 8.8% ($p < 0.05$) (CWS 2002c). In Michigan, the annual decrease from 1966 to 1994 was 3.2% (Sauer et al. 2001).

This species has been found on all Detroit River CBCs. There was a negative correlation between effort and numbers counted, probably because in an urbanized count circle such as this one, most pheasants will be found in small patches of habitat which are easily covered by CBC participants. A significant decrease in the number of Ring-necked Pheasants has occurred in the count circle (Figure 3). Increasing urbanization in this region is likely nibbling away at suitable pheasant habitat. Mean numbers per 10 party-hours went from 16.18 from 1978 to 1985; to 5.93 from 1986 to 1993; and to 3.03 from 1994 to 2002—a decline of 81.3%.

CAROLINA WREN – Winter temperature is highly correlated with Carolina Wren distribution and abundance (Root 1988), and mild winters over the last two decades

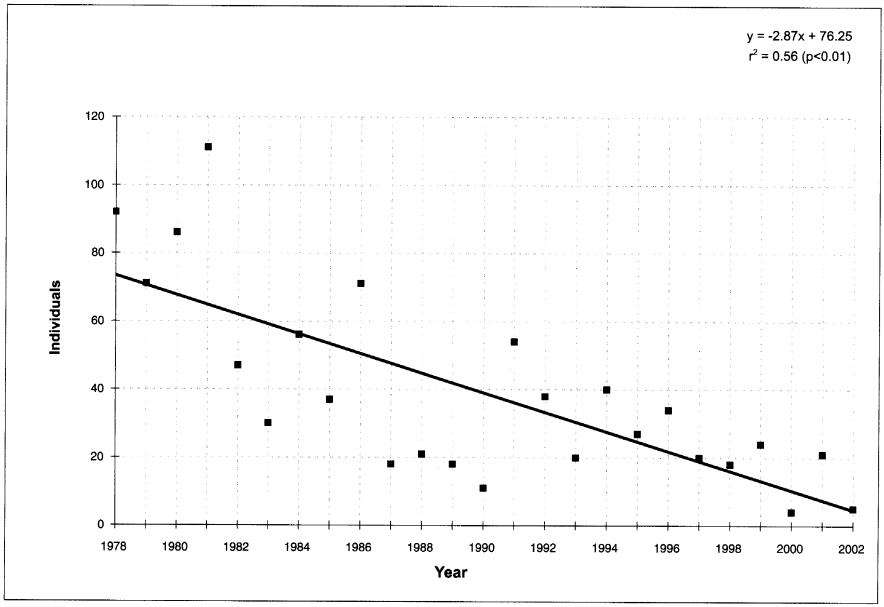

Figure 3: Ring-necked Pheasants on the Detroit River CBC, 1978-2002.

have contributed to the species' northward range expansion (Orton 1998). The severe winters of 1976-1977 and 1977-1978 caused a sharp decline in Carolina Wrens in most of the eastern U.S. (Robbins et al. 1986).

Numbers on CBCs began recovering in the late 1980s, and this trend is reflected on the Detroit River CBC. Carolina Wrens were not found until a bird was seen during count period in 1984; the first bird found on count day was in 1989. Since that time, there has been a significant increase in Carolina Wren numbers on the count (Figure 4).

HOUSE FINCH – House Finches (descendants of western birds released in New York in 1940) arrived in both Ontario and Michigan in 1972 (Kozlovic 1987, Hill 1991), and first appeared on the Detroit River CBC in 1983. They increased sharply through 1995 (Figure 5). After that point, numbers crashed due to a contagious conjunctivitis, *Mycoplasma gallisepticum*, first reported in eastern House Finches in 1994 in Washington, DC (Fischer et al. 1997), which has been causally linked with declines in House Finch populations (Hochachka and Dhondt 2000).

Analysis of CBC data and a special House Finch Disease Survey (administered by Cornell Lab of Ornithology) indicate that numbers

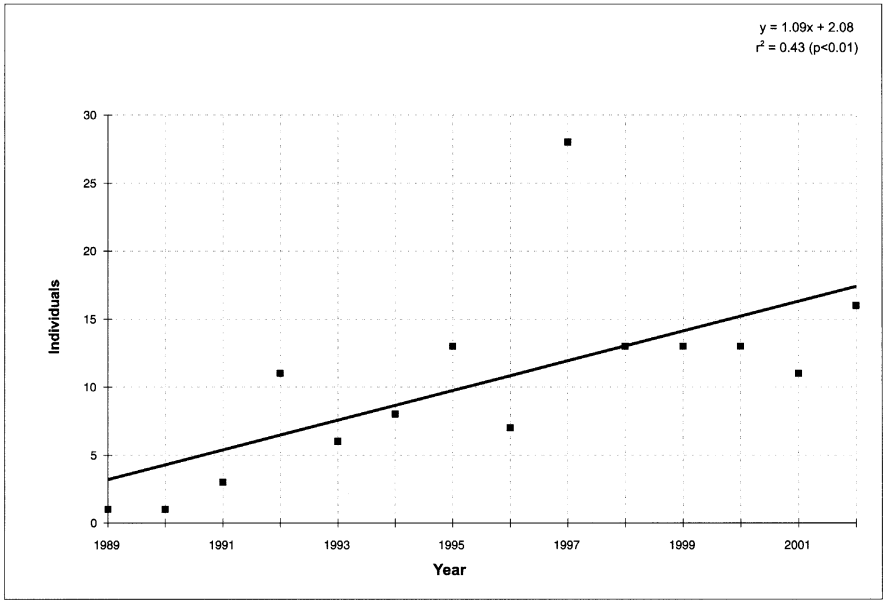

Figure 4: Carolina Wrens on the Detroit River CBC, 1989-2002.

of House Finches decline within the three years following a 20% or greater prevalence of the disease in a regional population, which occurred in southwest Ontario/ southeast Michigan around 1995 (Hochachka and Dhondt 2000). The decline in birds per 10 party-hours from 1995 to 1997 was 94.5%. This is a rapid decrease in a short period of time after reaching the 20% threshold, but variations in population declines are also influenced by density of House Finches (Hochachka and Dhondt 2000).

The pattern over time on the Detroit River CBC is very similar to the pattern for 50 CBCs in southern Ontario from 1980 to 1996 shown in Tozer's review of House Finch population trends in the province (Tozer 1997). Thus, Figure 5 is expressed in birds per 10 party-hours to match Tozer's graph. House Finches are primarily found at feeders, and CBC data do not separate birds counted at feeders and those found farther afield. Birds per party-hour is probably not the best method for estimating relative abundance for such species (Butcher and McCulloch 1990). Nonetheless, the CBC patterns discussed here are like those found by Project FeederWatch (CLO 2002), which only surveys feeder birds, and match what is to be expected given the well-studied progress and impacts of the conjunctivitis outbreak.

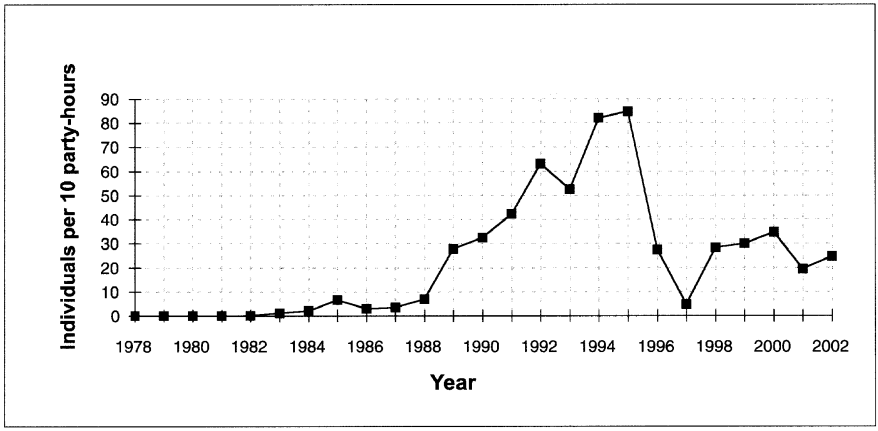

Figure 5: House Finches on the Detroit River CBC, 1978-2002.

Lately, House Finch numbers on the Detroit River CBC appear to be stabilizing. From 1998 to 2002, the mean per 10 party-hours is 27.34 versus highs in the 80s per 10 party-hours in 1993-1994 and 1994-1995.

DISCUSSION

The lower Detroit River has been designated an Important Bird Area (IBA) by BirdLife International's Canadian partners (IBAC 2002), for its globally significant concentrations of waterfowl (especially Canvasbacks and Redheads) and colonial waterbirds (primarily Ring-billed Gulls). The IBA begins just south of the Detroit River count circle, at the north end of Fighting Island, and extends southward. The importance of the Detroit River to waterfowl and wildlife is also recognized in the formation of the new Detroit River International Wildlife Refuge, which covers ~29 km (18 mi) of the lower river from Zug Island southward (ENN 2002); part of the Detroit River CBC is within refuge boundaries.

This count circle contains both highly urbanized areas as well as natural habitats critical to birds. Surrounding regions will continue to be developed while the Refuge and adjacent areas will be protected and restored, providing a unique monitoring opportunity in the coming years.

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