

AN ABSTRACT OF THE THESIS OF

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Title: FALL MIGRATION OF MOURNING DOVES IN THE WESTERN

MANAGEMENT UNIT

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Abstract approved:

Robert L. Jarvis

Abundance of mourning doves (Zenaida macroura), from mid-July through September in the Western Management Unit in 1967-1969, were analyzed to determine an approximate time of initiation of fall migration and rate of emigration of doves. Analyses were also directed at determining a relationship between time of initiation of migration and rate of emigration of doves, and various geographic parameters (states, latitude, physiographic regions and elevation); the effect of weather on time of initiation of migration was also analyzed.

Initiation of migration of mourning doves occurred between 14 and 28 August for 64.8 percent of the doves observed during the 3-year period in the Western Management Unit; 90.5 percent of the doves observed initiated migration prior to 1 September. The initial time of migration of doves was relatively uniform throughout the Unit; no significant differences ($p \leq 0.05$) were detected between states

or between latitudinal zones. No relation could be determined for the initiation of migration of doves at various elevations or between physiographic regions, although significant differences ($p \leq 0.05$) were detected in some cases.

Rates of emigration of observed mourning doves generally ranged from 35 percent/week to 60 percent/week, however rates of emigration were not significantly different ($p \leq 0.05$) between states. Rates of emigration were noticeably but insignificantly higher in Idaho, Nevada and Utah than in Oregon, Washington, California and Arizona. Doves migrated at a significantly ($p \leq 0.05$) more rapid rate at high elevations ($> 4,000$ feet) than at low elevations ($< 3,000$ feet). Although significant differences occurred in the rates of emigration of doves between some physiographic regions, no pattern was apparent.

Decreasing temperatures or increasing precipitation could not be directly related to the time of initiation of migration of doves.

Fall Migration of Mourning Doves
in the Western Management Unit

by

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FALL MIGRATION OF MOURNING DOVES IN THE WESTERN MANAGEMENT UNIT

I. INTRODUCTION

"Management of mourning doves (Zenaida macroura) in the United States essentially involves the regulation of hunting to achieve proper harvest (Ruos 1974:1)." To guide the setting of regulations, mourning dove call-count surveys are used to measure the direction and magnitude of annual changes in size of dove populations (Blankenship et al. 1971). The timing and rate of autumn migration of doves is also an important consideration in the establishment of harvest regulations.

Several researchers have reported on the approximate timing of fall migratory activity of mourning doves. Babb (1971) reported that emigration of doves from Mesilla Valley, New Mexico began in late July, and abundance of doves had declined 80 percent by 1 September. Maximum numbers of doves were observed at Fillmore, Utah during the first 2 weeks of August, and by 1 September the dove population was one-third to one-half of the peak numbers observed in August (Dahlgren 1955). McClure (1950) reported that peak numbers of doves occurred during July in California, and in August in Nebraska and Iowa. Emigration from the areas observed in these three states was rapid during July and August, leaving only a remnant of the populations in

September. Peak numbers of mourning doves succeeded by a substantial decline in numbers in July or August was evident in Colorado (Funk 1964), Illinois (Hanson and Kossack 1963), Georgia (Duever and Fatora 1968), Oklahoma (Dodson 1953), New York (Lehner 1964), North Carolina (Quay 1951), Pennsylvania (Sheldon 1957), North Dakota (Schmid 1967), Arizona (Truett 1966), Louisiana (Watts 1969) and Ohio (Webb 1949).

The Western Dove Technical Committee (1965, 1966) of the Pacific Flyway Council, after reviewing field reports on mourning doves from the Western Management Unit (Washington, Oregon, Idaho, California, Nevada, Utah and Arizona) postulated that mourning doves initiated migration prior to 1 September. A cooperative data collection system was subsequently designed and data collected in the seven western states in 1967, 1968 and 1969 to document the pattern of fall migration of doves. The specific objectives of my analyses of the data were: (1) to determine the timing of the initiation of migration of doves in autumn; (2) to determine the rate of emigration; (3) to determine the relationship between time of initiation of migration and rate of emigration, and various geographic units (states, latitude, physiographic regions and elevation); and (4) to determine the effect of weather on time of initiation of migration.

II. METHODS

Collection of Data

Abundance of mourning doves from mid-July through September were monitored in the Western Management Unit in 1967-1969, using the sampling scheme devised by Funk (1964). The Western Management Unit was divided longitudinally and latitudinally into 23 blocks with one to four census routes in each block; data were collected on a total of 43 routes (Fig. 1). The same routes were surveyed each year (with the exception of two routes) and a total of 129 surveys were conducted over the 3-year period. Routes were identified by the county in which the routes were established. The routes, which were selected along secondary highways, were 30 miles (48.27 km) in length and transected preselected areas of apparent concentrations of mourning doves. Visual counts were made by experienced personnel once a week (Tuesday, Wednesday or Thursday), and consisted of counting doves within 50 yards (45.7 meters) of the road. Observations were conducted from a moving vehicle [maximum prescribed speed was 20 mph (32.18 kph)] beginning at sunrise; weekly surveying of each route required approximately 1.5 hours. Counts were not made on days when strong winds or precipitation occurred. Numbers of doves observed were tabulated by 1-mile (1.609 km) segments and recorded as occurring as singles, pairs, or in flocks.

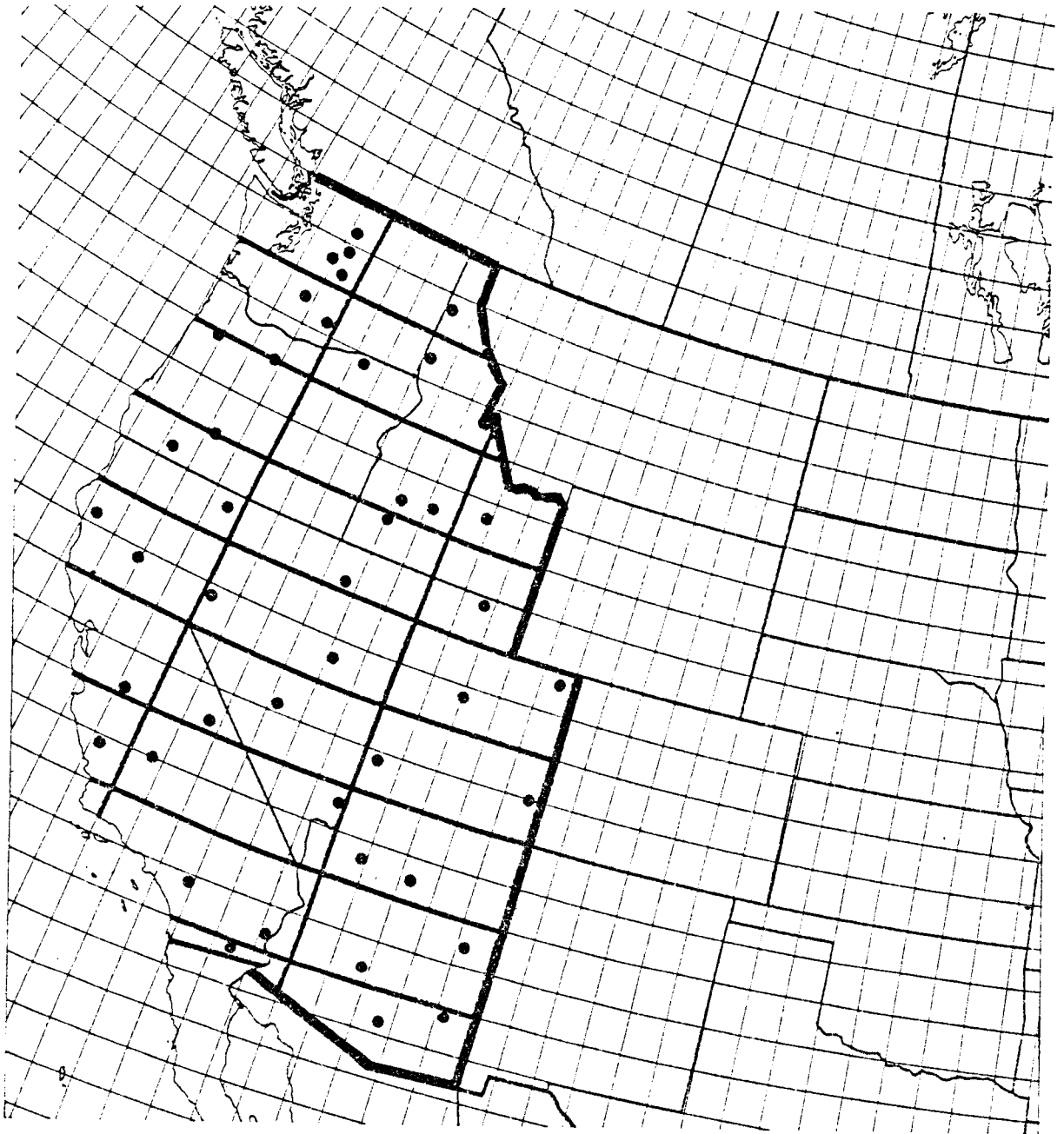


Fig. 1. Location of mourning dove survey routes for the migration study conducted in the Western Management Unit, 1967 - 1969.

Analysis of Data

Analysis was directed at defining the initiation of migration and defining the rate of emigration. Each survey was initially analyzed independently; data from the surveys were also analyzed collectively by year, state, latitude, elevation and physiographic region. The initiation of migration was defined as the peak of abundance of doves that immediately preceded a substantial and continuous decline in the number of doves observed and not necessarily the week of maximum dove abundance. I attempted to define the peak of dove abundance statistically with the application of regression modeling techniques. Utilizing stepwise regression analysis, the second order polynomial regression model ($y = b_0 + b_1x + b_{11}x^2 + e$) (Draper and Smith 1966) was best suited to the data. The estimated peak in this model was obtained by the relationship of $X_0 = -b/2b_{11}$, where X_0 is the week at which peak number of doves occurs in the model (Meyers 1971). This method proved unsuccessful in adequately distinguishing the week in which migration was initiated. Consequently, descriptive guidelines (Appendix 1) were established to delineate the week of initiation of migration with minimal arbitrariness.

Once the week initiating migration was defined, a semi-log regression model ($\ln y = b_0 - b_1x$; Eberhardt 1969) was applied from the week of initiation of migration to the

final week of the survey for each year to estimate the rate of emigration from the sampled areas. The resulting b_1 (slope) value provided an instantaneous rate of change which was converted to a discrete rate or percentage value. This procedure is similar to the method used to calculate discrete mortality rates from instantaneous survival rates: mortality = $(1 - e^{-i})$, where e is the base of the natural log and $-i$ is the instantaneous survival rate (Eberhardt 1969).

Thirty surveys were analyzed to disclose relationships between the initiation of migration and changing weather variables. Significant changes in weekly mean maximum and mean minimum temperatures were detected with t-tests. Temperatures were compared for the week prior to the initiation of migration to the week in which migration was initiated. Graphs of daily maximum and minimum temperatures, and precipitation were plotted to determine if changes in weather conditions occurred which were not detected in a statistical examination of weekly means. Weather data were obtained from the Environmental Science Services Administration, U.S. Department of Commerce. The significance level of $p \leq 0.05$ was used for all statistical tests.

III. RESULTS

Initiation of Migration

Generally, the number of doves observed on survey routes increased at a uniform rate from mid-July to mid- or late-August, and decreased substantially thereafter (Fig. 2). This pattern of uniform increase followed by a substantial and continuous decrease was not common to all surveys conducted, and variations in this pattern presented problems in using regression analysis to distinguish the week of initiation of migration. The statistical method used generally did not identify the obvious week of initiation of migration, particularly when large numbers of doves were present for several weeks preceding a net decline (Fig. 3); or the data were too ambiguous for statistical analysis (Fig. 4).

The initiation of migration of mourning doves occurred between 14-28 August for 64.8 percent of the surveys (Table 2). Migration was initiated prior to 14 August for 25.7 percent of the surveys and in 9.5 percent of the surveys migration began after 28 August. The overall mean week of initiation of migration for all states for all years was 5.59 (approximately 16-20 August). The 3-year mean for each state occurred within 1 week of the overall mean (Table 3). Migration began during the same week in 2 of 3 years of surveying on 20 routes and during the same week in all 3 years of surveying on one route (Iron County, Utah) (14 of

Table 1. Corresponding dates of yearly 11 week survey of abundance of mourning doves in the Western Management Unit, 1967-1969.^a

Week	Mean Date
1	July 17
2	July 24
3	July 31
4	August 7
5	August 14
6	August 21
7	August 28
8	September 4
9	September 11
10	September 18
11	September 25

^a Dove counts were conducted on Tuesday, Wednesday or Thursday only. The above dates provide a mean date for the 3 years of study on the migration of mourning doves.

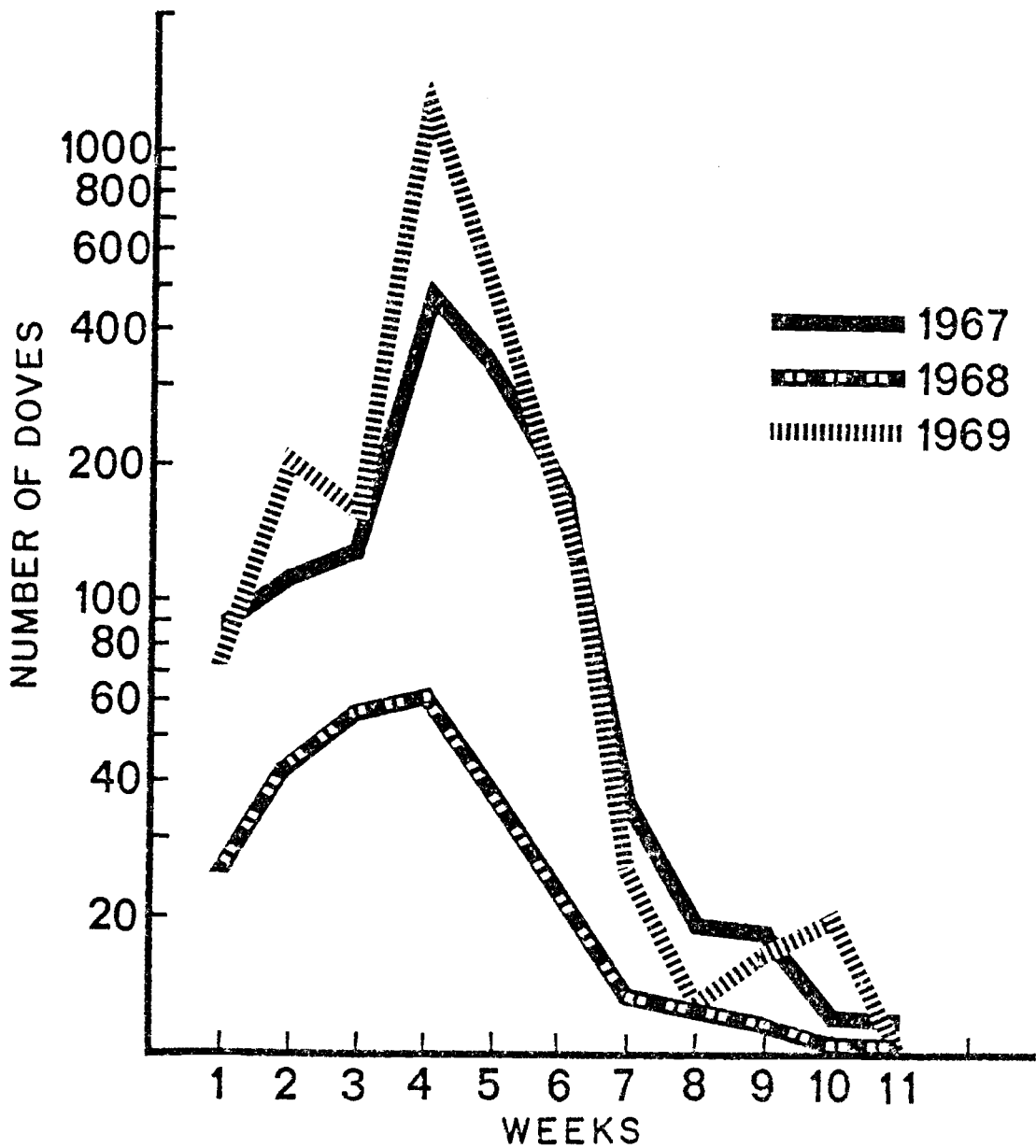


Fig. 2. Number of mourning doves counted on the Iron County, Utah route, 1967-1969. Week 1 is the third week in July (see Table 1).

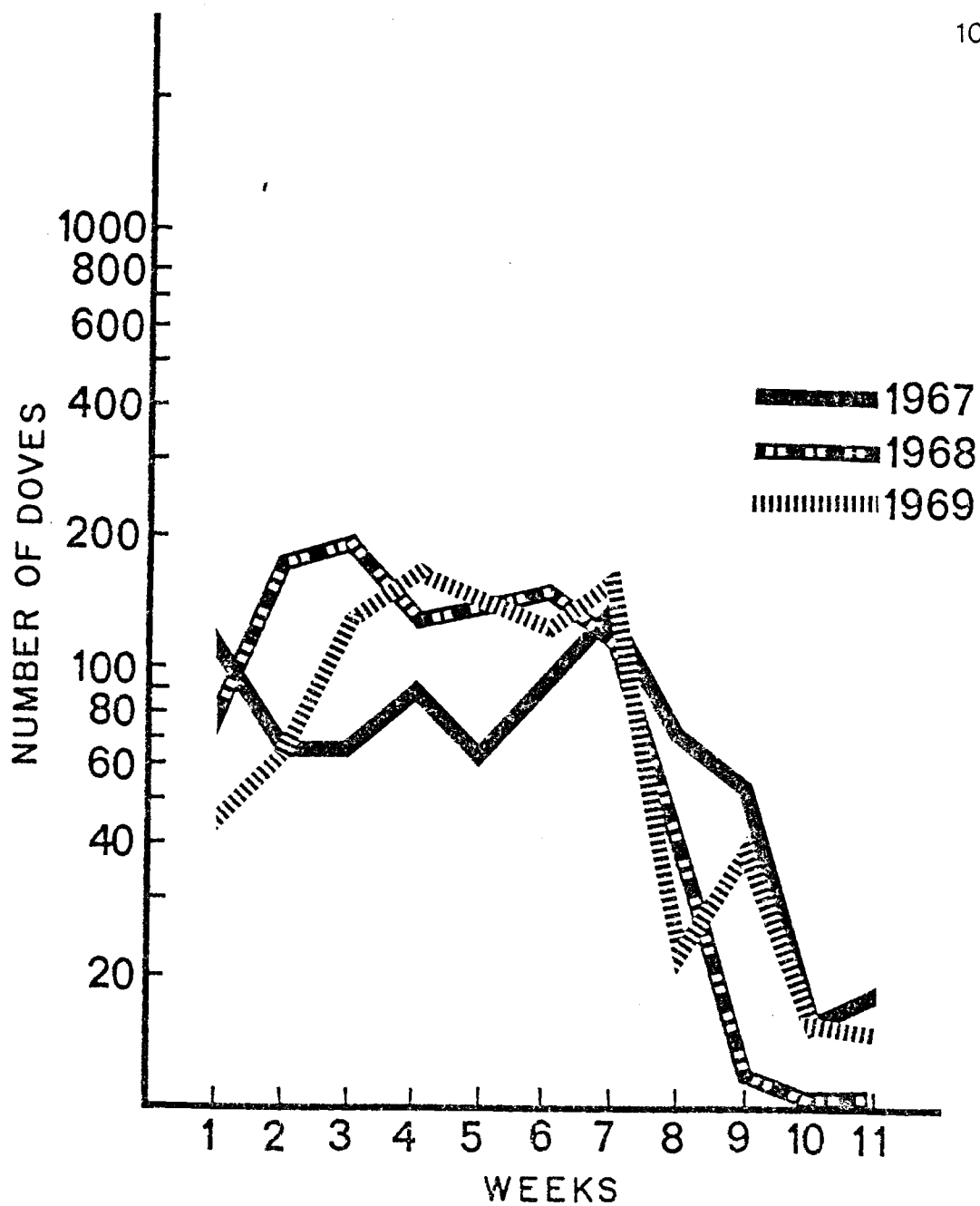


Fig. 3. Number of mourning doves counted on the Wasco County, Oregon route, 1967-1969. Week 1 is the third week in July (see Table 1).

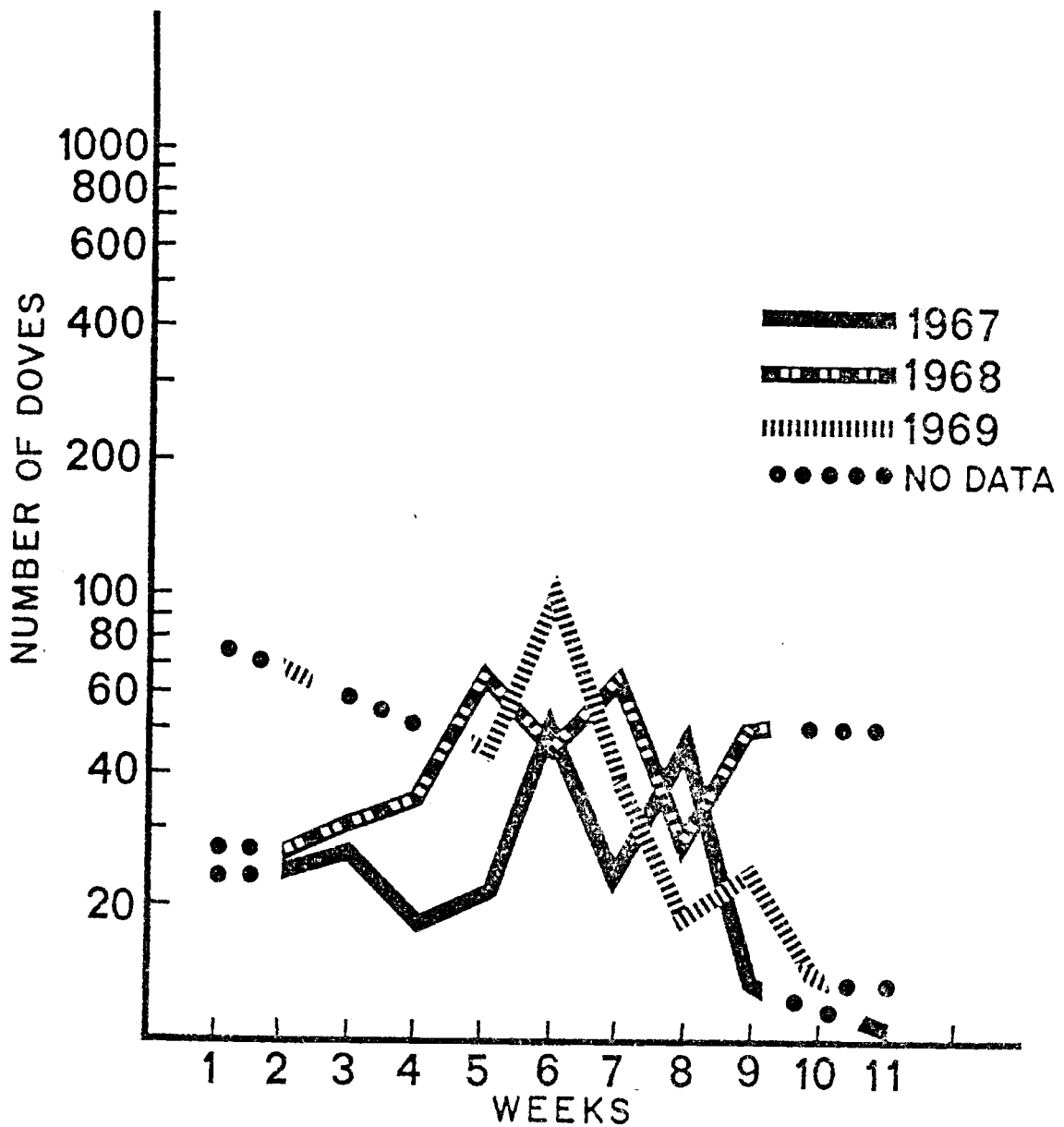


Fig. 4. Number of mourning doves counted on the Owyhee County, Idaho route, 1967-1969. Week 1 is the third week in July (see Table 1).

Table 2. Week of initiation of migration of mourning doves for each route (county) surveyed in the Western Management Unit, 1967-1969.

Route	1967	1968	1969	Mean
Washington				
Douglas	8	7	6	7.0
Chelan	6	4	7 ^a	5.0
Grant	3	5 ^d	6 ^d	4.6
Okanogan	6	5	6	5.7
Yakima	6	3	4 ^a	4.5
Benton	7	6	7 ^a	6.5
Idaho				
Kootenai	6 ^d	6 ^d	c	6.0
Nez Perce	2 ^d	3 ^d	3 ^d	2.7
Almore/Ada	4	4 ^f	c	4.0
Camas	7	6 ^c	c	7.0
Butte	6 ^d	6 ^d	5 ^d	5.7
Owyhee	8 ^a	7 ^a	6 ^d	6.0
Oregon				
Wasco	7	6 ^f	7 ^d	6.7
Umatilla	9	5 ^d	6 ^d	6.7
Lake	7 ^b	3	b	3.0
Marion/Polk	6	6	7	6.3
Jackson	5	7	2	4.7

Table 2. Continued.

Route	1967	1968	1969	Mean
California				
Modoc	7	6	7	6.7
Humboldt	b	b	b	b
Butte/Glenn	3 ^a	3 ^d	7	5.0
Merced/Stanislaus	7 ^a	6	8 ^a	6.0
Inyo	b	b	c	b c
Monterey	7 ^e	8 ^e	6 ^e	7.0
Tulare	7	6	5 ^a	6.5
West Riverside	4	4	6	4.7
East Riverside	5	7 ^d	7	6.3
Imperial	4	7	5	5.3
Nevada				
Elko	7	4	8	6.3
Washoe ^g	4 ^d	5 ^d	6 ^d	5.0
Eureka	7 ^d	5 ^d	7 ^d	6.3
Nye	6 ^d	b c	b d	6.0
Clark	3 ^d	2	3	2.6
Utah				
Box Eider	5	7	5	5.7
Juab/Millard	5	4	6	5.0
Uintah	5	5	1	3.6
Iron	4	4 ^f	4	4.0

Table 2. Continued.

Route	1967	1968	1969	Mean
Utah (continued)				
San Juan	4	7 ^d	6 ^d	5.7
Arizona				
East Coconino	1	1 ^a	4	2.5
West Coconino ^h	8	8	6	7.3
Navajo/Apache	9	8	8 ^d	8.3
Maricopa	7 ^e	7 ^e	5 ^e	6.3
Graham	6 ^e	7 ^e	7 ^e	6.7
Pima	6 ^e	6 ^e	9	7.0

^a Based on ambiguous data (see Appendix 1); excluded from mean.

^b Based on inadequate data (see Appendix 1); excluded from mean.

^c Based on insufficient data (see Appendix 1); excluded from mean.

^d Missing 1 to 4 weeks of data.

^e Doves demonstrated emigration/immigration pattern.

^f Data missing due to inclement weather.

^g Washoe County surveyed 1967; Churchill County surveyed 1968, 1969.

^h West Coconino County surveyed 1967, 1968; Yavapai County surveyed 1969.

Table 3. Mean week of initiation of migration of mourning doves for each state of the Western Management Unit, 1967-1969.

State	1967	1968	1969	Mean ^a
Washington	6.0	5.0	6.0	5.60
Idaho	4.8	5.3	4.7	4.83
Oregon	6.8	5.4	5.5	5.85
California	5.7	5.9	6.3	5.95
Nevada	5.4	4.0	6.0	5.08
Utah	4.6	5.4	4.4	4.80
Arizona	6.2	7.2	6.5	6.59

^a The mean represents an average of all surveys conducted within each state (see Table 1 for date corresponding to week number).

the 43 routes were not included in these results because of ambiguous data for at least 1 year of surveying).

Due to the apparent consistency in the timing of migration of doves throughout the Western Management Unit, two-way analysis of variance tests (years by routes within states; states by years) were conducted. There were no significant differences in initiation of migration between years within states (Table 4), and between routes within the states of Washington, Oregon, California and Utah. Significant differences in the time of initiation of migration occurred within the states of Idaho, Nevada and Arizona. Doves observed on the routes in Nez Perce and Almore/Ada Counties, Idaho, the route in Clark County, Nevada, and the route in East Coconino County, Arizona, migrated significantly earlier than doves observed on the remaining routes within the respective states. Excluding the routes exhibiting significantly earlier migration, the remaining routes within each of the three states were not significantly different. Likewise, there were no significant differences between states in the timing of initiation of migration ($F = 2.92$, d.f. = 6,12).

The initiation of migration of mourning doves was generally earliest and most pronounced in Utah, though not significantly different from other states. In 33 percent of the surveys in Utah, migration began prior to 14 August,

Table 4. Two-way analysis of variance test for significant difference in initiation of migration of mourning doves between routes and between years within states.

State	Between Routes		Between Years	
	F value,	d.f.	F value,	d.f.
Washington	2.50	5,10	1.54	2,10
Idaho (with Nez Perce and Almore/Ada)	22.90*	5,10	0.45	2,10
Idaho (without Nez Perce and Almore/Ada)	3.08	3,6	1.61	2,6
Oregon	1.10	4,8	1.28	2,8
California	1.38	7,14	1.64	2,14
Nevada (with Clark)	7.75*	4,8	3.50	2,8
Nevada (without Clark)	1.00	3,6	2.58	2,6
Utah	1.21	4,8	0.65	2,8
Arizona (with East Coconino)	8.01*	5,10	0.12	2,10
Arizona (without East Coconino)	1.13	4,8	0.04	2,8

* Significant at $p \leq 0.05$

and migration began prior to 28 August on all routes. Migration began latest in Arizona where doves initiated migration after 28 August on 33 percent of the surveys.

Increasing numbers of doves following a net decline was evident in Maricopa, Graham and Pima (1967, 1968) Counties in southern Arizona. This pattern was most pronounced in Pima County (Fig. 5). A similar pattern also occurred in Monterey County, California where large numbers of doves were observed for most weeks of surveying during all 3 years. Noticeable increases in the number of doves late in the survey periods also occurred on the Butte/Glenn Counties (California) route (1967, 1969) and the Merced/Stanslaus Counties (California) route (1968, 1969), but the pattern was not as definite as in Monterey County, California or those in southern Arizona.

Timing of migration of mourning doves was compared between four physiographic regions (Fenneman 1931) (Table 5), between five separate elevations (1,000 foot increments) (Table 6), and between five latitudinal zones (1 degree increments: 32°-33°; 33°-34°; 35°-36°; 39°-40°; 47°-48°) using two-way analysis of variance tests. Each region, elevation or zone contained at least three routes (nine surveys). There were significant differences in the time of initiation of migration of doves between physiographic regions ($F = 5.38$, d.f. = 3,6) and between elevations ($F = 3.88$, d.f. =

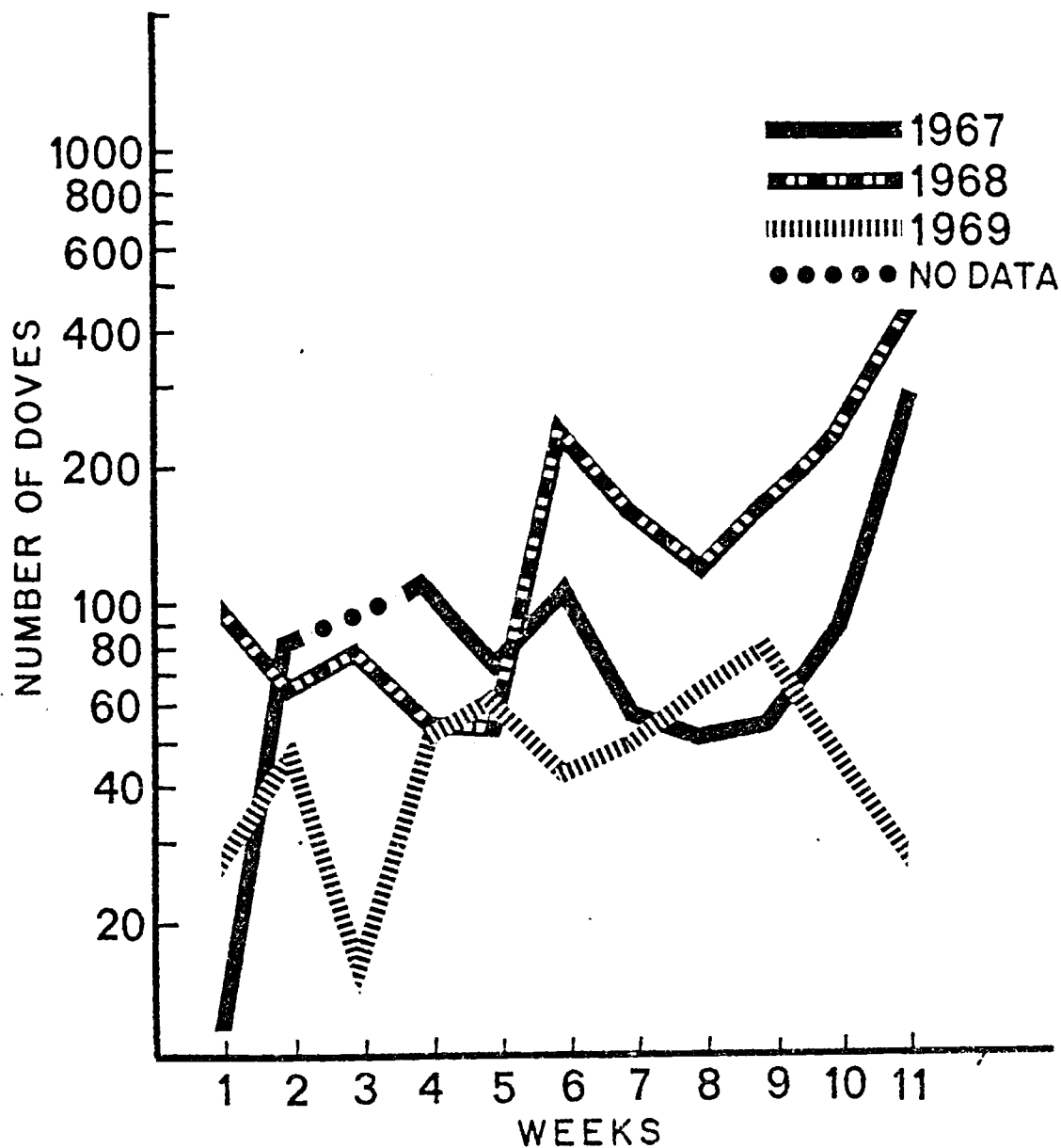


Fig. 5. Number of mourning doves counted on the Pima County, Arizona route, 1967-1969. Week 1 is the third week in July (see Table 1).

Table 5. Comparison of timing of initiation of migration of mourning doves sampled in different physiographic regions (Fenneman 1931) in the Western Management Unit, 1967-1969.

Region	t(0.05, 6 d.f.)
Walla Walla Plateau ^a and Great Basin ^b	0.25
Walla Walla Plateau and Sonoran Desert ^c	3.19*
Walla Walla Plateau and Northern Cascade Mountains ^d	1.96
Great Basin and Sonoran Desert	3.44*
Great Basin and Northern Cascade Mountains	2.21
Sonoran Desert and Northern Cascade Mountains	1.23

* Significant at $p \leq 0.05$

^a Mean week of initiation of migration was 5.3 (see Table 1).

^b Mean week of initiation of migration was 5.2.

^c Mean week of initiation of migration was 6.6.

^d Mean week of initiation of migration was 6.1.

Table 6. Comparison of timing of initiation of migration of mourning doves sampled at different elevations (thousands of feet) in the Western Management Unit, 1967-1969.

Elevation	t(0.05, 8 d.f.)
0 - 1 ^a and 1 - 2 ^b	2.50*
0 - 1 and 2 - 3 ^c	1.35
0 - 1 and 4 - 5 ^d	0.58
0 - 1 and 5 - 6 ^e	0.19
1 - 2 and 2 - 3	3.85*
1 - 2 and 4 - 5	1.90
1 - 2 and 5 - 6	2.69*
2 - 3 and 4 - 5	1.92
2 - 3 and 5 - 6	1.15
4 - 5 and 5 - 6	1.92

* Significant at $p \leq 0.05$.

^a Mean week of initiation of migration was 5.9 (see Table 1).

^b Mean week of initiation of migration was 4.6.

^c Mean week of initiation of migration was 6.6.

^d Mean week of initiation of migration was 5.6.

^e Mean week of initiation of migration was 6.0.

4,8). Timing of migration was significantly later in the Sonoran Desert Region than in the Great Basin and Walla Walla Plateau Regions. Migration of doves was significantly earlier at the 1,000-2,000 foot level than at either lower or higher elevations. There were no significant differences between time of initiation of migration at the various latitudes ($F = 0.84$, d.f. = 4,8).

Rate of Emigration

The rate of decline or emigration of mourning doves was determined after the week of initiation was established. Two-way analysis of variance tests (year by route within states; states by years) indicated no significant difference in rates of emigration of mourning doves within states, with the exception of Idaho and California (Table 7). Doves emigrated significantly slower on the Nez Perce (Idaho) route; excluding Nez Perce there was no significant difference in rate of emigration of doves in Idaho. Doves sampled in California exhibited significantly different rates of emigration between years. There was no significant difference in rates of emigration of doves between states ($F = 1.69$, d.f. = 6,12). Routes which displayed indications of emigration closely ensued by immigration of doves were not included in the statistical tests because of the obvious inaccuracy of the rate of emigration of doves for those areas.

Table 7. Two-way analysis of variance test for significant difference in rate of emigration of mourning doves between routes and between years within states in the Western Management Unit, 1967-1969.

State	Between Routes		Between Years	
	F value,	d.f.	F value,	d.f.
Washington	0.41	5,10	0.61	2,10
Idaho (with Nez Perce)	4.73*	5,10	0.22	2,10
Idaho (without Nez Perce)	0.90	4,8	0.25	2,8
Oregon	1.39	4,8	0.29	2,8
California ^a	2.17	4,8	4.67*	2,8
Nevada	3.54	4,8	2.11	2,8
Utah	3.23	4,8	0.99	2,8
Arizona ^a	6.53	2,4	0.91	2,4

* Significant at $p \leq 0.05$.

^a Computed without routes which indicated patterns of immigration/emigration.

Rates of emigration were moderate to high (35 percent/week-60 percent/week) on most routes surveyed (Table 8). Rates of emigration were most consistent and slowest in Washington (39.8 percent/week) and most rapid in Utah (53.5 percent/week) (Table 9). Emigration of doves was noticeably slower on the Elmore/Ada County (Idaho) route, the Clark County (Nevada) route and the East Coconino (Arizona) route, as compared to emigration rates of doves on the remaining routes in the respective states.

Rates of emigration of mourning doves were compared between three physiographic regions (Table 10) and between four elevations (Table 11). Comparisons were not made between latitudinal zones due to small sample size. There was a significant difference in the rate of emigration of doves in different physiographic regions ($F = 9.86$, d.f. = 2,4). Doves in the Great Basin Region migrated at a significantly more rapid rate than doves in the Walla Walla Plateau or Northern Cascade Mountains Region. There was also a significant difference between the rate of emigration of doves at different elevations ($F = 16.08$, d.f. = 3,6). Doves in the 4,000-5,000 and 5,000-6,000 foot elevation zones migrated at a significantly more rapid rate than doves in the 0-1,000, 1,000-2,000 and 2,000-3,000 foot elevation zones.

Table 8. Rate of emigration (per week) of mourning doves for each route (county) sampled in the Western Management Unit, 1967-1969.

Route	1967	1968	1969	Mean
Washington				
Douglas	27.4	42.9	38.7	26.3
Chelan	30.2	46.2	43.4 ^a	38.2
Grant	42.9	52.1	31.6 ^d	42.2
Okanogan	49.8	35.6	42.9	42.7
Yakima	46.2	36.9	42.9 ^a	41.6
Benton	30.9	42.9	35.6 ^a	36.9
Idaho				
Kootenai	48.3	70.2	c	59.3
Nez Perce	24.6	31.3	34.1	30.0
Elmore/Ada	56.0	42.3	c	49.2
Camas	69.3	62.1 ^c	c	69.3
Butte	48.3	73.3	62.8	61.5
Owyhee	71.6 ^a	a	44.0	44.0
Oregon				
Wasco	45.7	72.5	46.2	54.8
Umatilla	58.5	18.9	46.2	41.2
Lake	67.4 ^b	42.9	b	42.9
Marion/Polk	36.2	37.5	46.2	39.9
Jackson	35.8	40.6	19.2	31.9

Table 8. Continued.

Route	1967	1968	1969	Mean
California				
Modoc	56.8	76.8	50.3	61.3
Humboldt	b	b	b	b
Butte/Glenn	16.0 ^{ad}	29.0	34.6 ^d	32.9
Merced/Stanslaus	29.0 ^{ad}	31.6	7.5 ^{ad}	31.6
Inyo	b	b	c	b c
Monterey	7.1 ^d	19.6 ^d	28.5 ^d	18.4
Tulare	36.1	60.1	24.5 ^a	48.1
West Riverside	51.1	54.0	20.6	41.9
East Riverside	33.4	61.7	43.5	46.2
Imperial	39.1	32.5	39.6	37.1
Nevada				
Elko	45.1	33.6	77.5	52.1
Washoe ^e	42.7	50.8	74.2	55.9
Eureka	43.7	64.8	49.8	52.8
Nye	50.1	b c	b	50.1
Clark	15.2	27.8	25.4	22.8
Utah				
Box Eider	51.2	69.2	70.9	63.8
Juab/Millard	62.4	60.5	73.0	65.3
Uintah	33.7	62.8	33.7	43.4
Iron	54.1	45.0	61.0	53.4

Table 8. Continued.

Route	1967	1968	1969	Mean
Utah (Continued)				
San Juan	39.1	31.6	50.4	40.4
Arizona				
East Coconino	19.1	16.0 ^a	24.5	21.8
West Coconino ^f	72.7	64.6	44.4	60.6
Navajo/Apache	34.5	62.7	29.2	42.1
Maricopa	+ 1.8 ^d	18.3 ^d	16.8 ^d	12.3
Graham	+ 9.7 ^d	+ 5.0 ^d	4.4 ^d	+ 3.4
Pima	+19.6 ^d	+13.7 ^d	41.2	2.6

^a Ambiguous data (see appendix 1); excluded from mean.

^b Inadequate data (see appendix 1); excluded from mean.

^c Insufficient data (see appendix 1); excluded from mean.

^d Doves demonstrated emigration/immigration pattern. Rates of change for these areas cannot be considered accurate rates of emigration.

^e Washoe County surveyed in 1967; Churchill County surveyed 1968, 1969.

^f West Coconino County surveyed 1967, 1968; Yavapai County surveyed 1969.

Table 9. Mean rate of emigration (per week) of mourning doves for each state in the Western Management Unit, 1967-1969.

State	1967	1968	1969	Mean ^a	SD
Washington	37.9	42.8	39.2	39.8	7.5
Idaho	49.3	54.3	47.0	50.4	16.2
Oregon	44.1	42.5	39.5	42.0	14.2
California ^b	43.3	57.0	35.7	45.3	15.2
Nevada	39.4	44.3	56.7	46.2	18.4
Utah	48.1	53.8	57.8	53.2	14.0
Arizona ^c	42.1	50.1	32.7	44.0	20.4

^a The mean represents an average of all surveys conducted within each state.

^b The yearly means and 3-year mean for California were calculated without the rates computed for the Butte/Glenn, Merced/Stanslaus and Monterey routes because of pattern of emigration/immigration of doves.

^c The yearly means and 3-year mean for Arizona were calculated without the rates computed for the southern Arizona routes (Maricopa, Graham and Pima) because of pattern of emigration/immigration of doves.

Table 10. Comparison of rate of emigration (per week) of mourning doves sampled in different physiographic regions (Fenneman 1931) in the Western Management Unit, 1967-1969.

Region	t(0.05, 4 d.f.)
Walla Walla Plateau ^a and Great Basin ^b	3.62*
Walla Walla Plateau and Northern Cascade Mountains ^c	0.42
Great Basin and Northern Cascade Mountains	4.04*

* Significant at $p \leq 0.05$.

^a Mean rate of emigration was 41.1 percent.

^b Mean rate of emigration was 53.2 percent.

^c Mean rate of emigration was 39.7 percent.

Table 11. Comparison of rate of emigration of mourning doves sampled at different elevations (thousands of feet) in the Western Management Unit, 1967-1969.

Elevation	t(0.05, 6 d.f.)
0 - 1 ^a and 1 - 2 ^b	0.96
0 - 1 and 4 - 5 ^c	4.12*
0 - 1 and 5 - 6 ^d	4.60*
1 - 2 and 4 - 5	5.08*
1 - 2 and 5 - 6	5.56*
4 - 5 and 5 - 6	0.47

* Significant at $p \leq 0.05$.

^a Mean rate of emigration was 39.9.

^b Mean rate of emigration was 36.6.

^c Mean rate of emigration was 53.9.

^d Mean rate of emigration was 55.5.

Effects of Weather

Thirty of the 129 surveys were selected and investigated for a relationship between initiation of migration of mourning doves and changing weather variables. The 30 surveys were chosen according to the following criteria: data from the survey portrayed migratory activity with no ambiguity; initiation of migration occurred before 1 September to avoid influence of movement due to hunting; and the proximity of a weather station to the route [30 miles (48.27 km) or less]. Daily maximum and minimum temperature and precipitation were used for comparison because of the availability of these data.

A decrease in both weekly mean maximum and weekly mean minimum temperature, from the week prior to the initiation of migration to the week of initiation of migration, occurred in 13 of the 30 surveys; however, in only three surveys were both decreases significant (Table 12). There were, in fact, increases in both weekly mean maximum and weekly mean minimum temperature from the week prior to the initiation of migration to the week of initiation of migration in 9 of the 30 surveys.

A decrease in weekly mean minimum temperature only, from the week preceding initiation of migration to the week of initiation of migration occurred in six surveys, but in only two surveys were the decreases significant. A decrease

Table 12. Comparison of decrease in weekly mean maximum and mean minimum temperatures from the week prior to the initiation of migration of mourning doves to the week of initiation of migration on 30 routes surveyed in the Western Management Unit.

Route	State	Year	Weather Sta.	Temp. $t(0.05, 6 \text{ d.f.})$
Chelan	Washington	1967	Chelan	max. 7.39* min. 3.26*
Okanogan	Washington	1967	Omak	max. 4.04* min. 0.76
Okanogan	Washington	1968	Omak	max. 2.02 min. 2.16
Douglas	Washington	1969	Waterville	max. N.D. ^a min. N.D.
Kootenai	Idaho	1967	Coeur d'Alene	max. 12.21* min. 1.66
Kootenai	Idaho	1968	Coeur d'Alene	max. N.D. min. N.D.
Elmore/Ada	Idaho	1967	Mountain Home	max. N.D. min. N.D.
Elmore/Ada	Idaho	1968	Mountain Home	max. N.D. min. N.D.
Butte	Idaho	1967	Arco	max. 1.51 min. 0.00
Butte	Idaho	1968	Arco	max. N.D. min. 0.89
Butte	Idaho	1969	Arco	max. N.D. min. N.D.

Table 12. Continued.

Route	State	Year	Weather Sta.	Temp. $t(0.05,$ 6 d.f.)
Marion/Polk	Oregon	1967	Salem WB Airport	max. 1.59 min. 1.14
Marion/Polk	Oregon	1968	Salem WB Airport	max. 0.46 min. N.D.
Modoc	California	1968	Alturas Ranger Station	max. 1.97 min. 2.07
Imperial	California	1967	Brawley	max. N.D. min. 0.00
Imperial	California	1969	Brawley	max. N.D. min. 0.26
East Riverside	California	1967	Blythe	max. 2.08 min. 0.93
Eureka	Nevada	1968	Eureka	max. 4.33* min. 4.61*
Churchill	Nevada	1968	Fallon	max. 0.91 min. 3.77*
Churchill	Nevada	1969	Fallon	max. N.D. min. N.D.
Elko	Nevada	1968	Tuscarora	max. 1.28 min. 1.42
Iron	Utah	1967	Modena	max. N.D. min. 2.56*
Iron	Utah	1968	Modena	max. 0.89 min. 0.28
Iron	Utah	1969	Modena	max. N.D. min. N.D.
Uintah	Utah	1967	Vernal Airport	max. N.D. min. 1.53

Table 12. Continued.

Route	State	Year Weather Sta.	Temp. t(0.05, 6 d.f.)
Uintah	Utah	1968 Vernal Airport	max. 3.12* min. 3.72*
Uintah	Utah	1969 Vernal Airport	max. N.D. max. N.D.
Juab/Millard	Utah	1967 Nephi	max. N.D. min. 2.69*
Juab/Millard	Utah	1968 Nephi	max. 0.08 min. N.D.
Juab/Millard	Utah	1969 Nephi	max. N.D. min. N.D.

* Significant at $p \leq 0.05$.

^a No decrease. Increase in temperature recorded.

in weekly mean maximum temperature only, occurred in two surveys; neither was significant.

On 14 of the 30 surveys, a sudden decrease in daily temperature was evident during the week of initiation of migration of mourning doves. However, daily maximum temperature decreased below 80F and daily minimum temperature decreased below 45F only on 8 of the 14 surveys. A decrease of daily maximum temperature below 80F, but the daily minimum temperature remaining above 45F, occurred on two surveys. Likewise, a decrease of daily minimum temperature below 45F, but the daily maximum temperature remaining above 80F, occurred on one survey. The remaining three surveys had sudden decreases in daily temperature, but none below 80F (maximum) or 45F (minimum).

Precipitation occurred during the week of initiation of migration of mourning doves in 16 of the 30 surveys. Eight of the 16 surveys received precipitation on 1 day; the remaining eight surveys received precipitation on 2 or more days during the week of initiation of migration.

IV. DISCUSSION

Assuming that peak numbers of mourning doves succeeded by a net decline in the abundance of doves was an indicator of the initiation of migration, results from the data collected in the Western Management Unit were compatible with results from studies in other sections of the United States. Doves initiated migration in mid- to late summer and migration had progressed substantially by 1 September. Migratory activity was evident prior to 1 September for 90.5 percent of the doves sampled in the Western Management Unit. The timing of initiation of migration ranged from 17 July to 11 September, however, most initial migratory activity occurred from 7 August to 28 August.

Apparently, most mourning doves sampled in the Western Management Unit initiated migration at about the same time in all 3 years of the study. There were no significant differences in the timing of initial migratory activity between routes within states (with the exception of routes in Nez Perce County and Elmore/Ada Counties, Idaho; Clark County, Nevada; and East Coconino County, Arizona), between states, between latitudinal zones or between years.

The urge to migrate, or circannual rhythmicity (Berthold 1975), was apparently manifested prior to migration in mourning doves by flocking or staging behavior (Hanson and Kossack 1963). Staging behavior was suggested

by most of the individuals who conducted the surveys as the cause of peak numbers of doves. Staging behavior and uniform initiation of migration of doves suggested that migration was influenced more by internal mechanisms (including responses to photoperiodism) than by external stimuli, such as weather or availability of food.

I was unable to detect a consistent pattern between precipitation or temperature and the initiation of migration of mourning doves. Precipitation was likely to occur 2 weeks prior, 1 week prior, the week of, or 1 to 2 weeks after the initiation of migration, or not at all. Several individuals who conducted surveys in Utah and Arizona noted that precipitation did not influence the movement of doves early in the survey periods. There was a weak indication that decreasing temperatures tended to occur immediately preceding the initiation of migration. The temperature increased (30 percent) nearly as often as it decreased (43 percent) immediately preceding the initiation of migration. However, several individuals suggested that a decrease in dove abundance was associated with a sudden decrease in temperature. Thus, adverse weather (decreasing temperatures and increasing precipitation) apparently does not influence the general timing of the initiation of migration of doves, since most doves initiated migration well in advance of the onset of adverse weather. However, proximal timing of the

initiation of migration may be influenced by subtle changes in weather. Hanson and Kossack (1963) suggested that sharp decreases in temperature in autumn may be an immediate stimulus to the migration of doves. This study was designed to measure weekly changes in abundance of doves and precluded the detection of all but gross effects of weather on the migration of doves.

Food also apparently had little influence on the time of the initiation of migration of mourning doves. Most of the individuals who conducted the surveys were questioned on the effects of agriculture, particularly grain crops, on dove activity along the routes. The consensus of these individuals was that the presence of grain or preferred weed seeds attracted doves, but the abundance of food did not delay the onset of migration. Hanson and Kossack (1963) noted that doves did not require a large fat reserve at the beginning of migration. Hence, the observation that doves began migration when food was abundant in the area of the survey, was not surprising. Again, only gross effects of food on migration could be detected because of the design of the study.

As with timing of the onset of migration, rates of emigration were relatively uniform throughout the Western Management Unit. There were no significant differences in rates of emigration between routes within states (with the

exception of the route in Nez Perce County, Idaho), between states, between latitudinal zones or between years (with the exception of California).

Possible effects of weather were more evident on the rates of emigration of mourning doves than on the initiation of migration. Doves emigrated significantly more rapidly from higher elevations (4,000-6,000 feet) than from lower elevations (0-3,000 feet); presumably cool temperatures occurred earlier at high elevations than at low elevations. Doves tended to move at a faster (but not significantly) overall emigration rate in Idaho, Nevada and Utah than in the remaining states of the Western Management Unit. In general, adverse temperatures and weather conditions occurred earlier and lasted longer in Idaho, Nevada and Utah than in Washington, Oregon, California and Arizona (Environmental Science Services Administration 1968). Thus, the more rapid rates of emigration occurred in areas that were likely to experience cool temperatures and adverse weather early in autumn.

The rate of emigration (40-55 percent/week) (Table 8) implied a rapid rate of movement of mourning doves during migration. However, doves have been described as leisurely migrants (Jenkins 1955, Hanson and Kossack 1963), traveling at speeds of 6-13 miles per day (Taber 1930). The calculated rate of emigration refers only to the change in

relative abundance of doves at a particular point and cannot be compared directly to the rate of travel between points.

The immigration of mourning doves into California and Arizona agreed with results obtained by Gallizioli (1961) who reported that wintering populations of doves were present in significant numbers only in California and Arizona in the Western Management Unit.

Significant differences in initiation of migration and rate of emigration of mourning doves were detected between doves observed in several different physiographic regions. However, no pattern was discernable which suggested that migratory activity of doves was related to physiographic regions.

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APPENDIX

Criteria for Treatment of Data

1. Peak abundance of mourning doves was defined as the week in which the maximum or near maximum number of doves were observed, succeeded by weekly observations of continually declining numbers of doves. If an increase in numbers of doves occurred in any week(s) following the peak, the increase had to exceed 50 percent of the number of doves observed at the peak, before the migratory pattern was re-defined or considered questionable or confusing.

2. Declines in number of doves following a peak were rated as weak, moderate or strong. Increases occurring after a peak were subtracted from the overall average decline when rating a migratory pattern.

a. Weak decline

1. Two or more weeks of 15-30 percent average decline.
2. One week of 50-75 percent decline, followed by an increase which did not exceed 50 percent of the peak.

b. Moderate decline

1. Two or more weeks of 30-50 percent average decline.

c. Strong decline

1. Two or more weeks of 50 percent or higher average decline.

2. One week of 75 percent or higher decline, followed by an increase which did not exceed 50 percent of the peak.

3. The migratory pattern was considered confusing whenever a secondary peak of abundance of doves occurred that was at least 75 percent of the primary peak and the secondary peak occurred after 2 or more weeks of successive decline of dove numbers. Such patterns were defined either as ambiguous, or as areas of probable emigration and immigration of doves.

4. Weekly decreases or increases in the number of doves of less than 15 percent were not considered when defining the peak or rating the migratory pattern.

5. Surveys that had census counts which did not exceed 25 doves for any week of the sampling period were classified as inadequate data.

6. Surveys missing 4 or more weeks of data were classified as insufficient data. Surveys missing 2 or more weeks of data during a possible peak (as indicated by previous surveys of the same route) were also classified as insufficient data.

7. Surveys which indicated some decline in the abundance of doves followed by a continual increase in dove abundance were classified as areas of probable immigration of mourning doves.

8. Surveys in which the definable peak was questionable, indistinguishable or confusing were classified as ambiguous.

9. Analysis of variance tests required equal sample sizes, and tests of routes by years within states required the inclusion of some surveys classified as ambiguous, inadequate or insufficient. For surveys classed as ambiguous, the primary peak was used if it occurred; for inadequate surveys and insufficient surveys which indicated a peak, that peak was used; for surveys in which no peak could be defined, the average week of peak abundance of doves for other surveys (years) for the same route were used.

Several routes had three surveys (years) or either inadequate and/or insufficient data, and these routes were excluded from analysis.

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State WASHINGTON

Block <u>1</u> County <u>Douglas</u>					Block <u>1</u> County <u>Chelan</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	27	10	18	55	18	26	57	101
2 (7/25-27)	34	20	17	81	16	22	56	94
3 (8/1-3)	42	10	8	60	14	14	81	109
4 (8/8-10)	26	22	12	60	17	20	88	125
5 (8/15-17)	32	22	12	66	19	4	71	94
6 (8/22-24)	31	18	9	58	18	12	73	113
7 (8/29-31)	26	10	15	51	16	18	12	46
8 (9/5-7)	15	2	51	68	10	6	5	21
9 (9/12-14)	18	18	0	36	12	8	0	20
10 (9/19-21)	10	4	16	30	8	10	3	21
11 (9/26-28)	8	4	13	25	8	4	3	15

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State WASHINGTON

Block <u>2</u> County <u>Grant</u>					Block <u>2</u> County <u>Okanogan</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	19	10	17	46	87	48	123	258
2 (7/25-27)	34	18	34	86	143	90	148	381
3 (8/1-3)	40	58	110	208	120	84	81	285
4 (8/8-10)	31	30	51	112	103	62	175	340
5 (8/15-17)	22	16	37	75	54	46	267	367
6 (8/22-24)	12	14	49	75	54	102	379	535
7 (8/29-31)	11	20	53	84	68	42	129	239
8 (9/5-7)	6	4	24	34	56	26	56	138
9 (9/12-14)	3	4	0	7	37	18	43	98
10 (9/19-21)	6	6	0	12	14	4	15	33
11 (9/26-28)	1	0	0	1	11	4	0	15

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State IDAHO

Block <u>2</u> County <u>Kootenai</u>					Block _____ County _____			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	15	14	17	46				
2 (7/25-27)	17	18	42	77				
3 (8/1-3)	15	32	64	111				
4 (8/3-10)	20	18	124	162				
5 (8/15-17)	20	20	206	246				
6 (8/22-24)	17	20	50	87				
7 (8/29-31)	17	6	0	23				
8 (9/5-7)	4	8	11	23				
9 (9/12-14)	8	4	7	19				
10 (9/19-21)	4	2	0	6				
11 (9/26-28)	was not run							

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State WASHINGTON
OREGON

Block <u>3</u> County <u>Yakima</u>					Block <u>3</u> County <u>Wasco</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	20	12	0	32	25	22	69	116
2 (7/25-27)	15	6	16	37	16	18	31	65
3 (8/1-3)	22	26	9	57	22	10	34	66
4 (8/3-10)	16	16	22	54	13	20	58	91
5 (8/15-17)	22	18	6	46	22	8	33	63
6 (8/22-24)	18	10	17	45	28	14	54	96
7 (8/29-31)	16	10	6	32	25	8	100	133
8 (9/5-7)	10	10	0	20	17	12	40	69
9 (9/12-14)	5	2	0	7	8	12	34	54
10 (9/19-21)	3	0	0	3	2	6	3	11
11 (9/26-28)	1	2	0	3	6	4	6	16

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State WASHINGTON
OREGON

Block <u>4</u> County <u>Benton</u>					Block <u>4</u> County <u>Umatilla</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	8	16	17	41	25	18	4	47
2 (7/25-27)	23	18	5	46	43	26	11	80
3 (8/1-3)	17	28	6	51	36	24	29	89
4 (8/8-10)	no counts				42	20	26	88
5 (8/15-17)	no counts				28	30	36	94
6 (8/22-24)	25	24	9	58	20	14	85	119
7 (8/29-31)	20	14	19	53	29	32	84	145
8 (9/5-7)	14	14	10	38	32	18	96	146
9 (9/12-14)	7	22	11	40	24	18	102	144
10 (9/19-21)	5	4	13	22	21	6	42	69
11 (9/26-28)	8	0	3	11	6	2	17	25

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State IDAHO

Block <u>4</u> County <u>Nez Perce</u>					Block _____ County _____			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	was not run							
2 (7/25-27)	19	34	80	133				
3 (8/1-3)	30	24	45	99				
4 (8/8-10)	16	8	28	52				
5 (8/15-17)	22	6	16	44				
6 (8/22-24)	21	16	12	49				
7 (8/29-31)	12	8	5	25				
8 (9/5-7)	11	4	17	32				
9 (9/12-14)	5	4	0	9				
10 (9/19-21)	7	4	3	14				
11 (9/26-28)	5	6	0	11				

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1967

State OREGON

Block <u>5</u> County <u>Lake</u>					Block <u>5</u> County <u>Marion-Polk</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	2	2	0	4	25	20	10	55
2 (7/25-27)	1	2	0	3	20	12	36	68
3 (8/1-3)	2	0	0	2	18	28	98	144
4 (8/3-10)	2	2	0	4	18	22	89	129
5 (8/15-17)	0	0	11	11	16	14	211	241
6 (8/22-24)	1	0	5	6	5	8	242	255
7 (8/29-31)	0	6	16	22	9	20	177	206
8 (9/5-7)	0	6	12	18	19	8	101	128
9 (9/12-14)	0	2	0	2	11	2	30	43
10 (9/19-21)	0	0	0	0	14	12	29	55
11 (9/26-28)	0	0	0	0	6	6	19	31

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1967

State IDAHO

Block <u>6</u> County <u>Elmore-Ada</u>					Block <u>6</u> County <u>Camas</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	0	0	0	0	9	6	3	18
2 (7/25-27)	22	18	15	55	8	8	8	24
3 (8/1-3)	29	36	32	97	0	0	0	0
4 (8/3-10)	28	40	244	312	13	6	3	22
5 (8/15-17)	22	16	186	224	6	4	0	10
6 (8/22-24)	52	28	121	201	8	4	0	12
7 (8/29-31)	30	14	28	72	16	2	25	43
8 (9/5-7)	9	4	0	13	7	2	0	9
9 (9/12-14)	6	6	6	18	4	4	0	8
10 (9/19-21)	4	0	0	4	0	0	0	0
11 (9/26-28)	1	0	0	1	0	0	0	0

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1967

State IDAHO

Block <u>7</u> County <u>Butte</u>					Block _____ County _____			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	was not	run						
2 (7/25-27)	13	26	133	172				
3 (8/1-3)	16	20	75	111				
4 (8/8-10)	18	20	215	253				
5 (8/15-17)	23	32	238	293				
6 (8/22-24)	39	72	592	703				
7 (8/29-31)	33	43	223	304				
8 (9/5-7)	was not	run						
9 (9/12-14)	19	10	129	158				
10 (9/19-21)	18	20	88	126				
11 (9/26-28)	1	8	3	12				

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1967

State OREGON
CALIFORNIA

Block <u>8</u> County <u>Jackson</u>					Block <u>8</u> County <u>Modoc</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	21	12	36	69	15	0	11	26
2 (7/25-27)	31	22	103	156	7	2	97	106
3 (8/1-3)	28	30	73	131	3	6	8	17
4 (8/8-10)	32	18	126	176	8	4	0	12
5 (8/15-17)	24	12	356	392	5	2	30	37
6 (8/22-24)	32	22	68	122	9	10	8	27
7 (8/29-31)	15	16	248	279	14	12	135	161
8 (9/5-7)	22	18	68	108	10	8	46	64
9 (9/12-14)	19	18	42	79	12	10	0	22
10 (9/19-21)	7	6	10	23	1	2	5	8
11 (9/26-28)	14	6	9	29	5	2	0	7

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

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State IDAHO
NEVADA

Block <u>9</u> County <u>Owyhee</u>					Block <u>9</u> County <u>Elko</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	was not	run			5	4	3	12
2 (7/25-27)	13	8	3	24	8	2	12	22
3 (8/1-3)	14	12	0	26	11	2	6	19
4 (8/8-10)	15	2	0	17	8	4	0	12
5 (8/15-17)	10	4	7	21	11	12	0	23
6 (8/22-24)	14	8	28	50	18	6	0	24
7 (8/29-31)	12	4	8	24	11	4	7	22
8 (9/5-7)	9	6	36	51	7	4	3	14
9 (9/12-14)	4	0	3	7	2	0	0	2
10 (9/19-21)	was not	run			2	2	0	4
11 (9/26-28)	1	0	0	1	2	0	0	2

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State UTAH

Block <u>10</u> County <u>Box Elder</u>					Block _____ County _____			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	84	58	239	381				
2 (7/25-27)	63	50	229	342				
3 (8/1-3)	60	76	149	335				
4 (8/8-10)	66	56	199	321				
5 (8/15-17)	55	54	178	287				
6 (8/22-24)	42	34	138	214				
7 (8/29-31)	23	36	49	108				
8 (9/5-7)	18	12	31	61				
9 (9/12-14)	11	6	8	25				
10 (9/19-21)	3	4	11	18				
11 (9/26-28)	1	2	0	3				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

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State CALIFORNIA

Block <u>11</u> County <u>Humboldt</u>					Block <u>11</u> County <u>Butte-Glenn</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	1	0	0	1	42	34	59	135
2 (7/25-27)	0	0	5	5	61	22	25	108
3 (8/1-3)	1	0	0	1	49	42	179	270
4 (8/8-10)	0	0	0	0	53	36	47	136
5 (8/15-17)	0	0	3	3	41	52	25	118
6 (8/22-24)	0	0	0	0	66	44	44	154
7 (8/29-31)	0	2	0	2	37	24	58	119
8 (9/5-7)	1	0	0	1	34	28	71	133
9 (9/12-14)	0	0	3	3	26	12	0	38
10 (9/19-21)	0	4	3	7	27	24	46	97
11 (9/26-28)	0	0	0	0	18	4	23	45

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State NEVADA

Block <u>12</u> County <u>Washoe</u>					Block <u>12</u> County <u>Eureka</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	was not	run			7	8	0	15
2 (7/25-27)	4	2	4	10	3	2	3	8
3 (8/1-3)	2	0	0	2	4	2	0	6
4 (8/8-10)	12	8	25	45	15	2	6	23
5 (8/15-17)	3	6	0	9	16	16	3	35
6 (8/22-24)	7	2	18	27	33	24	20	77
7 (8/29-31)	10	6	0	16	29	18	26	73
8 (9/5-7)	3	0	3	6	bad weather			
9 (9/12-14)	2	2	0	4	16	2	24	42
10 (9/19-21)	was not	run			9	4	0	13
11 (9/26-28)	0	0	0	0	1	0	7	8

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

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State UTAH

Block <u>13</u> County <u>Juan-Millard</u>					Block <u>13</u> County <u>Uintah</u>			
Week	No. Doves Seen				Single	Pair	Flock	Total
	Single	Pair	Flock	Total				
1 (7/18-20)	31	48	36	115	1	4	3	8
2 (7/25-27)	42	44	96	182	8	6	8	22
3 (8/1-3)	70	70	59	199	17	12	3	32
4 (8/6-10)	80	156	110	346	12	14	8	34
5 (8/15-17)	111	146	54	311	15	12	6	33
6 (8/22-24)	72	64	0	136	9	8	5	22
7 (8/29-31)	49	46	40	135	5	0	0	5
8 (9/5-7)	31	20	0	51	3	2	16	21
9 (9/12-14)	6	6	0	12	0	0	8	8
10 (9/19-21)	1	0	0	1	2	0	0	2
11 (9/26-28)	0	2	0	2	0	0	3	3

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State CALIFORNIA

Block <u>14</u> County <u>Merced-Stanislaus</u>					Block _____ County _____			
Week	No. Doves Seen				Single	Pair	Flock	Total
	Single	Pair	Flock	Total				
1 (7/18-20)	20	30	35	85				
2 (7/25-27)	24	40	0	64				
3 (8/1-3)	46	44	24	110				
4 (8/6-10)	58	54	53	165				
5 (8/15-17)	33	32	35	100				
6 (8/22-24)	22	34	70	125				
7 (8/29-31)	33	24	51	108				
8 (9/5-7)	17	12	21	50				
9 (9/12-14)	10	6	50	66				
10 (9/19-21)	7	4	6	17				
11 (9/26-28)	8	2	4	14				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

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State NEVADA

CALIFORNIA

Block <u>15</u> County <u>Nye</u>					Block <u>15</u> County <u>Inyo</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	2	0	10	12	3	8	12	23
2 (7/25-27)	0	0	0	0	10	4	0	14
3 (8/1-3)	0	0	17	17	12	4	0	16
4 (8/3-10)	was not run				4	12	6	22
5 (8/15-17)	2	0	13	15	5	2	0	7
6 (8/22-24)	4	6	30	40	4	2	0	6
7 (8/29-31)	0	0	14	14	3	2	0	5
8 (9/5-7)	0	0	0	0	2	2	0	4
9 (9/12-14)	1	0	0	1	2	2	0	4
10 (9/19-21)	1	0	4	5	0	0	25	25
11 (9/26-28)	0	0	0	0	2	0	4	6

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State UTAH

Block <u>16</u> County <u>Iron</u>					Block <u>16</u> County <u>San Juan</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	40	10	38	88	79	112	510	701
2 (7/25-27)	46	36	30	112	89	108	303	500
3 (8/1-3)	44	16	69	129	82	84	225	391
4 (8/8-10)	69	66	362	497	69	140	428	637
5 (8/15-17)	25	36	262	323	72	120	152	344
6 (8/22-24)	44	28	96	168	55	108	116	279
7 (8/29-31)	14	14	7	35	38	62	11	111
8 (9/5-7)	10	8	0	18	23	20	8	51
9 (9/12-14)	9	4	3	16	18	48	26	92
10 (9/19-21)	4	0	0	4	3	4	14	21
11 (9/26-28)	3	0	0	3	2	4	16	22

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

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State CALIFORNIA

Block <u>17</u> County <u>Monterey</u>					Block _____ County _____			
Week	No. Doves Seen				Single	Pair	Flock	Total
	Single	Pair	Flock	Total				
1 (7/18-20)	66	66	235	367				
2 (7/25-27)	38	78	311	427				
3 (8/1-3)	31	50	680	761				
4 (8/8-10)	45	42	695	782				
5 (8/15-17)	27	28	746	801				
6 (8/22-24)	39	38	653	730				
7 (8/29-31)	30	32	566	628				
8 (9/5-7)	34	28	203	265				
9 (9/12-14)	22	24	401	447				
10 (9/19-21)	29	20	461	510				
11 (9/26-28)	33	30	251	314				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State CALIFORNIA

NEVADA

Block <u>18</u> County <u>Tulare</u>					Block <u>18</u> County <u>Clark</u>			
Week	No. Doves Seen				Single	Pair	Flock	Total
	Single	Pair	Flock	Total				
1 (7/18-20)	45	18	37	100	6	4	5	15
2 (7/25-27)	57	66	168	291	8	6	0	14
3 (8/1-3)	69	48	52	169	6	4	19	29
4 (8/8-10)	70	66	111	247	14	2	5	21
5 (8/15-17)	61	54	67	182	was not run			
6 (8/22-24)	60	40	73	173	2	0	0	2
7 (8/29-31)	50	40	129	219	5	0	8	13
8 (9/5-7)	20	40	4	64	0	2	4	6
9 (9/12-14)	24	20	47	91	2	4	3	9
10 (9/19-21)	19	14	6	39	0	2	5	7
11 (9/26-28)	19	6	5	30	0	2	3	5

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

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State ARIZONA

Block <u>19</u> County <u>E. Coconino</u>					Block <u>19</u> County <u>W. Coconino</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	9	6	19	34	4	2	10	16
2 (7/25-27)	6	12	0	18	4	0	0	4
3 (8/1-3)	9	6	8	23	7	4	5	16
4 (8/8-10)	5	4	9	18	11	10	6	27
5 (8/15-17)	7	0	0	7	13	2	0	15
6 (8/22-24)	5	8	5	18	7	6	3	16
7 (8/29-31)	2	0	3	5	4	5	0	9
8 (9/5-7)	5	0	0	5	4	0	35	39
9 (9/12-14)	5	12	0	17	5	4	20	29
10 (9/19-21)	2	0	0	2	1	0	3	4
11 (9/26-28)	1	0	3	4	1	0	0	1

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State CALIFORNIA

Block <u>20</u> County <u>W. Riverside</u>					Block <u>20</u> County <u>E. Riverside</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	15	14	7	36	41	24	53	118
2 (7/25-27)	11	6	0	17	37	30	31	98
3 (8/1-3)	16	22	43	81	38	30	28	96
4 (8/8-10)	14	14	62	90	30	26	77	133
5 (8/15-17)	11	8	46	65	76	44	54	174
6 (8/22-24)	18	12	10	40	17	16	54	87
7 (8/29-31)	21	4	10	35	22	10	13	45
8 (9/5-7)	5	0	0	5	10	4	19	33
9 (9/12-14)	1	2	0	3	7	14	25	46
10 (9/19-21)	2	2	0	4	4	2	0	6
11 (9/26-28)	0	0	0	0	6	2	15	23

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

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State ARIZONA

Block <u>21</u> County <u>Navajo-Apache</u>					Block: <u>21</u> County <u>Maricopa</u>			
No. Doves Seen					No. Doves Seen			
Week:	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	2	2	3	7	180	166	562	908
2 (7/25-27)	3	4	0	7	113	100	210	423
3 (8/1-3)	5	10	0	15	was not run			
4 (8/8-10)	2	2	11	15	56	58	246	360
5 (8/15-17)	9	10	16	35	100	130	170	400
6 (8/22-24)	24	12	55	91	was not run			
7 (8/29-31)	22	26	28	76	85	104	250	439
8 (9/5-7)	22	30	44	96	25	16	38	79
9 (9/12-14)	26	18	47	91	51	40	74	165
10 (9/19-21)	11	4	17	32	70	62	229	361
11 (9/26-28)	7	12	20	39	72	50	102	224

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State CALIFORNIA

Block <u>22</u> County <u>Imperial</u>					Block _____ County _____			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	12	16	7	35				
2 (7/25-27)	40	22	10	72				
3 (8/1-3)	23	32	57	102				
4 (8/8-10)	53	16	58	127				
5 (8/15-17)	31	26	35	92				
6 (8/22-24)	33	16	7	56				
7 (8/29-31)	17	10	25	52				
8 (9/5-7)	8	6	7	21				
9 (9/12-14)	2	4	0	6				
10 (9/19-21)	2	0	0	2				
11 (9/26-28)	4	4	9	15				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1967

State ARIZONA

Block <u>23</u> County <u>Graham</u>					Block <u>23</u> County <u>Pima</u>			
No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/18-20)	63	48	73	184	1	2	0	3
2 (7/25-27)	82	46	51	179	46	30	8	84
3 (8/1-3)	89	54	35	178	was not run			
4 (8/8-10)	81	42	68	191	38	48	25	111
5 (8/15-17)	74	32	93	199	31	22	20	73
6 (8/22-24)	74	52	78	204	25	34	49	108
7 (8/29-31)	33	20	13	66	21	8	27	56
8 (9/5-7)	32	16	31	79	14	10	28	52
9 (9/12-14)	35	8	134	177	21	14	19	54
10 (9/19-21)	57	58	161	276	28	40	22	90
11 (9/26-28)	55	26	59	140	27	28	228	283

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State WASHINGTON

Block 1 County Douglas

Block 1 County Chelan

No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	47	28	26	101	16	16	0	32
2 (7/23-25)	47	24	39	110	14	10	32	56
3 (7/30-8/1)	36	18	39	93	25	20	18	63
4 (8/6-8)	61	30	29	120	25	12	22	59
5 (8/13-15)	38	16	20	74	7	6	28	41
6 (8/20-22)	45	8	20	73	12	6	18	36
7 (8/27-29)	41	22	28	91	5	6	6	17
8 (9/3-5)	11	6	6	23	8	6	8	22
9 (9/10-12)	8	2	0	10	5	4	0	9
10 (9/17-19)	5	2	4	11	2	0	0	2
11 (9/24-26)	2	2	4	8	0	0	0	0

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State WASHINGTON

Block 2 County Grant

Block 2 County Okanogan

No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	34	34	14	82	112	56	29	197
2 (7/23-25)	26	38	79	143	74	20	34	128
3 (7/30-8/1)	22	44	60	126	95	36	56	187
4 (8/6-8)	20	27	65	112	85	34	47	166
5 (8/13-15)	16	16	138	170	51	32	78	162
6 (8/20-22)	N O T	R U N			50	26	15	91
7 (8/27-29)	23	18	87	128	21	12	4	37
8 (9/3-5)	5	4	17	26	19	4	0	23
9 (9/10-12)	4	2	0	6	13	0	0	13
10 (9/17-19)	4	4	0	8	9	2	0	11
11 (9/24-26)	N O T	R U N			9	2	4	15

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State IDAHO

Block 2 County Kootenai

Block _____ County _____

Week	No. Doves Seen				Week	No. Doves Seen			
	Single	Pair	Flock	Total		Single	Pair	Flock	Total
1 (7/16-18)	-	-	-	-					
2 (7/23-25)	-	-	-	-					
3 (7/30-8/1)	19	32	37	88					
4 (8/6-8)	40	52	41	133					
5 (8/13-15)	-	-	-	-					
6 (8/20-22)	13	26	114	153					
7 (8/27-29)	11	16	67	94					
8 (9/3-5)	10	4	55	69					
9 (9/10-12)	1	0	4	5					
10 (9/17-19)	-	-	-	-					
11 (9/24-26)	0	0	0	0					

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State WASHINGTON

Block 3 County Yakima

Block 3 County Wasco

Week	No. Doves Seen				Week	No. Doves Seen			
	Single	Pair	Flock	Total		Single	Pair	Flock	Total
1 (7/16-18)	18	22	27	67	16	14	47	77	
2 (7/23-25)	33	34	34	101	20	14	137	171	
3 (7/30-8/1)	27	14	82	123	16	12	168	196	
4 (8/6-8)	20	20	13	53	8	10	112	130	
5 (8/13-15)	20	16	4	40	N O T	R U N	(rain)		
6 (8/20-22)	21	14	37	72	13	14	123	150	
7 (8/27-29)	9	8	15	32	11	10	97	118	
8 (9/3-5)	6	0	3	9	7	2	26	35	
9 (9/10-12)	N O T	R U N			1	2	0	3	
10 (9/17-19)	4	0	0	4	1	0	0	1	
11 (9/24-26)	N O T	R U N			0	0	0	0	

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State WASHINGTON

Block 4 County Benton

Block 4 County Umatilla

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	25	6	3	34	24	6	7	37
2 (7/23-25)	12	10	0	22	29	12	0	41
3 (7/30-8/1)	6	14	3	23	NOT	RUN		
4 (8/6-8)	12	4	3	19	23	22	15	60
5 (8/13-15)	10	18	10	38	35	24	34	93
6 (8/20-22)	19	16	10	45	19	26	15	60
7 (8/27-29)	7	14	15	36	13	8	17	38
8 (9/3-5)	5	8	8	21	25	10	10	45
9 (9/10-12)	6	2	4	12	21	14	21	56
10 (9/17-19)	7	4	0	11	NOT	RUN		
11 (9/24-26)	2	0	0	2	2	6	11	19

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State IDAHO

Block 4 County Nez Perce

Block _____ County _____

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	-	-	-	-				
2 (7/23-25)	17	24	28	69				
3 (7/30-8/1)	27	32	100	159				
4 (8/6-8)	-	-	-	-				
5 (8/13-15)	14	14	50	78				
6 (8/20-22)	24	18	50	92				
7 (8/27-29)	10	8	0	18				
8 (9/3-5)	11	2	30	43				
9 (9/10-12)	-	-	-	-				
10 (9/17-19)	0	1	10	11				
11 (9/24-26)	-	-	-	-				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State IDAHO

Block 7 County Butte

Block _____ County _____

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	-	-	-	-				
2 (7/23-25)	-	-	-	-				
3 (7/30-8/1)	33	62	541	636				
4 (8/6-8)	48	74	623	745				
5 (8/13-15)	66	56	875	997				
6 (8/20-22)	59	66	918	1043				
7 (8/27-29)	46	48	760	854				
8 (9/3-5)	22	20	122	164				
9 (9/10-12)	6	4	-	10				
10 (9/17-19)	2	6	6	14				
11 (9/24-26)	2	-	-	2				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State OREGON
CALIFORNIA

Block 8 County Jackson

Block 8 County Modoc

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	24	16	46	86	13	14	113	140
2 (7/23-25)	25	18	48	91	22	22	106	150
3 (7/30-8/1)	30	20	63	113	25	20	123	168
4 (8/6-8)	39	38	98	175	34	18	171	223
5 (8/13-15)	26	42	49	117	44	20	273	337
6 (8/20-22)	23	22	75	120	28	20	464	512
7 (8/27-29)	29	30	90	149	46	34	90	170
8 (9/3-5)	7	4	15	26	2	0	0	2
9 (9/10-12)	7	2	5	14	3	2	0	5
10 (9/17-19)	10	8	4	22	0	0	0	0
11 (9/24-26)	6	6	0	12	0	0	0	0

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State IDAHO
NEVADA

Block 9 County Owyhee

Block 9 County Elko

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	-	-	-	-	3	4	0	7
2 (7/23-25)	16	10	0	26	6	0	3	9
3 (7/30-8/1)	14	6	11	31	7	6	22	35
4 (8/6-8)	15	20	0	35	14	10	66	90
5 (8/13-15)	17	10	38	65	8	0	8	16
6 (8/20-22)	14	12	18	44	8	4	24	36
7 (8/27-29)	24	12	30	66	4	4	34	42
8 (9/3-5)	15	10	3	28	3	2	19	24
9 (9/10-12)	14	8	30	52	4	4	13	21
10 (9/17-19)	-	-	-	-	1	2	0	3
11 (9/24-26)	-	-	-	-	0	0	3	3

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State UTAH

Block 10 County Box Elder

Block _____ County _____

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	46	50	89	185				
2 (7/23-25)	35	50	90	175				
3 (7/30-8/1)	65	68	205	338				
4 (8/6-8)	68	52	220	340				
5 (8/13-15)	65	60	205	330				
6 (8/20-22)	30	28	83	141				
7 (8/27-29)	59	60	277	396				
8 (9/3-5)	28	34	102	164				
9 (9/10-12)	13	22	43	78				
10 (9/17-19)	4	6	0	10				
11 (9/24-26)	N O T R U N							

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1968

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State CALIFORNIA

Block 11 County Humboldt

Block 11 County Butte-Glenn

Week	No. Doves Seen				Week	No. Doves Seen			
	Single	Pair	Flock	Total		Single	Pair	Flock	Total
1 (7/16-18)	1	0	0	1	28	24	64	116	
2 (7/23-25)	2	0	4	6	38	20	129	187	
3 (7/30-8/1)	1	0	0	1	42	20	109	171	
4 (8/6-8)	2	0	0	2	N O T	R U N			
5 (8/13-15)	2	0	0	2	34	30	33	97	
6 (8/20-22)	1	0	0	1	26	8	60	94	
7 (8/27-29)	0	2	6	8	16	16	41	73	
8 (9/3-5)	0	0	0	0	17	12	8	37	
9 (9/10-12)	0	0	0	0	12	10	14	36	
10 (9/17-19)	0	0	0	0	13	2	0	15	
11 (9/24-26)	0	0	0	0	5	10	3	18	

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1968

State NEVADA

Block 12 County Eureka

Block 12 County *Churchill

Week	No. Doves Seen				Week	No. Doves Seen			
	Single	Pair	Flock	Total		Single	Pair	Flock	Total
1 (7/16-18)	N O T	R U N			-	-	-	-	
2 (7/23-25)	28	36	115	179	-	-	-	-	
3 (7/30-8/1)	59	80	135	274	-	-	-	-	
4 (8/6-8)	46	70	296	412	25	8	0	33	
5 (8/13-15)	54	70	475	599	30	24	21	75	
6 (8/20-22)	38	38	353	429	11	0	8	19	
7 (8/27-29)	31	42	179	252	5	6	3	14	
8 (9/3-5)	7	8	62	77	1	2	0	3	
9 (9/10-12)	4	6	70	80	0	0	0	0	
10 (9/17-19)	1	2	11	14	0	2	7	9	
11 (9/24-26)	0	0	0	0	0	0	0	0	

*replaced Washoe Co. route in 1968

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State UTAH

Block 13 County Juan-Willard

Block 13 County Uintah

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	27	25	0	53	14	12	11	37
2 (7/23-25)	47	62	0	109	9	0	49	58
3 (7/30-8/1)	74	88	129	291	8	6	50	64
4 (8/6-8)	108	128	54	290	8	12	99	119
5 (8/13-15)	42	52	0	94	7	2	106	115*
6 (8/20-22)	26	36	0	62	9	4	24	37
7 (8/27-29)	26	28	0	54	1	2	5	8
8 (9/3-5)	2	8	0	10	2	2	7	11
9 (9/10-12)	1	2	0	3	0	0	0	0
10 (9/17-19)	1	0	0	1	0	0	0	0
11 (9/24-26)	0	0	0	0	0	0	0	0

*road washed out after stop 22-

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State CALIFORNIA

Block 14 County Merced-Stanislaus

Block _____ County _____

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	31	14	30	75				
2 (7/23-25)	19	24	28	71				
3 (7/30-8/1)	25	36	3	64				
4 (8/6-8)	36	26	15	77				
5 (8/13-15)	28	20	97	145				
6 (8/20-22)	19	10	188	217				
7 (8/27-29)	29	18	24	71				
8 (9/3-5)	16	12	51	79				
9 (9/10-12)	7	4	3	14				
10 (9/17-19)	7	4	35	46				
11 (9/24-26)	5	8	15	28				

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1968

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State NEVADA
CALIFORNIA

Block 15 County Nye

Block 15 County Inyo

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	N O T	R U N	(no forms)		2	4	0	6
2 (7/23-25)	N O T	R U N	(no forms)		1	0	3	4
3 (7/30-8/1)	0	0	0	0	0	2	6	8
4 (8/6-8)	4	8	13	25	2	4	3	9
5 (8/13-15)	N O T	R U N			N O T	R U N		
6 (8/20-22)	5	0	3	8	0	0	0	0
7 (8/27-29)	2	0	5	7	1	2	0	3
8 (9/3-5)	N O T	R U N			2	2	4	8
9 (9/10-12)	0	0	0	0	0	2	3	5
10 (9/17-19)	0	0	0	0	1	0	0	1
11 (9/24-26)	N O T	R U N			0	0	0	0

Western Mourning Dove Management Unit
Early Migration of Mourning Dove
Study - 1968

State UTAH

Block 16 County Iron

Block 16 County San Juan

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	6	2	17	25	17	28	25	70
2 (7/23-25)	21	12	10	43	26	34	31	91
3 (7/30-8/1)	25	8	23	56	N O	C O U N T		
4 (8/6-8)	34	18	9	61	14	18	22	54
5 (8/13-15)	15	6	16	37	19	22	30	71
6 (8/20-22)	0	0	0	0	17	36	72	125
7 (8/27-29)	4	2	0	6	23	50	144	217
8 (9/3-5)	4	0	0	4	17	34	28	79
9 (9/10-12)	1	2	0	3	19	20	12	61
10 (9/17-19)	0	0	0	0	12	24	19	55
11 (9/24-26)	0	0	0	0	2	6	31	39

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State CALIFORNIA

Block 17 County Monterey

Block _____ County _____

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	28	30	55	113				
2 (7/23-25)	24	36	51	111				
3 (7/30-8/1)	35	30	177	242				
4 (8/6-8)	27	28	166	221				
5 (8/13-15)	36	38	106	180				
6 (8/20-22)	19	14	213	246				
7 (8/27-29)	30	44	101	175				
8 (9/3-5)	28	40	258	326				
9 (9/10-12)	23	12	139	174				
10 (9/17-19)	15	16	94	125				
11 (9/24-26)	16	22	138	176				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State CALIFORNIA

NEVADA

Block 18 County Tulare

Block 18 County Clark

No. Doves Seen				No. Doves Seen				
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	61	52	150	263	11	8	10	29
2 (7/23-25)	70	52	131	253	17	6	44	67
3 (7/30-8/1)	65	60	321	446	10	10	6	26
4 (8/6-8)	65	90	434	589	9	12	13	34
5 (8/13-15)	88	78	411	577	7	4	0	11
6 (8/20-22)	56	70	1328	1454	3	6	0	9
7 (8/27-29)	49	62	709	820	1	2	0	3
8 (9/3-5)	18	10	17	45	4	0	5	9
9 (9/10-12)	19	24	11	54	1	0	7	8
10 (9/17-19)	15	6	5	26	1	0	3	4
11 (9/24-26)	12	6	0	18	0	2	0	2

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State ARIZONA

Block 19 County E. Coconino

Block 19 County W. Coconino

No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	6	2	11	19	8	14	8	30
2 (7/23-25)	6	2	0	8	10	8	24	42
3 (7/30-8/1)	0	2	0	2	8	12	7	27
4 (8/6-8)	2	0	0	2	7	10	16	33
5 (8/13-15)	0	0	0	0	10	16	12	38
6 (8/20-22)	8	0	0	8	14	14	42	70
7 (8/27-29)	6	2	27	35	5	10	42	57
8 (9/3-5)	1	2	6	9	11	4	46	61
9 (9/10-12)	2	4	0	6	6	2	8	16
10 (9/17-19)	0	0	0	0	3	0	11	14
11 (9/24-26)	0	0	0	0	2	0	0	2

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State CALIFORNIA

Block 20 County W. Riverside

Block 20 County E. Riverside

No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	15	4	5	24	31	24	51	106
2 (7/23-25)	13	2	19	34	26	34	21	81
3 (7/30-8/1)	8	8	12	28	NOT	RUN		
4 (8/6-8)	14	8	49	71	44	28	59	131
5 (8/13-15)	9	4	16	29	42	56	18	116
6 (8/20-22)	10	0	11	21	47	28	41	116
7 (8/27-29)	12	0	34	46	33	26	82	141
8 (9/3-5)	2	0	12	14	13	12	22	47
9 (9/10-12)	3	4	0	7	14	8	3	25
10 (9/17-19)	0	0	0	0	5	2	0	7
11 (9/24-26)	3	2	0	5	3	0	0	3

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State ARIZONA

Block 21 County Navajo-Apache

Block 21 County Maricopa

No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	8	8	15	31	127	94	443	664
2 (7/23-25)	4	8	7	19	51	44	463	558
3 (7/30-8/1)	2	4	14	20	143	100	265	508
4 (8/6-8)	7	4	6	17	97	94	101	292
5 (8/13-15)	16	20	16	52	66	48	200	314
6 (8/20-22)	12	12	9	33	45	32	93	170
7 (8/27-29)	22	14	108	144	64	66	312	442
8 (9/3-5)	55	16	105	176	46	32	76	154
9 (9/10-12)	12	22	49	83	44	40	128	216
10 (9/17-19)	10	12	46	68	41	32	64	136
11 (9/24-26)	4	2	3	7	34	30	107	171

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

State CALIFORNIA

Block 22 County Imperial

Block _____ County _____

No. Doves Seen					No. Doves Seen			
Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	28	18	9	55				
2 (7/23-25)	32	24	19	75				
3 (7/30-8/1)	30	30	8	68				
4 (8/6-8)	18	16	11	45				
5 (8/13-15)	26	6	31	63				
6 (8/20-22)	16	16	20	52				
7 (8/27-29)	22	26	13	61				
8 (9/3-5)	4	4	3	11				
9 (9/10-12)	7	2	0	9				
10 (9/17-19)	6	2	0	8				
11 (9/24-26)	3	0	7	10				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1968

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State ARIZONA

Block 23 County Graham

Block 23 County Pima

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/16-18)	61	64	126	251	23	22	53	98
2 (7/23-25)	49	58	82	189	18	20	25	63
3 (7/30-8/1)	58	74	139	271	29	14	34	77
4 (8/6-8)	47	50	531	628	18	18	17	53
5 (8/13-15)	46	40	280	366	11	20	22	53
6 (8/20-22)	NO DATA AVAILABLE				51	40	155	240
7 (8/27-29)	37	30	373	440	33	28	97	158
8 (9/3-5)	39	62	133	234	34	38	44	116
9 (9/10-12)	33	34	308	375	45	34	84	163
10 (9/17-19)	19	40	277	336	50	38	150	238
11 (9/24-26)	31	38	399	468	58	46	328	432

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State WASHINGTON

Block 1 County Douglas

Block 1 County Chelan

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	36	12	37	85	5	4	0	9
2 (7/22-24)	29	34	27	90	6	12	0	18
3 (7/29-31)	31	28	15	74	NO COUNT			
4 (8/5-7)	51	22	27	100	NO COUNT			
5 (8/12-14)	52	24	29	105	2	4	0	6
6 (8/19-21)	42	32	20	94	4	0	0	4
7 (8/26-28)	12	10	0	22	12	8	11	31
8 (9/2-4)	16	12	5	43	5	0	0	5
9 (9/9-11)	13	2	0	15	5	0	0	5
10 (9/16-18)	8	6	7	21	4	0	0	4
11 (9/23-25)	4	0	0	4	2	0	0	2

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State WASHINGTON - IDAHO

Block 2 County Grant

Block 2 County Okanogan

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	24	16	4	44	39	36	24	99
2 (7/22-24)	NO COUNT				68	78	149	295
3 (7/29-31)	16	30	79	125	40	18	45	103
4 (8/5-7)	14	30	74	118	26	20	75	121
5 (8/12-14)	17	24	79	120	51	12	45	108
6 (8/19-21)	16	18	112	146	20	32	179	231
7 (8/26-28)	15	22	83	120	18	8	29	55
8 (9/2-4)	13	20	50	83	16	12	16	44
9 (9/9-11)	8	12	15	35	4	2	16	22
10 (9/16-18)	3	18	3	24	11	6	0	17
11 (9/23-25)	6	8	17	31	7	4	0	11

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State WASHINGTON - IDAHO

Block 2 County Kootenai

Block _____ County _____

No. Doves Seen

No. Doves Seen

Week:	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	NO COUNT							
2 (7/22-24)	16	14	32	62				
3 (7/29-31)	24	18	23	65				
4 (8/5-7)	12	8	20	40				
5 (8/12-14)	11	6	25	42				
6 (8/19-21)	12	18	36	66				
7 (8/26-28)	12	10	29	51				
8 (9/2-4)	NO COUNT							
9 (9/9-11)	NO COUNT							
10 (9/16-18)	NO COUNT							
11 (9/23-25)	NO COUNT							

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State WASHINGTON - OREGON

Block 3 County Yakima

Block 3 County Wasco

No. Doves Seen

No. Doves Seen

Week:	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	7	4	3	14	19	6	20	45
2 (7/22-24)	14	6	0	20	18	12	33	63
3 (7/29-31)	16	10	3	29	22	20	82	124
4 (8/5-7)	8	22	3	33	18	22	121	161
5 (8/12-14)	NO COUNT				NO COUNT			
6 (8/19-21)	NO COUNT				12	18	94	124
7 (8/25-28)	6	4	3	13	17	8	133	158
8 (9/2-4)	3	2	0	5	8	6	8	22
9 (9/9-11)	3	0	0	3	12	2	24	38
10 (9/16-18)	1	0	0	1	5	0	6	11
11 (9/23-25)	NO COUNT				5	0	5	10

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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WASHINGTON
 State OREGON
IDAHO

Block 4 County Benton

Block 4 County Umatilla

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	3	4	0	7	NO COUNT			
2 (7/22-24)	11	2	7	20	NO COUNT			
3 (7/29-31)	6	2	15	23	52	42	41	135
4 (8/5-7)	7	8	0	15	61	64	145	270
5 (8/12-14)	2	8	0	10	48	46	118	212
6 (8/19-21)	5	2	3	10	52	50	256	358
7 (8/26-28)	4	4	37	45	NO COUNT			
8 (9/2-4)	5	8	0	13	39	40	87	166
9 (9/9-11)	3	2	3	8	25	16	9	50
10 (9/16-18)	5	0	16	21	15	4	43	62
11 (9/23-25)	2	2	0	4	8	2	3	13

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

WASHINGTON
 State OREGON
IDAHO

Block 4 County Nez Perce

Block _____ County _____

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	18	14	24	56				
2 (7/22-24)	18	14	30	62				
3 (7/29-31)	13	22	117	152				
4 (8/5-7)	NO COUNT							
5 (8/12-14)	29	22	18	69				
6 (8/19-21)	NO COUNT							
7 (8/26-28)	NO COUNT							
8 (9/2-4)	6	6	9	21				
9 (9/9-11)	7	8	0	15				
10 (9/16-18)	NO COUNT							
11 (9/23-25)	2	0	3	5				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State OREGON

Block 5 County Lake

Block 5 County Marion - Polk

No. Doves Seen

No. Doves Seen

Week:	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	2	0	0	2	6	4	0	10
2 (7/22-24)	2	0	0	2	2	2	0	4
3 (7/29-31)	2	0	0	2	7	12	0	19
4 (8/5-7)	3	0	13	16	7	8	7	22
5 (8/12-14)	1	0	0	1	11	8	0	19
6 (8/19-21)	3	2	3	8	8	6	16	30
7 (8/26-28)	1	0	8	9	7	6	74	87
8 (9/2-4)	2	0	4	6	5	0	50	55
9 (9/9-11)	2	2	0	4	4	4	19	27
10 (9/16-18)	0	2	0	2	0	3	2	5
11 (9/23-25)	0	2	0	2	5	2	6	13

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State IDAHO

Block 6 County Elmore-Ada

Block 6 County Camas

No. Doves Seen

No. Doves Seen

Week:	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	NO COUNT				NO COUNT			
2 (7/22-24)	NO COUNT				5	4	0	9
3 (7/29-31)	NO COUNT				NO COUNT			
4 (8/5-7)	NO COUNT				NO COUNT			
5 (8/12-14)	24	10	50	84	NO COUNT			
6 (8/19-21)	16	8	49	73	NO COUNT			
7 (8/26-28)	8	6	21	35	3	6	61	70
8 (9/2-4)	5	2	8	15	NO COUNT			
9 (9/9-11)	5	0	0	5	NO COUNT			
10 (9/16-18)	NO COUNT				NO COUNT			
11 (9/23-25)	NO COUNT				NO COUNT			

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State IDAHO

Block 7 County Butte

Block _____ County _____

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	NO COUNT							
2 (7/22-24)	25	12	58	95				
3 (7/29-31)	20	34	38	92				
4 (8/5-7)	30	18	214	262				
5 (8/12-14)	28	46	573	647				
6 (8/19-21)	33	36	438	507				
7 (8/26-28)	33	38	215	286				
8 (9/2-4)	21	12	27	60				
9 (9/9-11)	11	8	53	72				
10 (9/16-18)	8	8	0	16				
11 (9/23-25)	1	0	0	1				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State OREGON - CALIFORNIA

Block 8 County Jackson

Block 8 County Modoc

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	25	4	4	33	6	2	17	25
2 (7/22-24)	23	20	51	94	6	0	28	34
3 (7/29-31)	14	6	3	23	6	4	0	10
4 (8/5-7)	23	6	26	55	4	4	0	8
5 (8/12-14)	14	8	11	33	12	6	15	33
6 (8/19-21)	20	8	0	28	11	14	42	67
7 (8/26-28)	16	12	3	31	11	6	60	77
8 (9/2-4)	11	8	9	26	6	6	3	15
9 (9/9-11)	5	6	5	16	4	4	18	26
10 (9/16-18)	7	10	6	23	5	0	0	5
11 (9/23-25)	4	0	0	4	2	2	0	4

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State IDAHO - NEVADA

Block 9 County Owyhee

Block 9 County Elko

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	NO COUNT				17	4	0	21
2 (7/22-24)	15	22	30	67	8	14	15	37
3 (7/29-31)	NO COUNT				17	12	0	29
4 (8/5-7)	NO COUNT				9	4	3	16
5 (8/12-14)	21	16	8	45	23	20	39	82
6 (8/19-21)	29	16	55	100	23	24	38	85
7 (8/26-28)	23	10	6	39	28	24	134	186
8 (9/2-4)	12	6	0	18	10	38	116	164
9 (9/9-11)	7	6	11	24	12	16	83	111
10 (9/16-18)	5	2	0	7	4	6	10	20
11 (9/23-25)	NO COUNT				0	2	0	2

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State UTAH

Block 10 County Box Elder

Block _____ County _____

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	43	40	61	144				
2 (7/22-24)	40	56	39	135				
3 (7/29-31)	54	48	92	194				
4 (8/5-7)	30	34	320	384				
5 (8/12-14)	43	38	293	374				
6 (8/19-21)	43	34	161	238				
7 (8/26-28)	29	22	39	90				
8 (9/2-4)	10	8	4	22				
9 (9/9-11)	2	0	0	2				
10 (9/16-18)	1	0	0	1				
11 (9/23-25)	0	0	0	0				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State CALIFORNIA

Block 11 County Humbolt

Block 11 County Butte-Glenn

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	0	0	0	0	27	20	9	56
2 (7/22-24)	0	0	0	0	30	10	17	57
3 (7/29-31)	0	0	0	0	21	16	74	111
4 (8/5-7)	0	0	0	0	46	40	27	113
5 (8/12-14)	1	0	0	1	41	22	94	157
6 (8/19-21)	0	6	0	6	56	38	96	190
7 (8/26-28)	0	0	0	0	50	64	245	359
8 (9/2-4)	0	0	0	0	36	20	19	75
9 (9/9-11)	NO COUNT - HEAVY FOG				15	20	13	48
10 (9/16-18)	0	0	0	0	17	12	114	143
11 (9/23-25)	0	0	0	0	9	8	14	31

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State NEVADA

Block 12 County Churchill

Block 12 County Eureka

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	9	2	3	14	14	18	22	54
2 (7/22-24)	7	0	3	10	21	16	60	97
3 (7/29-31)	8	8	9	25	20	14	80	114
4 (8/5-7)	6	2	3	11	11	20	133	164
5 (8/12-14)	14	12	9	35	NO COUNT			
6 (8/19-21)	19	20	246	274	30	20	64	114
7 (8/26-28)	11	0	135	146	23	24	165	212
8 (9/2-4)	7	4	7	18	12	16	33	61
9 (9/9-11)	2	4	0	6	6	6	10	22
10 (9/16-18)	NO COUNT				7	2	14	23
11 (9/23-25)	NO COUNT				3	0	8	11

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State UTAH

Block 13 County Juab

Block 13 County Uintah

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	49	42	40	121	18	30	101	149
2 (7/22-24)	62	112	55	229	14	14	92	120
3 (7/29-31)	98	156	143	397	15	12	17	44
4 (8/5-7)	76	119	48	243	17	2	24	43
5 (8/12-14)	81	120	109	310	13	10	13	36
6 (8/19-21)	93	144	114	351	2	2	11	15
7 (8/26-28)	50	90	51	191	6	4	0	10
8 (9/2-4)	9	24	0	33	6	4	0	10
9 (9/9-11)	2	0	0	2	1	0	6	7
10 (9/16-18)	0	2	0	2	0	0	3	3
11 (9/23-25)	1	0	0	1	NO COUNT			

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State CALIFORNIA

Block 14 County Merced &

Block _____ County _____

Stanislaus
 No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	26	12	17	55				
2 (7/22-24)	30	22	25	57				
3 (7/29-31)	32	18	5	55				
4 (8/5-7)	26	8	18	52				
5 (8/12-14)	26	20	9	55				
6 (8/19-21)	23	10	13	46				
7 (8/26-28)	15	10	6	31				
8 (9/2-4)	10	2	39	51				
9 (9/9-11)	8	6	10	24				
10 (9/16-18)	12	2	0	14				
11 (9/23-25)	5	2	40	47				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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NEVADA
 State CALIFORNIA

Block 15 County Nye

Block 15 County Inyo

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	1	2	10	13	10	6	22	38
2 (7/22-24)	4	8	6	18	6	10	40	56
3 (7/29-31)	4	2	3	9	COUNT DISCONTINUED DUE TO OPERATIONAL PROBLEMS			
4 (8/5-7)	0	0	3	3				
5 (8/12-14)	5	4	0	9				
6 (8/19-21)	NO COUNT							
7 (8/26-28)	NO COUNT							
8 (9/2-4)	0	4	4	8				
9 (9/9-11)	NO COUNT							
10 (9/16-18)	1	0	6	7				
11 (9/23-25)	1	4	0	5				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State UTAH

Block 16 County Iron

Block 16 County San Juan

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	37	28	37	72	NO COUNT			
2 (7/22-24)	59	50	96	205	43	70	84	197
3 (7/29-31)	73	34	48	155	49	72	147	268
4 (8/5-7)	103	106	1012	1221	43	60	123	226
5 (8/12-14)	105	100	295	500	54	118	168	340
6 (8/19-21)	37	23	60	125	30	88	292	410
7 (8/26-28)	15	10	0	25	47	94	112	253
8 (9/2-4)	3	2	0	5	25	16	4	45
9 (9/9-11)	11	2	0	13	16	26	31	73
10 (9/16-18)	5	6	9	20	6	4	15	23
11 (9/23-25)	0	0	0	0	NO COUNT			

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State CALIFORNIA

Block 17 County Monterey

Block _____ County _____

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	52	74	410	536				
2 (7/22-24)	46	70	482	598				
3 (7/29-31)	34	52	479	565				
4 (8/5-7)	58	60	475	593				
5 (8/12-14)	64	52	545	661				
6 (8/19-21)	30	44	711	785				
7 (8/26-28)	38	46	541	625				
8 (9/2-4)	34	52	436	522				
9 (9/9-11)	28	10	680	718				
10 (9/16-18)	33	38	381	452				
11 (9/23-25)	28	22	317	367				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State CALIFORNIA NEVADA

Block 18 County Tulare

Block 18 County Clerk

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	54	68	23	145	15	6	0	22
2 (7/22-24)	77	72	143	292	26	12	3	41
3 (7/29-31)	75	36	27	138	35	8	3	46
4 (8/5-7)	51	26	57	134	22	0	9	31
5 (8/12-14)	43	30	128	201	7	10	0	17
6 (8/19-21)	44	26	61	131	9	0	0	9
7 (8/26-28)	37	28	80	145	5	4	0	9
8 (9/2-4)	20	18	25	63	2	4	0	6
9 (9/9-11)	24	14	15	53	3	0	0	3
10 (9/16-18)	20	12	22	54	4	0	17	21
11 (9/23-25)	20	6	11	37	4	0	0	2

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State ARIZONA

Block 19 County Coconino

Block 19 County Yavapai

No. Doves Seen

No. Doves Seen

Week:	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	9	10	8	27	4	4	0	8
2 (7/22-24)	6	18	13	37	3	0	0	3
3 (7/29-31)	7	10	8	25	5	8	0	13
4 (8/5-7)	10	10	10	30	7	6	20	33
5 (8/12-14)	5	10	7	22	14	0	28	43
6 (8/19-21)	5	8	4	17	13	10	93	116
7 (8/26-28)	2	2	0	4	11	10	29	50
8 (9/2-4)	2	6	8	16	3	4	24	31
9 (9/9-11)	1	2	0	3	2	6	0	8
10 (9/16-18)	2	2	0	4	2	4	3	9
11 (9/23-25)	2	4	0	6	4	0	3	7

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State CALIFORNIA

Block 20 County W. Riverside

Block 20 County E. Riverside

No. Doves Seen

No. Doves Seen

Week:	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	6	8	8	22	36	40	26	102
2 (7/22-24)	23	10	19	52	37	36	45	118
3 (7/29-31)	21	8	35	64	34	18	36	88
4 (8/5-7)	18	9	24	51	42	40	143	225
5 (8/12-14)	30	4	35	69	63	74	63	210
6 (8/19-21)	25	12	20	57	37	24	53	121
7 (8/26-28)	10	2	22	34	86	50	148	284
8 (9/2-4)	11	2	4	17	16	0	8	24
9 (9/9-11)	10	2	6	18	15	10	16	41
10 (9/16-18)	3	4	5	12	7	8	10	25
11 (9/23-25)	5	2	14	21	4	0	12	16

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State ARIZONA

Block 21 County Navajo-Arache

Block 21 County Maricopa

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	7	2	0	9	203	180	277	660
2 (7/22-24)	7	14	20	41	119	82	225	426
3 (7/29-31)	5	16	12	33	195	54	352	601
4 (8/5-7)	5	4	0	9	115	62	386	563
5 (8/12-14)	12	20	0	32	209	72	273	554
6 (8/19-21)	NO COUNT				146	68	254	468
7 (8/26-28)	6	8	7	21	97	40	25	162
8 (9/2-4)	9	6	28	43	110	8	125	243
9 (9/9-11)	12	2	13	27	92	16	144	252
10 (9/16-18)	1	6	13	20	95	8	32	135
11 (9/23-25)	5	6	4	15	89	28	80	197

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

State CALIFORNIA

Block 22 County Imperial

Block _____ County _____

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	17	6	7	30				
2 (7/22-24)	34	10	4	48				
3 (7/29-31)	21	22	14	57				
4 (8/5-7)	20	12	17	49				
5 (8/12-14)	35	26	40	101				
6 (8/19-21)	20	22	27	69				
7 (8/26-28)	2	2	0	4				
8 (9/2-4)	6	6	5	17				
9 (9/9-11)	9	4	0	13				
10 (9/16-18)	3	0	0	3				
11 (9/23-25)	5	0	0	5				

Western Mourning Dove Management Unit
 Early Migration of Mourning Dove
 Study - 1969

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State ARIZONA

Block 23 County Graham

Block 23 County Pima

No. Doves Seen

No. Doves Seen

Week	Single	Pair	Flock	Total	Single	Pair	Flock	Total
1 (7/15-17)	47	46	63	156	15	4	9	28
2 (7/22-24)	55	42	244	341	9	10	27	46
3 (7/29-31)	65	50	48	163	4	2	3	9
4 (8/5-7)	56	56	155	267	24	16	12	52
5 (8/12-14)	50	36	161	256	22	22	19	63
6 (8/19-21)	NO COUNT				19	14	10	43
7 (8/26-28)	131	74	160	365	11	12	26	49
8 (9/2-4)	52	30	78	167	13	18	34	65
9 (9/9-11)	47	34	183	264	5	6	70	81
10 (9/16-18)	35	20	129	184	19	14	13	46
11 (9/23-25)	26	36	215	277	7	8	13	28