Winter Population Trends in the Black and Turkey Vultures

Woodward H. Brown *

Both the Black Vulture (*Coragyps atratus*) and the Turkey Vulture (*Cathartes aura*) were included in The Blue List (Preliminary-Tentative) of January 1972 (*American Birds* 25:948-9) and, although they have not appeared on subsequent lists, the similarity of their habits invites a comparison of their population changes. According to Brown and Amadon (Eagles, Hawks, and Falcons of the World, 1968), the Turkey Vulture is "In much of arid western North America highly migratory", while the Black Vulture is "Considered non-migratory, but flocks have been seen apparently migrating south through Panama in November." The breeding range of the former extends much farther north but in winter the resident Turkey Vulture population of the south is augmented by migrant birds from the north.

METHOD

Christmas Bird Counts in *Audubon Field Notes* and *American Birds* from 19 states and the District of Columbia for the period 1950-73 were analyzed to learn the trends of the winter populations. Earlier analyses of winter raptor populations by Brown (*American Birds* 25:814-5, 27:6) have shown that more birds are seen on clear than on cloudy days, but with similar population curves. The frequencies (numbers of vultures per 10 party-hours) for clear and cloudy days were accordingly computed separately.

The proliferation of the CBCs, which nationwide have practically doubled in the past 20 years, frequently distorts the picture, owing to intrastate variations in population densities; the newer reporting areas often having many more or many fewer of a species than those reporting over the longer term. There is much to be said in favor of limiting an analysis to the counts from stations censusing uninterruptedly over the study period, but unfortunately the censusing in many areas is short-lived or discontinuous. For this reason the results of all counts made in the 24 years in the states included in the study were used.

BLACK VULTURE

Figure 1 shows the 5-year moving averages for the numbers per 10 party-hours recorded on clear and on cloudy days, and for clear and cloudy combined. The frequency on cloudy days is greater than the corresponding figure for clear days in the mid-1950s. This was due almost entirely to the results in one area (Sherwood and Birdsong Plantations in Georgia) where the frequency from 1955-62 averaged 500 per year. The average prior to 1955 for this area was only 10, and from 1963-65, the year of the last count from there, it was only 5. During the eight years of abundance, five counts in 50 party-hours were made on cloudy days, and only three counts in 30 hours on clear days. In contrast, the division of the party-hours for all states during these eight years was 59% clear and 41% cloudy.

Table I shows the numbers reported by the various states and their frequencies for the four 5-year periods in those states having more than 2% of Black Vultures reported, with the changes from the first to the fourth period.

There were counts from 19 Florida stations in 1954, and from 34 in 1973, but only the following six reported each year: Cocoa, Coot Bay, Jacksonville, Pensacola, St. Marks, and St. Petersburg The figures in Table I for this group are perhaps a more accurate portrayal of the happenings in Florida than the figures for the state as a whole.

The figures for seven continuous counts in Maryland: Accokeek, Catoctin, Denton, Ocean City, St. Michaels, S. Dorchester, and Triadelphia

*432 Tonawanda Drive, Des Moines, Iowa 50312.

Res. are similarly included although they differ but little from those for the entire state.

The high frequencies in Georgia in the first and second periods are very largely owing to the showing of Sherwood and Birdsong Plantations. Frequencies for Georgia's four continuous counts, Atlanta, Columbus, Dalton, and Rome, in Table I show a decrease from the first to the fourth period,

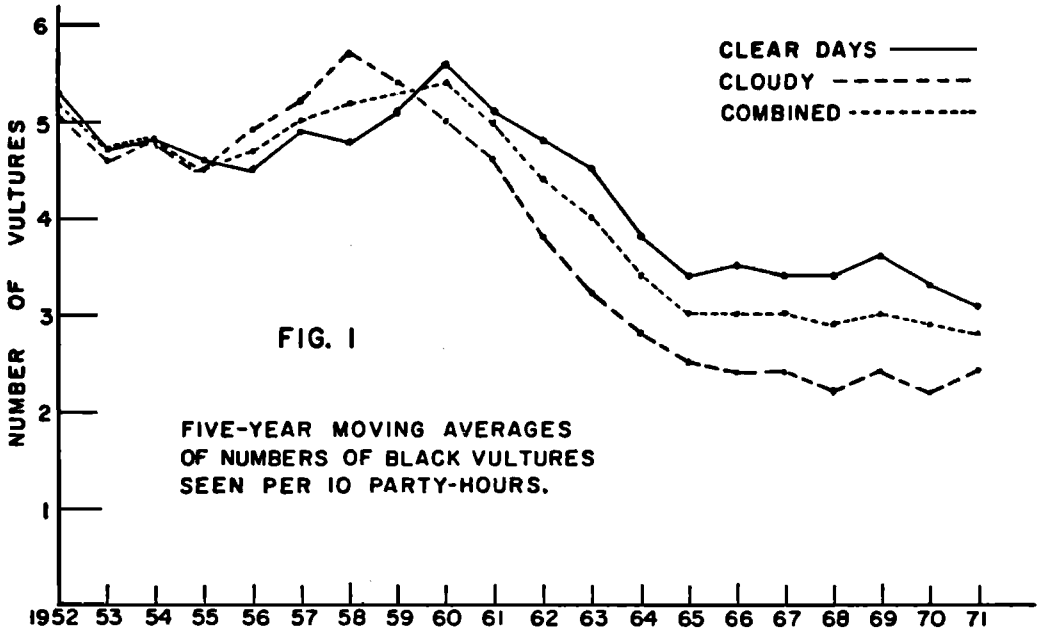


FIG. 1

FIVE-YEAR MOVING AVERAGES OF NUMBERS OF BLACK VULTURES SEEN PER 10 PARTY-HOURS.

Table 1
Frequency of Black Vultures

State	Number '54-'73	% of Total	Vultures per party hours '54-'58	'59-'63	'64-'68	'69-'73	Change 20 Years (+)	(-)
AL	1018	1.5						
AZ	266	0.4						
AR	1241	1.8						
DE	426	0.6						
DC	242	0.3						
FL	26,008	37.7	6.5	6.5	5.7	5.8		0 7
GA	6840	9.9	21.8	15.5	3.2	3.6		18 2
KY	661	1.0						
LA	2393	3.5	7.7	10.9	0.7	1.3		6 4
MD	2038	3.0	1.0	1.1	0.8	0.9		0 1
MS	1036	1.5						
NC	700	1.0						
SC	3445	5.0	9.2	8.9	10.3	5.9		3.3
TN	1999	2.9	0.7	0.9	2.3	3.2	2.5	
TX	15,564	22.2	7.8	7.7	3.3	3.1		4 7
VA	5319	7.7	3.8	3.4	2.1	2.7		1 1
	69,196	100.0	4.7	4.9	3.0	2.8		1 9
6 sta in FL	5596	8.1	4.3	4.3	4.0	3.1		1.2
7 sta in MD	1070	1.5	0.8	0.9	0.9	0.6		0 2
4 sta in GA	510	0.7	1.2	1.7	1.0	0.8		0 4
GA excl. Sherwood	2843	4.1	2.5	3.9	3.1	3.6	1.1	

but the frequencies for the state, after excluding Sherwood and Birdsong, increased. The difference is, of course, owing to the inclusion of several of the newer stations, especially Okefenokee Nat'l Wildlife Refuge reporting from 1957, and Harris Neck Nat'l Wildlife Refuge from 1970.

The decrease in the Texas frequency after the second period, is owing in part to the reports from Aransas Nat'l Wildlife Refuge where the frequency fell from 215 in the second period to 40 and 70 in the third and fourth. Here there were smaller numbers of vultures being found with almost two and three times the numbers of party-hours afield. There were also a number of new stations reporting in the later years which increased the number of party-hours without a corresponding increase in the number of vultures.

Columbus is responsible for Tennessee's showing an increase from a frequency of 0.9 in the second period to 2.3 and 3.2 in the later years. This station first reported in 1962 and 1963 with only small numbers of vultures, but from 1964-68 the frequency was 31, and from 1969-73, 70.

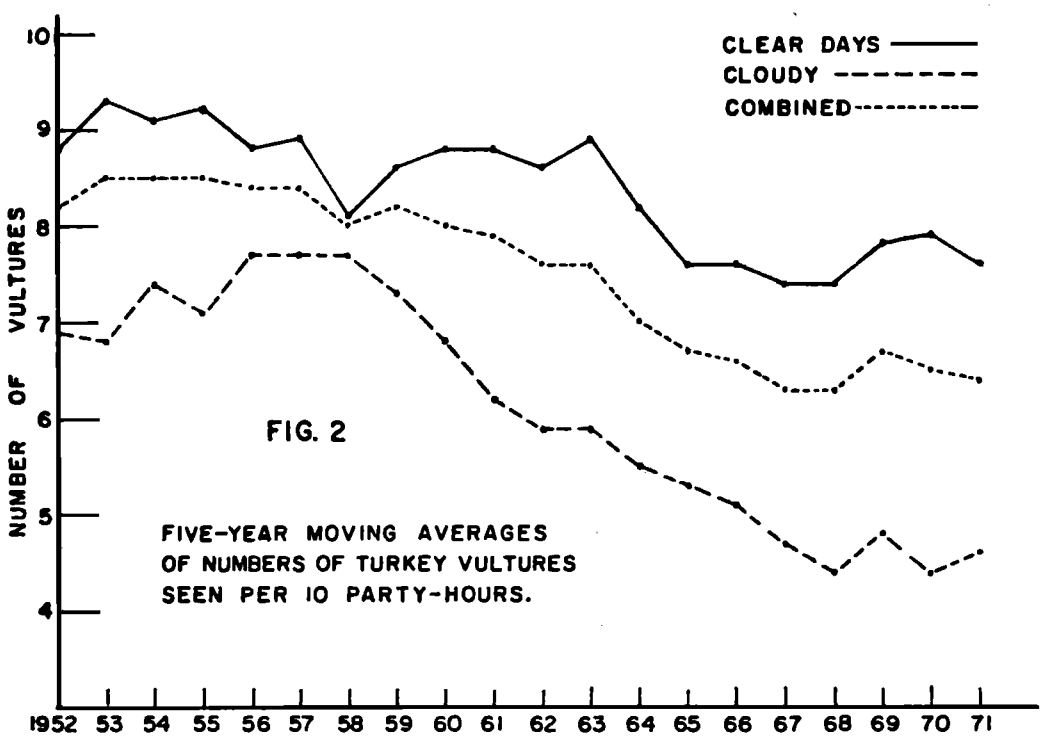
The decrease in Louisiana was caused by St. Francisville which reported 63% of the state's vultures with a frequency of 25 from 1954-62, but which submitted no reports after the latter date.

The counts in Georgia and Louisiana from 1955-62 have prevented the population curve for all states combined from showing a steady decline over the entire period, but despite a leveling off in the most recent years, there was a drop from a 4.7 frequency in the first period to 2.8 in the fourth

TURKEY VULTURE

The Turkey Vulture analysis was made in the same manner as that of the Black, but included three additional states, California, Pennsylvania, and West Virginia. Georgia's percentage of the Turkey Vulture total was much smaller than its portion of the Blacks, hence the weather conditions had less effect upon the clear- and cloudy-day population curves.

Figure 2 shows the 5-year moving averages for the numbers seen per 10 party-hours. Table II shows, by states, the numbers reported and their frequencies for the four 5-year periods in the states having more than 2% of all vultures, and the amount of change from the first to the fourth period. There are included the figures for the six continuously reporting stations in Florida, the seven in Maryland, and the four in Georgia. The record of the Turkey Vulture in the Sherwood and Birdsong Plantations paralleled that of the Black Vulture so Table II also includes the figures for Georgia but excludes Sherwood and Birdsong.



The Texas increase in the second period is explained by the Aransas Nat'l Wildlife Refuge showing where the frequency jumped from 44 in the first period (identical to the Black Vulture figure) to 232. The last two periods had frequencies of only 73 and 56.

California is the only state showing an increase in the 20 years. This was principally owing to the Drake Bay (1966-69) and Pt. Reyes (1970-73) area where, in the fourth period, 29% of all vultures in the state were found in only 7% of the party-hours, for a frequency of 15.

The Turkey Vulture population showed little change until the late 1950s, after which there was a decline lasting, with only minor interruptions, the remainder of the study period.

SUMMARY

This study illustrates the principal weakness of the CBCs as indices of population changes; the lack of continuity of reports with some areas discontinuing, other starting in the later years of the study. This is particularly true in the case of species which may be concentrated in roosts. The discontinuance of censusing by an area which has been reporting the population of a roost, or, conversely, the emergence of a new area in which there is a roost, will distort any comparison.

Over the past 24 years the populations of both species have declined steadily, with interruptions in the decline owing largely to this factor. The Black Vulture population dropped from a frequency of 4.7 to 2.8 for a loss of 1.9 vultures per 10 party-hours. The drop in the Turkey Vultures was from 8.4 to 6.4 or a loss of 2.0.

Only two states registered population gains: Tennessee with a gain in Black Vulture population of 0.3, and California with a Turkey Vulture gain of 2.4. Both of these results are owing to large populations being reported from areas censusing only in the later years.

Table II
Frequency of Turkey Vultures

State	Number '54-'73	% of Total	Vultures per 10 party hours '54-'58	'59-'63	'64-'68	'69-'73	Change Years (+)	(-)
AL	524	0.2						
AZ	415	0.2						
AR	3640	1.6						
CA	17,578	7.9	1.2	2.0	3.4	3.6	2.4	
DE	8229	3.7	29.3	17.4	12.1	11.5		17 8
DC	4081	1.8						
FL	72,785	32.6	18.6	18.1	14.9	16.9		1 7
GA	4912	2.2	8.2	9.8	3.0	4.7		3 5
KY	502	0.2						
LA	2381	1.1						
MD	43,124	19.4	28.4	22.6	15.8	16.5		11 9
MS	490	0.2						
NJ	6933	3.1	5.5	3.1	1.5	1.0		4 5
NC	1579	0.7						
PA	838	0.4						
SC	1899	0.8						
TN	1624	0.7						
TX	38,520	17.3	10.4	14.1	11.0	10.4	-0-	-0-
VA	12,506	5.6	10.0	7.9	5.9	5.7		4 3
WV	707	0.3						
	223,267	100.0	8.4	7.9	6.4	6.4		2 0
6 sta in FL	15,490	6.9	15.0	12.7	9.9	7.5		7 5
7 sta in MD	26,622	11.9	38.3	26.1	18.0	18.4		19 9
4 sta in GA	1054	0.5	2.3	3.6	1.8	1.8		0 5
GA excl. Sherwood	3921	1.8	3.8	7.3	3.0	4.7	0.9	