

Interdecadal Changes in Indices of Abundance of the Double-crested Cormorant on Christmas Bird Counts

State/Province	Interdecadal Comparisons*			
	60s / 50s	70s / 60s	80s / 70s	90s / 80s
<u>United States:</u>				
Alabama	1.5	2.2	4.4	2.4
Alaska		1.2	1.6	0.62
Arizona	0.43	8.8	1.2	1
Arkansas	0.02	500	0.9	5.4
California	1.3	1.6	1.4	1.4
Colorado	0	999	5	2.3
Connecticut	3.6	1.3	7.2	0.66
Delaware	9.5	1.8	4.7	0.89
District of Columbia			999	16
Florida	3.1	1.3	1.2	1.1
Georgia	11.2	1.5	2.5	1.8
Idaho	999	1.6	1.9	8.3
Illinois	0.62	0.63	1	11
Indiana	5.3	1.2	6.9	4.8
Iowa	0.07	0.74	5.2	10
Kansas	0	999	42	3.3
Kentucky	0.06	0	999	160
Louisiana	0.12	1.2	27	2.2
Maine	0.3	3.3	2.9	1.8
Maryland	0.23	2.9	1.9	6.3
Massachusetts	0.93	5.5	4.2	1.1
Michigan	0	999	27	12
Minnesota	0	999	4	4
Mississippi	0.02	2.8	81	2.3
Missouri	0.064	0.42	12	17
Montana			999	0.32
North Carolina	2	16	7.4	2.3

North Dakota				999
Nebraska		999	0.75	6.7
Nevada	21	2.5	0.57	1.3
New Hampshire	999	6	1.1	1.9
New Jersey	0.31	1.3	4.6	3.1
New Mexico	1.5	0.03	217	2
New York	0.44	8	4.8	1.9
Ohio	0.12	2.3	22	4.8
Oklahoma	1.2	24	33	5.3
Oregon	0.7	3.3	1.8	1.6
Pennsylvania	0.43	2.9	44	0.92
Rhode Island	0.02	13	19	2.3
South Carolina	3.6	5.1	1.8	1.7
South Dakota		0		999
Tennessee	0.009	0.48	8.6	16
Texas	3.6	7.5	3.1	1.2
Utah	0	999	0.5	0.92
Vermont				999
Virginia	2.4	2.3	11	1.9
Washington	1.2	4.4	2.8	1.4
Wisconsin			999	8
West Virginia	0	999	1.9	3.6
Wyoming				
<u>Canada:</u>				
Alberta			999	1.6
British Columbia	1.9	1.2	1.2	1.1
Manitoba				
New Brunswick		999	0.44	13
Newfoundland				999
Nova Scotia		999	2.7	2.4
Northwest Territories				
Ontario	0	999	5	13

Prince Edward Island			1.8	0.33
Quebec	0	999	5.4	2
Saskatchewan			999	0.9
Yukon Territories				
<u>St.-Pierre et Miquelin:</u>				
St.-Pierre et Miquelin Islands				999
<u>Bermuda:</u>				

Bermuda

\* A zero ("0") indicates presence of cormorants in preceeding decade and absence in present decade. A "999" indicates absence of cormorants in preceeding decade and presence in present decade. Numbers less than 1 indicate a decline from the previous decade, while numbers greater than 1 indicate an increase. A blank cell indicates absence of cormorants in preceeding and present decades.

#### Absolute Abundance of Double-crested Cormorants on Christmas Bird Counts

Indices of Abundance (birds/count) by Time Period

State/Province	1900-1959	1960-1969	1970-1979	1980-1989	1990-1999
<u>United States:</u>					
Alabama	51	77	167	742	1812
Alaska	nd	11	13	21	13
Arizona	28	12	105	123	127
Arkansas	4.4	0.084	42	38	204
California	70	88	139	200	272
Colorado	0.096	0	0.14	0.7	1.6
Connecticut	0.28	1	1.3	9.4	6.2
Delaware	0.22	2.1	3.8	18	16
District of Columbia	0	0	0	0.6	9.7
Florida	177	529	685	838	885
Georgia	2.5	28	43	109	202

Idaho	0	0.38	0.62	1.2	10
Illinois	8.2	5.1	3.2	3.2	34
Indiana	0.01	0.053	0.064	0.44	2.1
Iowa	0.43	0.031	0.023	0.12	1.2
Kansas	0.19	0	0.86	3.6	12
Kentucky	0.55	0.036	0	0.4	64
Louisiana	142	15	18	487	1070
Maine	0.16	0.048	0.16	0.46	0.81
Maryland	1.5	0.34	1	1.9	12
Massachusetts	0.14	0.13	0.72	3	3.3
Michigan	0.04	0	0.0063	0.17	2
Minnesota	0.016	0	0.03	0.12	0.48
Mississippi	105	2	5.5	447	1030
Missouri	2.2	0.14	0.059	0.7	12
Montana	0	0	0	0.91	0.29
North Carolina	5.1	10	160	1178	2678
North Dakota	nd	nd	0	0	0.1
Nebraska	0	0	0.2	0.15	1
Nevada	0.4	8.3	21	12	16
New Hampshire	0	0.05	0.3	0.34	0.65
New Jersey	3.6	1.1	1.4	6.4	20
New Mexico	1.3	2	0.06	13	26
New York	0.46	0.2	1.56	7.5	14
Ohio	0.08	0.01	0.023	0.5	2.4
Oklahoma	0.081	0.1	2.4	79	418
Oregon	12	8.4	28	49	79
Pennsylvania	0.022	0.0094	0.027	1.2	1.1
Rhode Island	1.7	0.034	0.45	8.4	19
South Carolina	7.3	26	132	236	406
South Dakota	0	0.17	0	0	0.31
Tennessee	69	0.61	0.29	2.5	39
Texas	9.5	34	256	792	923

Utah	0.081	0	0.26	0.13	0.12
Vermont	0	0	0	0	0.55
Virginia	2.2	5.2	12	135	261
Washington	11	13	57	157	212
Wisconsin	0	0	0	0.2	1.6
West Virginia	0.022	0	0.15	0.28	1
Wyoming	nd	nd	nd	nd	nd
<u>Canada:</u>					
Alberta	0	0	0	0.1	0.16
British Columbia	36	69	81	94	107
Manitoba	nd	nd	0	nd	0.14
New Brunswick	0	0	0.2	0.087	1.1
Newfoundland	nd	nd	0	0	0.1
Nova Scotia	0	0	0.26	0.71	1.7
Northwest Territories	nd	nd	nd	nd	nd
Ontario	0.028	0	0.02	0.1	1.3
Prince Edward Island	nd	nd	0.17	0.3	0.1
Quebec	0.022	0	0.22	1.2	2.4
Saskatchewan	nd	nd	0	0.11	0.1
Yukon Territories	nd	nd	nd	nd	nd
<u>St.-Pierre et Miquelin:</u>					
St.-Pierre et Miquelin Islands	nd	nd	0	0	1.9
<u>Bermuda:</u>					
Bermuda	nd	nd	nd	nd	45
Regions					
<u>FWS Regions:</u>					
Region 1 (West Coast)	54	66	102	222	207
Region 2 (Southwest)	9.3	23	177	561	703
Region 3 (Big Lakes/Rivers)	1.7	0.94	0.72	0.95	9.8
Region 4 (Southeast)	80	195	235	534	898
Region 5 (Northeast)	0.97	0.83	1.9	15	33

Region 6 (Plains/Mountains)	0.97	0.012	0.41	1.4	4.8
Region 7 (Alaska)	nd	11	13	21	13
<u>Flyways:</u>					
Atlantic					
Mississippi					
Central					
Pacific					
<u>Larger Regions:</u>					
Canada	2.2	20	21	27	29
Contiguous USA	23	54	94	247	370
Continental USA	23	54	93	244	364
Canada + USA	22	52	88	225	332

Note: This is based on the BirdSource CBC database.  
 In each case, comparisons within time periods are acceptable, while  
 comparisons across time periods are not (because of differences in effort  
 and CBC sites included).