

STATISTICS AS A TOOL IN MEASURING DOVE INVENTORIES

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A practical census method is essential to the management of the mourning doves as a game bird over the Continental United States. Dove projects in the Southeastern states have tested various census techniques during the past three years. The census methods used are modifications of existing techniques in use on other game species at present time.

Dove project leaders and assistants in the various states have been keeping records of doves seen in the course of their random travels in their respective states. In some states additional random roadside count data are obtained from enforcement personnel and technical men. North Carolina and Tennessee each have a system of district biologists over the entire state. These men keep records of doves seen in the course of their other work. Under this system, not only are greater quantities of data gathered but census material from all parts of the states are collected each month, which is impossible for one man to do. Florida and Kentucky use warden counts in the same manner. The cost of such counts is negligible since no additional travel or time is required. The random counts are kept without regard to speed, weather, roads, road conditions, time of day, number of observers or other variables.

The controlled road counts, which started in October 1950, eliminated some of the variables found in the random counts. Personnel using this census were requested to pre-select a 25 mile route to be driven at 25 miles per hour starting at 8:00 AM each Monday.

Rural mail carriers were asked to keep a one week's record of doves seen while delivering mail in February 1950 and 1951. A great mass of data was obtained from the mail carriers but its value and use is doubtful.

In conjunction with the 1950 rural mail carrier census all states organized a biologist count which involved a 25 mile road transect and the covering of a 160 acre plot with each transect. An attempt was made to cover one-tenth of one per cent of the area in each state with coverage in each ecological zone apportioned to the area of that zone in respect to that of the entire state.

The roadside censuses are designed to provide a year around index to the dove population while the rural mail carrier census was supposed to give an index to the post-shooting winter population. The biologist area count was an attempt to get the dove population for the entire Southeast.

During the summer of 1950 extensive efforts were made to determine the breeding population of doves with area counts by game biologists, Four-H Club members, and other interested individuals. These efforts, though great, proved quite insufficient for practical application on a large scale. Peters (Ohio) and Foote (Georgia) started the first dove call counts in 1950. Their technique was refined and put into use throughout eastern United States in the summer of 1951. All states cooperating in the dove study set up at least two call count routes in each ecological zone to be run once each month from April through August. For each route a 20 mile course was selected on dirt roads relatively free from traffic. The biologist censusing the course started the count one-half hour before local official sunrise. Every mile a three minute stop was made at which time the number of doves calling and the total number of calls were recorded. Doves seen while driving and stopped at the stations were also noted. The call count routes were not censused while it was raining or when the wind was over a Beaufort 3 reading.

Data from all these counts have been statistically analyzed. Foote analyzed the data obtained in the 1950 mail carrier census, biologist area count and biologist round count (Mourning Dove Newsletter No. 3, Jan. 1951). Foote concluded that data obtained by the rural mail carriers should be treated with caution until more information is obtained. The biologist area and road counts were found to be highly unreliable. He critically analyzed the data gathered in Alabama and found that it would be necessary to cover 3120 square miles (about 6 per cent) of the state in 160 acre plots in order to find the dove population and over 22,000 miles of roadside counts would have been needed by biologists to establish an index. Data from the other states collected at the same time were similarly variable.

The random and controlled roadside counts show this same variation. A summary of these counts for each state is in the appendix. Table 1 compares random and controlled counts where comparable. The controlled counts show a slightly less variation than do the random counts but still there is too much error to accurately predict changes in dove population as they are now being censused by roadside counts unless the sample size is increased considerably. If a year around index were desired the sample size could be regulated with the seasonal fluctuation in the relative coefficient of variation. This change, which is quite evident, is correlated with per cent of doves seen in flocks. Most doves are seen in flocks in November, December and January, and the lowest point is reached in May and June.

The means of the North Carolina random data are presented in Fig. 1 and the limits to which a change in the dove population may be determined are shown by lines drawn plus or minus two standard errors from the mean. According to these data, by chance, (solid line) the mean, would fall some place between plus or minus two standard errors (dotted lines) 95 per cent of the time. From this it can be seen that a population change is only significant in September since the margin of error will overlap in any of the other months. North Carolina has a comparatively large number of random roadside counts while Alabama has an average number of counts. The Alabama data are in Fig. 2. With a smaller number of counts the

Table 1. Regional comparison of relative variation in random and controlled road counts.

Month	Random Road Counts			Controlled Road Counts		
	No. of States	% Total Doves in Flocks	Avg. Coef. of Variation	Avg. Coef. of Variation	% Total Doves in Flocks	No. of States
July '50	3	25.6	—	86	19.0	3
Aug.	6	42.0	102	84	26.0	3
Sept.	7	58.4	168	158	72.7	3
Oct.	8	67.3	142	148	65.1	6
Nov.	8	73.1	194	151	77.0	
Dec.	8	84.8	182	136	76.6	4
Jan. '51	8	76.4	160	157	75.9	5
Feb.	8	70.8	164	174	56.4	5
March	8	46.0	154	127	49.7	5
April	8	26.5	106	116	15.1	5
May	8	12.9	103	112	12.9	5
June	5	20.2	100	89	41.0	5

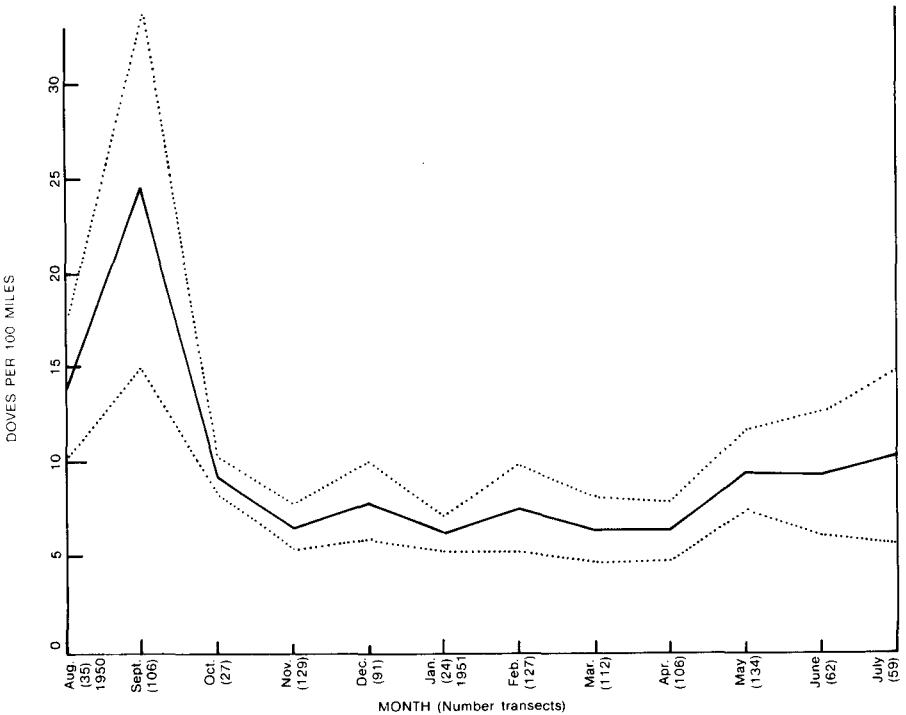


Fig. 1. Summary of random road counts of doves in North Carolina. Dashed lines represent means plus or minus 2 standard errors.

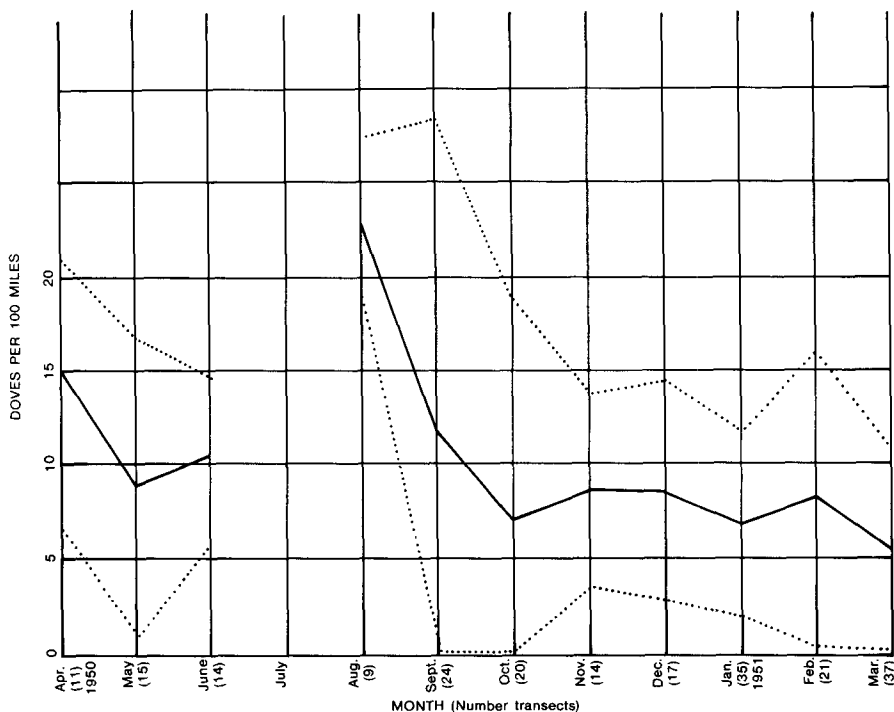


Fig. 2. Summary of random road counts of doves in Alabama. Dashed lines represent means plus or minus 2 standard errors.

margin of error is increased considerably so that population changes may be much less reliably predicted. Therefore, a sample of considerable size is necessary in order to accurately predict monthly changes in the dove population by the roadside method.

A yearly production index must be established in order to determine the relative number of doves available to the gun. This index should be set at the earliest possible date following the primary nesting peak of doves. The nesting peak in most areas is in June and reproduction of the year starts becoming noticeable in July. Accordingly, July seems to be the logical month in which to establish the dove production index. On the basis of previous experience with road counts in North Carolina a total of 226,000 miles of random road counts will be necessary to establish a reliable population index (determine a 10 percent change 95 percent of the time) for North Carolina. It would be impossible for each state to accumulate data in such large quantities; therefore, it appears that the practical solution will be for all states to pool their random count data and establish an index in the range of the eastern dove.

Dove call counts, run for the first time on a large scale during the summer of 1951, appear to be the best method for censusing the breeding population of doves. Basically, listening for doves is subject to less human error among the various individuals than sight records of doves. According to Raymond B. Pearl ("Medical Biometry and Statistics," pp. 347ff., W. B. Saunders Co., Philadelphia)

the relative coefficient of variation of visual acuity is 39.12 percent while variation of auditory acuity is only 16.6 percent.

Table 2 presents a summary of all dove call counts conducted during May and June of 1950 and 1951. Intensive work done in different latitudes by McGowan

Table 2. Statistical summary of mourning dove call counts taken during May, June of 1950 and 1951 at different latitudes.

	N	\bar{X}	SD	SE	CV
Athens, Ga. (T. McGowan, Odum, et al.) 1951					
Evening counts, total doves	14	7.2	2.63	0.70	36.5
Morning counts, total doves	15	27.3	6.10	1.55	22.3
Morning counts, total coos	15	16.5	4.47		27.1
(1st half of census)	15	16.8	3.83	0.98	22.8
(1st ¼ of census)	15	22.5	4.73	1.25	21.2
(middle half of census)	15	15.3	3.53	0.87	23.1
(last ¼ of census)	15	19.4	4.39	1.13	22.6
Knoxville, Tenn. (C. Kerley, Howell, et al.) 1951					
Morning counts, total doves	6	14.5	2.65		18.3
Central Ohio (Peters) 1950					
Morning counts, route 5	3	16.3	3.91	2.30	23.9
Morning counts, route 6	5	19.0	6.16	2.75	32.5
Morning counts, route 7	3	16.0	3.56	2.09	22.9
Morning counts, route 8	3	20.3	2.86	1.68	14.1
Morning counts, route 9	3	11.0	1.70	1.00	16.4
Morning counts, route 10	3	26.3	5.10	3.00	19.4
Morning counts, route 11	3	22.7	5.70	3.30	25.2
Morning counts, route 12	3	22.7	4.63	2.67	20.4
1951					
Morning counts, May, route 6	7	21.0	5.30	2.04	24.3
Morning counts, May, route 7	9	17.9	3.20	1.67	18.0
Morning counts, June, route 6	6	21.0	4.58		21.8
Whitley Co. Indiana (Ginn) 1951					
Morning counts	4	30.5	5.26	2.63	17.2
Northern Ohio, Erie Co. (D. Handley) 1951					
	4	19.5			
Maryland (Robbins) 1951	8	15.8	5.22	1.85	33.0
Maryland (Duvall) 1951	9	9.3	5.01	1.67	53.8
Virginia (Aldrich) 1951	9	7.7	1.49	0.49	19.3
Madison, Wisconsin (Wagner) 1951					
Route 1	9	32.9	5.10		15.5
Route 2	6	26.8	4.53		17.3
Route 3	8	23.8	4.68		19.9
Renville, North Dakota (Cunningham) 1951					
	6	41.2	7.10	2.96	17.2
Bakersville, Cal. (Switzer) April - July 1951					
	10	25.2	7.42	2.35	29.4

Summary of all counts May, June — range of Eastern Dove, including Project Leaders' counts, morning count only.

No. of Transects	101	Standard error of mean	1.02
Mean	15.65	Coefficient of variation	65.3
Standard deviation	10.25		

Roughly predict a 13.0% population change over the range of Eastern Dove, at 95% level with 101 transects. Predict a 10% population change with 174 transects with same variability.

(Georgia), Kerley (Tenn.), Peters (Ohio) and Wagner (Wisconsin) showed approximately the same relative coefficient of variation in their respective study areas. Further analysis of McGowan's data revealed that as the census progressed from one-half hour before sunrise the calling level dropped but the variation remained approximately the same. The variation in call counts over the same or similar routes is about one-fourth that found in the roadside counts conducted during the corresponding period. One hundred and one call count routes were censused in the range of the eastern mourning dove in May and June and on the basis of these counts it will be possible to detect a 13 percent population change 95 percent of the time, provided the same variability is present. In order to detect a ten percent population change it will be necessary to census 174 call transects. These data were lumped disregarding variations which might be present due to ecological considerations. The number of routes necessary may be reduced further if the data were gathered on an ecological basis rather than on the basis of political boundaries.

Proper management of the dove population and realization of the greatest harvest possible without endangering the basic breeding stock depend on a reliable breeding population index and a production index. A comparison of all census techniques applied to the dove population is briefly presented in Table 3. While it is difficult to draw direct comparisons on the data collected by different techniques at different times of the year it shows which methods are most applicable to the dove population to establish a breeding population and production index. A call count census conducted in May and June throughout the range of the eastern dove will yield results suitable for a breeding index. The production index may have to be slightly less accurate due to the variability of the data gathered but it should be possible to gather sufficient data by random roadside counts to make management recommendations concerning the harvest of birds.

Table 3. Comparison of relative variation among different census indices employed on the cooperative dove study^a.

Census Type	Location	Date	N	\bar{X}	SD	CV
Plot Count	Alabama	Feb. '50	195	8.4	D 23.3	doves 277%
Bio. Road	Alabama	Feb. '50	195	13.8	D 38.0	doves 275%
Warden Road	N. Carolina	Feb. '50	81	100.3	D 217.5	doves 216%
Rural Mail Car.	Alabama	Feb. '50	575	21.4	D 35.2	doves 169%
Rural Mail Car.	Region	Feb. '50	2923	16.9	29.3	doves 173%
Random Road Count	Region	July '50- June '51				143%
Controlled Road Count	Region	July '50- June '51				128%
Call Counts	E. U.S.	1951 May,	101	15.65	10.25	doves 65%
Call Counts	Athens, Ga.	June '51	15	27.3	6.10	doves 23.3%

^a For state summaries of random and controlled road counts see appendix.

APPENDIX

Appendix 1. Analysis of random roadside dove censuses in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee.

Location/ Date	N	\bar{X}^a	SD	SE	CV
RANDOM ^a					
Alabama					
1948					
Sept.	20	8.4	10.88	2.43	130
Oct.	39	14.5	16.98	2.72	117
Nov.	21	18.9	22.82	4.98	121
Dec.	26	25.2	34.93	6.85	131
1949					
Jan.	11	17.5	10.64	3.21	61
Feb.	16	54.0	200.38	50.11	371
March	18	6.2	30.89	1.72	498
April	13	7.8	37.86	2.91	485
March	21	9.9	39.63	1.89	400
June	22	19.6	21.36	4.56	109
July	29	29.0	29.86	5.548	103
August	12	20.8	58.81	16.98	283
Sept.	15	21.5	69.90	17.97	324
Oct.	13	13	42.29	11.73	325
Nov.					only 5 counts
Dec.	11	10.7	12.31	3.71	115
1950					
Jan.	11	8.9	12.64	3.81	142
Feb.					only 2 counts
March					only 5 counts
April	11	14.7	13.66	4.12	93
May	15	8.8	7.74	3.99	88
June	14	10.2	7.99	2.14	78
July					no counts
August	9	10.4	6.46	2.15	62
Sept.	24	23	40.46	8.26	176
Oct.	20	11.6	25.70	5.75	222
Nov.	14	7.1	9.51	2.54	134
Dec.	17	8.5	11.67	2.83	137
1951					
Jan.	35	8.5	14.57	2.42	171
Feb.	21	6.7	17.85	3.89	266
March	37	8.0	16.21	2.66	203
April	30	5.4	4.55	0.831	84
May	44	6.7	6.46	0.974	96

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Florida					
1949					
August	39	16.7	22.17	3.55	133
Sept.	51	11.9	56.06	7.85	471
Oct.	71	31.2	166.93	19.81	535
Nov.	23	71.4	168.05	35.04	235
Dec.	13	473.5	733.5	203.4	155
1950					
Jan.	15	115.7	137.6	35.54	119
Feb.	8	14.8	19.71	6.97	133
March	14	17.6	13.94	3.73	79
April	12	11.6	9.27	2.67	80
May	8	20	7.95	2.81	40
June	11	5.6	4.05	1.22	72
July	8	5.1	4.11	1.45	81
August	12	11.2	18.05	5.21	161
Sept.					
Oct.	18	101	153.7	36.2	144
Nov.	13	103	132.9	36.8	128
North Florida					
1950					
Dec.	33	68.1	151.4	26.4	264
1951					
Jan.	84	42	81.8	8.93	194
Feb.	102	47.7	95.11	9.42	199
March	86	73.9	178.7	19.3	242
April	82	20.9	42.6	4.71	204
May	78	10.8	14.1	1.60	130
South Florida					
1950					
Dec.	71	191	871.0	189.8	456
1951					
Jan.	75	157.1	227.7	26.3	145
Feb.	99	117.3	589.1	59.2	502
March	100	58.2	106.5	10.5	183
April	119	32.6	52.9	4.8	162
May	92	19.9	30.6	3.19	153
Georgia					
1950					
April	13	8.7	10.13	2.81	116
May	9	5.9	7.94	2.81	116
June	4	9.5	15.67	7.84	165

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
July	4	26.5	31.89	21.31	120
August	19	9.5	9.09	2.09	96
Sept.	14	9.3	18.07	4.83	194
Oct.	11	5.7	11.53	3.48	202
Nov.	7	8.4	11.53	4.34	137
Dec.	9	6.3	16.81	5.60	267
1951					
Jan.	8	4.8	6.82	2.41	142
Feb.	9	7.3	8.16	2.72	112
March	12	8.8	14.84	4.28	169
April	24	7.5	9.88	2.02	132
May	22	4.5	4.55	0.97	101
June	19	5.6	4.31	0.99	77
July	14	8.5	12.76	3.41	150
August	19	7.5	15.61	3.58	208
Region I. Morning Count					
Kentucky					
1950					
Jan.	5	2.2	3.19	1.43	145
Feb.	4	5.5	7.14	3.54	130
March					
April	4	10.2	10.07	5.04	99
May	4	13.8	6.40	3.20	46
June					
July	4	4.8	0.96	0.48	20
August	4	21.2	37.41	18.71	176
Sept.					
Oct.	6	14.2	14.59	5.96	103
Nov.	8	1.8	2.19	0.77	34
Dec.	7	27	61.85	23.38	229
Region I. Afternoon Count					
Kentucky					
1950					
Jan.	5	2.4	3.58	1.6	149
Feb.			50.98	25.49	280
March					
April	4	12.5	4.51	2.38	45
May	4	12.5	9.1	4.56	73
June					
July	4	6.2	3.69	1.84	60
August					
Sept.					
Oct.					
Nov.					
Dec.					

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Region II. Afternoon Count					
1950					
Jan.	18	24.3	47.3	11.1	195
Feb.	13	52.6	53.38	14.8	101
March	4	50.5	30.82	15.41	61
April	5	57.6	30.10	13.46	52
May	6	53.8	39.62	16.18	74
June					
July	4	94.2	21.33	10.66	22.64
Aug.					
Sept.					
Oct.					
Nov.					
Dec.					
Region II. Morning Count					
1950					
Jan.	17	27	51.3	12.4	190
March	7	22.3	24.62	9.30	110
April	7	41.3	38.90	14.7	94
May	7	51.6	44.35	16.33	86
June	6	30.7	43.62	17.81	142
July	9	52.7	62.20	20.73	118
August	4	5	2.31	1.15	46
Sept.	16	22.8	26.46	6.62	116
Oct.	16	13.2	21.62	5.40	164
Nov.	16	4.6	8	2	174
Dec.	19	5.5	10.27	2.36	187
Region III. Morning Count					
1950					
Jan.	19	74.6	105.6	76.6	142
Feb.	14	65.7	77.59	20.74	118
March	12	22.3	37.83	10.92	170
April	13	30.5	48.41	13.43	159
May	15	15.9	18.18	4.69	114
June	11	37.64	35.37	10.67	94
July	8	43	33.37	11.80	78
August	19	108	117.72	11.37	109
Sept.	17	238.6	683.72	286.56	287
Oct.	18	89.1	133.67	31.51	150
Nov.	15	61.3	63.41	16.37	103
Dec.	17	60.4	40.03	9.71	66

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Region III. Afternoon Count					
1950					
Jan.	19	65.1	71.4	16.4	110
Feb.	15	88.6	137.53	35.51	115
March	12	12.4	22.73	6.56	183
April	13	16.6	17.16	4.76	103
May	15	15.8	12.47	3.22	79
June	11	13.8	10.5	3.16	76
July	8	18.4	15.67	5.54	85
August					
Sept.					
Oct.					
Nov.					
Dec.					
Region IV. Morning Count					
1950					
Jan.	19	20.9	69.5	15.9	333
Feb.	16	58.5	36.46	9.11	142
March	11	65.6	83.17	25.08	127
April	16	44	44.10	11.03	100
May	20	72.8	78.37	17.52	108
June	14	87.9	124.3	33.22	141
July	17	80.2	102.56	24.87	128
August	15	55.9	39.08	10.09	70
Sept.	23	83.8	116.85	24.36	139
Oct.	10	121.6	82.64	26.13	68
Nov.	15	41.6	101.99	26.33	249
Dec.	18	16	43.90	10.35	274
Afternoon Count					
1950					
Jan.	19	33.9	11.61	26.6	343
Feb.	16	35.3	56.07	14.02	159
March	11	27.5	26.38	7.95	97
April	16	30.4	36.47	28.83	120
May	20	56.7	76.84	17.18	136
June	14	66.9	67.03	17.91	100
July					
August					
Sept.					
Oct.					
Nov.					
Dec.					

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Region V. Morning Count					
1950					
Jan.	34	7.3	23.4	4.0	320
Feb.	32	3.5	6.66	1.18	190
March	31	2.6	5.00	0.9	192
April	29	2.7	5.82	1.1	216
May	33	1.5	2.96	0.51	197
June	23	4.1	6.58	1.37	160
July	33	3.1	6.70	1.17	216
August	36	3.3	4.83	0.81	146
Sept.	32	4.1	7.67	1.36	187
Oct.	36	3.7	7.34	1.22	198
Nov.	15	1.1	3.10	0.8	282
Dec.	31	1.1	3.74	0.67	340
Afternoon Count					
Jan.	34	6.6	19.1	3.3	289
Feb.	32	3.0	6.8	1.2	227
March	31	14.2	5.34	9.94	390
April	29	3.4	8.70	1.62	256
May	33	1	2.33	0.4	233
June	23	4.1	6.82	1.42	166
July	31	1.2	3.44	0.62	287
1950					
Oct.	23	17	11.45	7.55	67
Nov.	52	14.5	46.74	6.48	322
Dec.	41	24.7	61.7	9.64	250
1951					
Jan.	30	6.4	10.95	6.48	171
Feb.	20	5	3.04	0.68	61
March	16	3.4	3.81	0.95	112
April	54	3.6	5.4	0.74	150
May	78	6.9	5.96	0.68	86
June	61	9.6	18.6	2.31	188
July	51	14.9	28.11	3.94	189
August	69	5.9	7.46	0.898	126
Mississippi					
1950					
August	22	23	29.9	6.39	130
Sept.	21	4.8	6.44	1.40	130
Sept. (Delta)	26	62	46.45	7.93	65
Oct.	12	2.4	3.78	1.09	158
Oct. (Delta)	25	2.92	26.37	5.27	90

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Nov.	11	21.5	31.87	9.61	429
Nov. (Delta)	20	19.4	12.12	2.74	62
Dec.	9	1.3	2.69	0.81	207
Dec. (Delta)	22	28.4	27.85	5.94	98
1951					
Jan.	18	2.4	5.32	1.25	222
Jan. (Delta)	24	10.5	7.42	1.52	71
Feb.	19	4.6	6.17	1.41	134
March	23	4.3	4.71	0.98	110
April	18	10.2	6.67	1.57	65
May	17	5.8	5.29	1.29	91
June	19	11.9	8.51	1.95	72
North Carolina					
1950					
August	85	14.05	17.1	1.86	122
Sept.	106	24.5	49.8	4.83	204
Oct.	127	9.15	5.7	0.49	62
Nov.	129	6.35	6.95	0.61	109
Dec.	91	7.7	9.6	1.01	125
1951					
Jan.	124	6.10	5.15	0.46	84
Feb.	127	7.4	12.65	1.11	171
March	112	6.3	8.85	0.84	140
April	106	6.3	9.0	0.82	143
May	134	9.38	12.35	1.05	130
June	62	9.28	12.75	1.59	138
July	59	10.15	17.55	2.27	173
South Carolina					
1950					
Oct.	5	9.4	6.69	2.99	71
Nov.	9	11	16.48	5.49	150
Dec.	12	2.3	3.20	0.92	139
1951					
Jan.	15	13.4	24.74	6.39	185
Feb.	6	2.8	4.62	1.89	165
March	9	6.9	14.55	4.85	211
April	9	3.4	2.01	0.67	59
May	12	6.2	6.89	1.99	111
June	9	6.6	7.47	2.49	113
July	13	6.9	4.21	1.17	61

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Tennessee — Statewide					
1949					
Jan.	25	10.9	86.6	17.3	795
Feb.	21	4.6	24.3	5.3	528
March	20	16.6	9.38	2.09	57
April	14	17.9	13.47	3.60	75
May	24	9.8	6.92	1.41	70.6
June	9	58.8	43.11	14.37	73
July	8	24.9	22.3	7.88	90
August	10	22.2	9.99	3.16	45
S. E. Tennessee					
1949					
March	19	14.7	24.7	5.67	168
April	113	11.7	18.0	2.87	154
May	148	15.3	15.5	1.27	102
June	78	20.3	18.7	2.1	92
N. E. Tennessee					
1949					
April	69	7.9	9.68	1.17	123
May	18	1.17	2.33	0.55	199
June	18	2.7	4.23	0.99	157
So. Mid. Tennessee					
1949					
April	16	13.6	6.86	1.71	50
May	51	30.5	33.71	4.72	111
June	22	31.6	7.68	1.64	24
No. Mid. Tennessee					
1949					
April	51	15.7	19.2	2.69	122
May	94	12.1	12.96	1.34	107
June	13	6.58	5.16	1.43	79
S. W. Tennessee					
1949					
April	32	17	22.9	4.04	129
May	19	47.5	28.8	6.61	61
N. W. Tennessee					
1949					
April	25	18	7.54	1.51	42
May	9	45.8	39.3	13.01	86

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Statewide					
1950					
Sept.	93	24.4	40.9	4.24	168
Oct.	73	4.6	11.3	1.32	246
Nov.	25	4.5	11.6	2.32	258
Dec.	22	45	89.7	19.14	199
1951					
Jan.	47	14.2	31.3	4.56	220
Feb.	21	29.1	68.8	15.0	236
March	33	16.2	21.5	3.74	133
CONTROLLED ROAD COUNTS ^b					
Alabama					
1950					
Sept.	45	27.9	55.78	8.32	200
Oct.	56	10.9	20.36	2.7	187
Nov.	45	7.6	10.34	1.54	136
Dec.	18	4.2	4.44	1.04	106
1951					
Jan.	26	6.3	7.88	1.54	125
Feb.	20	5.6	6.41	1.44	114
March	12	2.7	3.80	1.10	141
April	23	2.9	4.24	0.88	146
May	24	4.5	4.63	0.95	103
Florida					
1950					
May	12	6.2	6.88	1.98	111
June	18	5.1	4.50	1.06	88
July	13	7.0	5.37	1.50	77
August	16	4.8	4.07	1.02	85
Sept.	8	8.5	13.17	4.66	155
Oct.	16	12.9	16.20	4.05	126
Nov.	13	15.2	26.94	7.47	177
Dec.	9	45.6	99.44	33.15	218
1951					
Jan.	14	25.6	45.58	12.18	178
Feb.	11	8.2	11.23	3.39	137
March	14	7.5	11.06	2.96	147
Apr.	17	3.7	2.47	0.6	67
May	14	4.9	3.34	0.89	68
June	4	7.75	4.72	2.36	61

Appendix 1. Continued

Location/ Date	N	\bar{X}^a	SD	SE	CV
Louisiana					
1950					
Oct.	7	25.7	43.71	16.52	170
Nov.	22	11.2	16.62	3.54	148
Dec.	10	7.7	4.06	1.28	53
1951					
Jan.	17	5.3	7.0	1.70	132
Feb.	27	1.7	5.43	1.04	319
Mar.	24	3.9	6.86	1.4	176
Apr.	41	2.3	2.81	0.44	122
May	37	5.0	4.36	0.71	87
June	36	6.1	6.50	1.08	107
July	38	9.0	9.07	1.47	101
August	38	12.0	8.8	1.42	73
Mississippi					
1950					
July	9	12.4	9.07	3.02	73
August	7	40.1	37.62	14.22	94
Sept.	8	9.8	11.56	4.09	118
Oct.	21	10.4	8.79	1.92	85
Nov.	6	6.2	6.97	2.84	112
Dec.	14	11.1	13.60	3.63	123
1951					
Jan.	18	10.7	19.19	4.51	179
Feb.	12	3.4	4.38	1.26	129
March	11	6.2	3.99	1.2	64
April	10	10.6	4.72	1.49	45
May	8	14.9	15.02	5.31	101
June	8	39.2	31.92	11.29	81
Tennessee					
1950					
Oct.	20	3.5	6.07	1.36	173
Nov.	17	7.2	16.60	4.03	231
Dec.	10	1.7	4.42	1.4	260
1951					
Jan.	34	4.8	12.03	2.06	251
Feb.	41	17.3	32.62	5.09	189
March	58	17.3	34.49	4.53	199
April	65	11.1	20.35	2.52	183
May	54	7.0	4.84	0.66	69
June	36	11.9	10.74	1.79	90

Appendix 1. Continued

Location/ Date	N	\bar{X} ^a	SD	SE	CV
North Carolina					
1951					
Jan.	9	4.9	4.91	1.64	100
Feb.	18	8.1	9.72	2.29	120
Mar.	13	6.5	3.57	0.99	55
April	26	4.1	3.40	0.66	83
May	31	6.8	6.19	1.11	91
June	22	6.1	4.91	1.05	80
July	21	5.2	4.82	1.05	93

^a Doves per 100 miles.

^b Doves per 25 miles.