

Western White-winged Doves



This management plan is one of a series of cooperatively developed plans for managing various species of migratory birds of the Pacific Flyway. Inquiries about this plan may be directed to member states of the Pacific Flyway Council or to the Pacific Flyway Representative, U.S. Fish and Wildlife Service, 911 N.E. 11 Ave, Portland, Oregon 97232. Information regarding the Pacific Flyway Council and management plans can be found on the Internet at PacificFlyway.gov.

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PACIFIC FLYWAY MANAGEMENT PLAN

FOR WESTERN

WHITE-WINGED DOVES

Prepared for the

Pacific Flyway Council
U.S. Fish and Wildlife Service
Canadian Wildlife Service
Direccion General de Conservacion Ecologica de Recursos Naturales

by the

Western White-winged Dove Subcommittee
of the
Pacific Flyway Study Committee

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Approved:

Chair, Pacific Flyway Council

Date

ACKNOWLEDGMENTS

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PACIFIC FLYWAY MANAGEMENT PLAN

FOR WESTERN

WHITE-WINGED DOVES

INTRODUCTION

The white-winged dove (*Zenaida asiatica*) is one of 14 species of Columbidae occurring in North and Middle America north of Mexico (Aldrich 1993). Twelve subspecies of white-winged doves have been described for North, Central and South America, and the West Indies (Saunders 1968). Of these, four are known to reside and breed in the United States (Western, *Z. a. mearnsi*; Eastern, *Z. a. asiatica*; Big Bend, *Z. a. grandis*; and Mexican Highland, *Z. a. monticola*). Only the Western and Eastern races represent populations of significant size in the U.S. The breeding range of the Eastern white-winged dove encompasses South Texas and the Mexican states of Tamaulipas, Nuevo Leon, Coahuila, and northern Veracruz. Birds from this population migrate through southern Mexico and winter in Central America. The breeding range of the Western white-winged dove extends from southeastern Nevada and southeastern California through most of southern Arizona into southwestern New Mexico, and Baja California and Sonora in Mexico. Virtually the entire Western breeding population migrates to western Mexico, primarily to the states of Jalisco, Michoacan, Guerrero, Colima, and northern Oaxaca (Fig. 1). Unlike the Eastern race, doves from the Western race rarely continue into Central America to winter. Thus, there is little contact between the 2 populations in either breeding or wintering areas. Davis and Jenks (1983) provide evidence that suggests the populations of white-winged doves occurring in the Rio Grande and Pecos Valley and possibly the Otero Basin of New Mexico may be the Mexican Highland subspecies.

By far, the greatest nesting activity for the Western white-winged dove in the U.S. is in Arizona. Breeding population and harvest surveys have been conducted in Arizona since 1962. California began collecting harvest data for Western white-winged doves in 1992. Nevada does not collect population or harvest data specific to white-winged doves. New Mexico began collecting information on white-winged doves in 1992, but most of their harvest occurs in the Central Flyway. Accurate estimates of harvest in New Mexico for the Pacific Flyway portion are not available. Therefore, much of the information within this plan refers to data collected in Arizona.

The purpose of the management plan is to provide guidelines for cooperative management of the Western race of white-winged doves in the U.S. and in Mexico, where practical.



Figure. 1. The principal breeding, wintering, and resident area of migratory white-winged dove populations in North America, from George et al. (1994). Since George et al. (1994) white-winged doves have expanded their range into north-central New Mexico and southern Colorado. These new range expansions most likely are Mexican highland birds.

STATUS

Description

The western white-winged dove displays the typical Columbidae form. The white band across the middle of the wing, which forms a white border along the front of the folded wing is the diagnostic characteristic. In comparison to the more widely distributed mourning dove (*Z. macroura*), the white-winged dove (mean weight 135 g) is somewhat larger (by nearly 30 g) and more grayish in appearance. The white-winged dove head and beak are relatively larger than that of the mourning dove. The beak is slightly downcurved near the tip. Compared to the mourning dove the white-winged dove tail is shorter and more rounded. The iris of the eye is bright red surrounded by a patch of bare blue skin. Cottam and Trefethen (1968) give a more complete description.

Recent History, Distribution, and Density

White-winged doves nest at relatively low densities throughout the Sonoran, Mohave, and Chihuahuan deserts of southern and western Arizona, southern California, and southern New Mexico. However, in riparian woodlands near agricultural areas, populations have historically been present in high densities. Butler (1977) found that birds that nested in high densities in mesquite (*Prosopis* sp) or salt cedar (*Tamarix ramosissima*) had higher nest success. Brown (1977) referred to these nesting concentrations as colonial populations, as opposed to the non-colonial populations in upland desert regions.

Cottam and Trefethen (1968) speculated that white-winged doves may have been relatively uncommon in Arizona prior to the advent of agriculture because of the near absence of white-winged dove remains at prehistoric ruins in Arizona and because early European explorers failed to mention the species in their journals. Although many of the early explorations in Arizona were conducted during cool winter months after white-winged doves had presumably migrated south, some expeditions occurred during the nesting season; surely the dove's presence would have been documented had the populations along the Gila River approached even current densities. Cottam and Trefethen (1968) present arguments that the Imperial Valley population represents a relatively recent range expansion, probably since 1901, as the result of flooding of the Salton Sink and subsequent development of agriculture. In contrast, Brown (1989:239) maintains that white-winged doves were common in Arizona from the beginning of settlement.

White-winged doves are currently expanding their range within the Pacific Flyway into north central Colorado and occasionally appear in southern Colorado. Davis and Jenks (1983) documented the range expansion of this species in New Mexico. The northward range expansion has been particularly evident in the Rio Grande Valley. Other areas of noteworthy expansion of range are the Pecos Valley and Otero Basin in New Mexico. Small numbers of birds do not migrate but overwinter in parts of Arizona and New Mexico.

In recent times, white-winged dove densities have been greatest in areas near agriculture because of the abundance of food available there. Response of white-winged doves to agricultural

activities are well documented and are likely partially responsible for recent large changes in abundance in the southwestern U.S. Eastern white-winged dove populations near Tamaulipas, Mexico increased tremendously following the establishment of grain sorghum fields and irrigation in that area (Purdy and Tomlinson 1991). Rapid declines in white-winged dove populations following either loss of food crops or nesting habitat have been noted in Arizona (Cunningham et al. 1977, Rea 1983) and Mexico (Tomlinson 1993).

Haughey (1986) studied desert nesting white-winged doves and their relationships to saguaro cactus (*Carnegiea gigantea*) in the Saguaro National Monument in southern Arizona, where they are totally dependent on native food sources. Saguaros were used extensively for both nectar and fruit in Arizona. The similarity in the nesting range of white-winged doves and that of the saguaro has been cited by several authors as noted by Haughey (1986). Those areas where white-wings occur and saguaro do not, i.e., southeastern California, southwestern New Mexico, southeastern Arizona and southern Nevada, may represent recent range extensions in response to agriculture.

The Arizona Game and Fish Department has conducted a spring auditory survey, similar to the mourning dove Call-count Survey, since 1962 (Table 1, Fig. 2). The index peaked at 52.3 in 1968 and decreased significantly during the next four years to less than 40. Indices remained fairly stable between 1985–2000. Call counts have declined since then (Fig. 2).

Most of the recent white-winged dove decline in Arizona is due to loss of large nesting colonies in the 1960's and 1970's (due to habitat destruction), shifts in agricultural trends, and possible over harvest. Clearing of the large mesquite forests in river bottoms for flood control and fuel wood removed the most productive nest areas. Large breeding colonies in the past were attracted to and maintained by grain fields that now grow vegetables and cotton. The more dispersed, solitary nesting white-winged populations have been less affected by these changes and have remained relatively stable in Arizona.

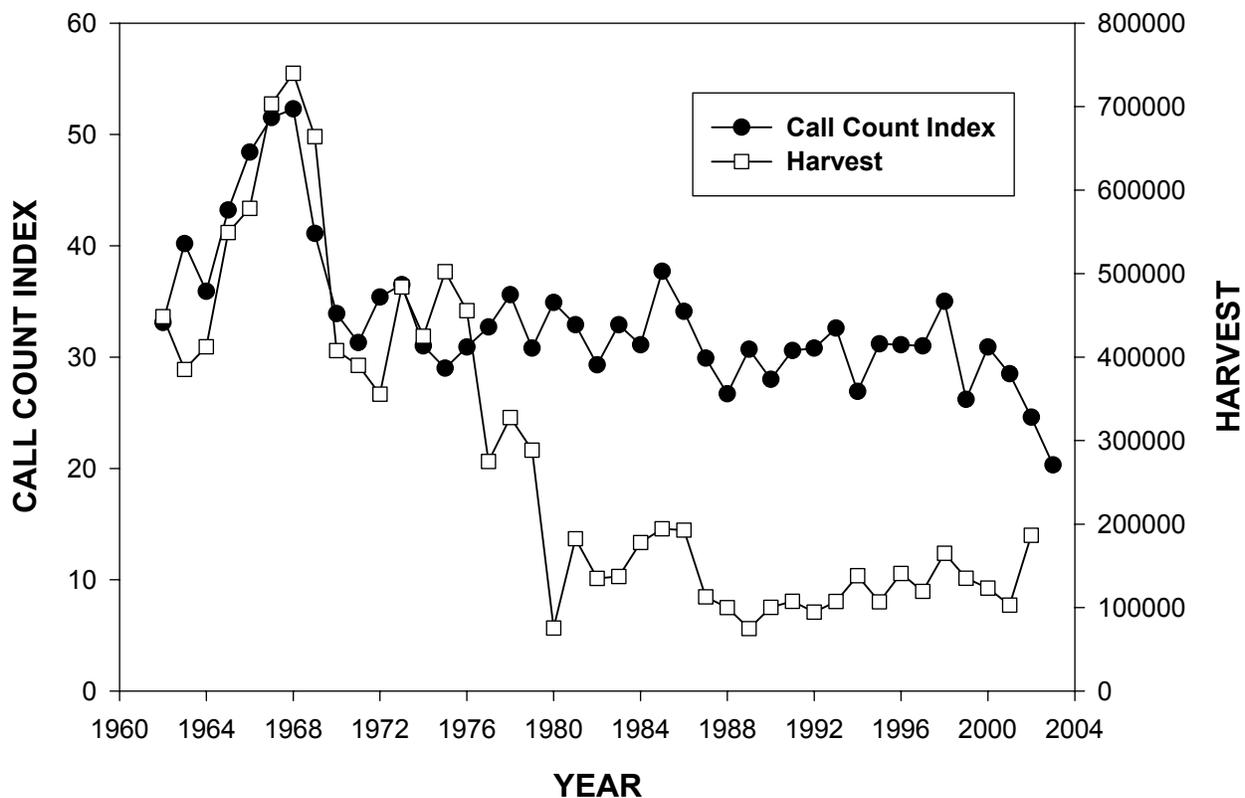


Figure 2. Call count indices (1962–2003) and mail-out harvest estimates (1962–2002) for Western white-winged doves in Arizona.

Harvest

Hunting seasons for white-winged doves have been permitted in Arizona and California since the turn of the century, in Nevada since 1962, and in Mexico for many years. Hunting season dates and bag limits in Arizona have changed significantly during the past 60 years (Appendix; see Cottam and Trefethen 1968:320 for Arizona regulations prior to 1956), becoming much more restrictive since 1970. In California, Nevada, and New Mexico, seasons and bag limits have remained relatively constant; bag limits in these states are in the aggregate with mourning doves. Arizona has conducted random mail surveys of general license holders to obtain harvest statistics specific to white-winged doves since 1962 (Table 1, and Fig. 2). These surveys are sent to general license holders at the end of the season. From 1982 to 2001, the mean number of white-winged hunters per year sampled from this survey was 430. Results of the surveys are then multiplied by the estimated proportion of license holders that hunted doves each year. California has collected harvest information with a random mail survey since 1992 (Table 2). In 1992 New Mexico revised their harvest survey to provide more accurate estimates of white-winged dove harvest. Those harvest estimates are mostly in the Central Flyway portion of New Mexico. Between 1984 and 1999, 12,000–32,000 (mean = 23,000) white-winged doves were harvested in New Mexico. However, random mail surveys (like those conducted in Arizona, California, and

New Mexico) commonly show inflated harvest estimates due to non-response survey bias and poorly-defined sampling frames. Consequently, these harvest estimates should be considered indicative of trend only. Neither California nor Nevada collect information specific to white-winged doves.

In 1992, the Harvest Information Program (HIP) was implemented to coordinate harvest information among states and the US Fish and Wildlife Service. Since 1998, all states (except Hawaii) participate in the program. All dove hunters must register for HIP and surveys are sent to a random sample of registrants before the start of the season in each state. Thus, HIP surveys have a well defined sampling frame of migratory bird hunters. Many state surveys must use a larger sampling frame of license holders only. Because HIP estimates use the same sampling protocol among states, they can be used to manage white-winged dove populations in Arizona, California, Nevada, and New Mexico, regardless of the harvest estimation procedures used in those states (Table 3). Consistent, timely harvest estimates among states are critical for effective dove management.

White-winged dove populations in high-density nesting areas have been subjected to high hunting pressure, particularly during the 1960s when the bag limit in Arizona was 25 birds per day. White-winged doves appear more vulnerable to over harvest than mourning doves (George 1993). A combination of high dove harvest in Arizona during the 1960s (Fig. 2), destruction of river-bottom nesting habitat, and a shift in agricultural crops (substantial shifts from cereal grains to cotton and other non-food crops) (Cunningham et al. 1997) was associated with declining harvests. In response, bag limits were reduced (from 25 per day to 10 per day) in 1970. Continued harvest declines prompted further reduction in bag limits (6 per day) in 1980 where they remain. In 1988, season length was reduced from 3 weeks to 2 weeks and half day shooting was implemented in 1989 (Appendix A).

The white-winged dove harvest in Arizona peaked in 1968 (740,000) and dropped to a plateau of about 400,000 for 7 or 8 years in the mid-1970s. However, it has continued to decline. Although the specific levels of harvest estimates are likely inaccurate, the downward trend is real. The declining harvest trend can be partially attributed to hunting restrictions, but there clearly are far fewer white-winged doves in Arizona now than there were in the 1950s and 1960s. Recent discrepancies between the call-counts and harvest trends appears to be a function of the disproportionate weight given by the call-count survey to desert nesting populations that have not experienced the habitat loss, changes in food availability, and high hunting pressure colonial nesting doves have. Arizona white-winged dove harvest appears to have stabilized since 1/2 day shooting hours were implemented in 1989.

Mean California harvest was 64,644 for 1992-2003 (Table 2). There were peak harvests of over 100,000 in 1994 and 1997. There appears to be no clear upward or downward trend in the California data.

Importance

White-winged doves are important pollinators of saguaro cactus in Arizona. Haughey (1986) noted that white-winged doves visited saguaro blooms more often than any other bird species.

For desert-dwelling doves, 60% or more of the diet is saguaro (Haughey 1986, Wolf and Martinez del Rio 2000). Haughey (1986) suggested that the breeding cycle of these birds is timed to coincide with the saguaro bloom. Fleming et al. (1996) identified white-winged doves as the major vertebrate pollinator of saguaro.

White-winged doves are also popular with non-hunting interests. People in many areas provide feeding stations and water in backyards to attract them for observation. Bird watchers and photographers also avidly pursue white-winged doves for observation and the satisfaction of adding them to their life-lists.

GOAL AND OBJECTIVES

The goal of this management plan is to maintain the western white-winged dove population and its habitat at optimum levels within economic and sociological constraints.

Objectives:

- A. Develop and implement reliable population surveys in all U.S. breeding habitats of the western white-winged dove range and annually compile the data for trend analyses.
- B. Develop and implement hunting harvest surveys specific to white-winged doves in Arizona, California, Nevada, and New Mexico and annually compile the information for trend analyses. These surveys should include standardized wing surveys to estimate productivity in each state.
- C. Maintain and enhance nesting and foraging habitat for white-winged doves
- D. Encourage research regarding the effects of the following on white-winged doves: habitat requirements, agricultural practices, disease, expanding Eurasian Collared doves (a recent exotic), hunting mortality by age and gender, and pesticide and herbicide use.
- E. Maintain and enhance robust, viable populations of white-winged doves throughout their current range.

MANAGEMENT CONCERNS

The large population of white-winged doves in the 1950s and 1960s was the result of abundant feed, in the form of grain crops, in close proximity to stands of dense nesting habitat. Since that time, all components of their habitat has changed. The low market price for grain and reduction in cattle feeding operations has resulted in dramatic reduction in acreage of grain crops grown and subsequent food availability during summer and fall months. A considerable amount of barley is still grown; however, that crop is harvested early in the summer and is often followed immediately by cotton. Thus, a general conversion from grains to cotton and alfalfa has occurred throughout white-winged dove habitat.

Large mesquite bosques that provided ideal, productive nesting habitat were cleared for agriculture or cut for firewood and charcoal. Salt cedar has replaced mesquite in many of the river systems and washes. Salt cedar is extensively used by white-winged doves as nesting habitat but is probably less productive than the mesquite bosques of the past. The flooding that occurred in Arizona in the late 1970s and early 1980s scoured several dense, mature salt cedar stands historically used by nesting doves. Many mature citrus orchards that formerly provided excellent nesting habitat have been lost to urban development.

As a result of changes in farming practices, urban development, water salvage, and flood control, white-winged dove populations declined in the 1980s, especially those associated with agricultural areas. As the number of grain fields declined, birds became concentrated in fewer areas and were consequently more vulnerable to hunters. Nevertheless, hunting seasons were not restricted until that decline was documented by call count and harvest data. The lag in implementing season restrictions probably resulted in hunting pressure accelerating the decline.

Each year by the end of September, most Arizona white-winged doves have migrated to Mexico. Wintering white-winged doves are hunted in Mexico, but the magnitude of the harvest is unknown. White-winged doves appear to migrate directly and rapidly to the central Mexican coast, i.e., few band recoveries occur in Sonora. However, since recent hunting seasons in Sonora and Sinaloa have not opened until early October, migrating birds could migrate rather leisurely with no resulting band recoveries. In the most recent comprehensive band study, Brown (1982) indicated the majority of Arizona preseason banded white-winged doves recovered in Mexico have been recovered along the west coast in the states of Sinaloa, Nayarit, Colima, Michoacan and Guerro. The relative lack of recoveries from Jalisco may reflect lack of hunting pressure or of habitat or both. Reporting of band recoveries in Mexico is complicated by the lack of organization between Mexican wildlife agencies and the US Fish and Wildlife Service. Efforts to establish a toll-free telephone number to report bands recovered in Mexico are ongoing. Documentation of the movements of white-winged dove populations between the U. S. and Mexico needs to be updated.

The effect of biocides, both in the U.S. and Mexico, on white-winged dove populations is little known. Burkenpile et al. (2002) examined the effects of methyl parathion contaminated drinking water on white-winged dove reproduction in the Rio Grande valley in Texas. They found

reduced number of chicks produced by birds that consumed levels greater than 4.5 ppm of contaminant. It seems logical that doves associated with agriculture may be vulnerable to biocide contamination within the Pacific Flyway. Since doves associated with agriculture comprise most of the harvest, any reduction in survival or reproduction due to biocides could influence allowable rates of harvest.

Ingestion of lead shot by white-winged doves is undocumented but likely to affect their health and survival. Ingestion of lead shot has been documented in mourning dove, pheasant (*Phasianus colchicus*), bobwhite (*Colinus virginianus*), and scaled quail (*Callipepla squamata*) (Campbell 1950, Hunter and Rosen 1965, Locke and Bagely 1967, Best et al. 1992). In a study on lead shot ingestion by hunter-killed mourning doves in 7 states, Franson (2002) found 2.5% of birds harvested had ingested 1 or more lead pellet. The highest ingestion rates of any area were in the Yuma and Gila Valley areas (20.8% and 14.0% respectively) of Arizona where white-winged doves are common. Both areas are traditional hunting sites with extensive agriculture. Buerger et al. (1986) found that captive mourning doves that were fed 1, 2, and 4 pellets of #8 shot had higher mortalities than control birds (24%, 60%, and 52% respectively). Shulz et al. (2002) suggested that higher ingestion rates between hatching year birds and after hatching year birds may be a consequence of high lead-induced mortality in hatching year birds. If mortalities and ingestion rates for mourning doves are comparable to white-winged doves, mortality from ingested lead shot should be considered.

MANAGEMENT STRATEGIES

A. Population and Harvest Assessment

1. Estimate harvest of white-winged doves with the Migratory Bird Harvest Information Program. Encourage the development of a similar harvest estimation program in Mexico.
Priority 1
Responsibility: USFWS
2. Establish wing-surveys to estimate productivity of white-winged doves. Sample sizes would need to be large enough to supply reasonably precise estimates; current measures of productivity through check-stations are insufficient.
Priority 1
Responsibility: Arizona, California, Nevada, USFWS
3. Conduct banding program to estimate harvest rate and document migratory patterns for white-winged doves. The most recent banding programs are 20 years old and given recent changes in distribution, need to be revisited.
Priority 1
Responsibility: Arizona, California, USFWS, and Mexico
4. Develop a toll-free number to report bands found in Mexico.
Priority 2
Responsibility: USFWS and Mexico
5. Implement spring white-winged dove call-counts or other inventory methods in suitable areas of distribution in the major states with significant populations of white-winged doves. Encourage Mexico to implement similar programs.
Priority 2
Responsibility: Arizona, California, USFWS, Mexico
6. Inventory existing nesting habitat in high-use areas and identify agricultural trends in those areas to predict recruitment trends.
Priority 2
Responsibility: Arizona, California, Mexico
7. Evaluate the effects of changes in bag limits and harvest structures on harvest of white-winged doves.
Priority 1
Responsibility: Arizona, California, Nevada, New Mexico, USFWS
8. Develop techniques to accurately assign age and gender for live and harvested birds.
Priority 1
Responsibility: Arizona, California, Nevada, New Mexico

9. Investigate the effects of biocides and lead shot on white-winged doves. Estimate rates of lead shot ingestion and effects of lead and biocides on survival and reproduction.

Priority 3

Responsibility: Committee to write study proposal; University or Cooperative Wildlife Research Unit to undertake work.

10. Investigate the effects of trichomoniasis, fowl pox, and West Nile Virus on western white-winged doves.

Priority 3

Responsibility: Committee to write study proposal; University or Cooperative Wildlife Research Unit to undertake work.

ANNUAL REVIEW

The subcommittee shall meet annually, or as needed, to review progress in meeting the goals and objectives of this plan and to recommend revisions. The Western White-winged dove subcommittee is composed of the states of Arizona, Nevada, California and Utah. The subcommittee shall report on progress to the Pacific Flyway Study Committee, to state and federal agencies, and to organizations interested in cooperating in management of western white-winged doves. It will be the responsibility of U.S. Fish and Wildlife Services' Division of Migratory Bird Management to annually update tables on population status and harvest; states will provide harvest figures by June 5 to DMBM for incorporation into an annual status summary for use at the early-season regulation meetings in Washington, D.C.

Rotation of the subcommittee Chairmanship is proposed as follows:

Arizona	Oct. 1, 2003 - Sept. 30, 2004
Nevada	Oct. 1, 2004 - Sept. 30, 2006
USFWS	Oct. 1, 2006 - Sept. 30, 2008
California	Oct. 1, 2008 - Sept. 30, 2010
Arizona	Oct. 1, 2010 - Sept. 30, 2012
Utah	Oct. 1, 2012 - Sept 30, 2014

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Table 1. White-winged dove call-count indices, harvest, and percent young in hunter bags in Arizona. Call-count indices are from routes run concurrent with mourning dove call counts, harvest is estimated from hunter questionnaires, and percent young in the bag is calculated from 2 check stations on the opening day of the season.

Year	Call Count Index	Harvest	% Young in Bag
1962	33.1	448,398	
1963	40.2	385,249	
1964	35.9	412,542	
1965	43.2	549,045	
1966	48.4	578,166	
1967	51.5	703,157	
1968	52.3	740,079	57
1969	41.1	664,053	69
1970 ¹	33.9	407,921	58
1971	31.3	390,016	54
1972	35.4	355,633	79
1973	36.5	484,095	67
1974	31.0	425,127	75
1975	29.0	502,225	58
1976	30.9	455,692	66
1977	32.7	274,998	74
1978	35.6	327,555	65
1979 ¹	30.8	288,516	43
1980 ¹	34.9	75,611	51
1981 ¹	32.9	182,535	65
1982	29.3	134,981	61
1983	32.9	137,284	83
1984	31.1	177,957	82
1985	37.7	194,508	41
1986	34.1	192,734	69
1987	29.9	112,838	78
1988	26.7	99,955	78
1989 ¹	30.7	74,944	73
1990	28.0	100,163	71
1991	30.6	107,455	46
1992	30.8	94,551	63
1993	32.6	107,393	51
1994	26.9	138,080	44
1995	31.2	106,925	51
1996	31.1	140,974	63
1997	31.0	119,446	56
1998	35.0	165,190	41
1999	26.2	135,226	68
2000	30.9	123,259	70
2001	28.5	102,941	74.7
2002	24.6	186,532	61.4
2003	20.3	NA	NA

¹ Change in season arrangements.

Table 2. White-winged dove harvest estimates from California, 1992 to present. Estimates are from mailed hunter questionnaires.

Year	Harvest
1992	64,403
1993	55,363
1994	109,427
1995	63,679
1996	60,183
1997	105,819
1998	39,280
1999	45,711
2000	51,801
2001	60,583
2002	54,834

Table 3. Harvest Information Program (HIP) estimates of white-winged doves within states of the Western Management Unit, by year. Percent precision (+/-) of each estimate is in parentheses. Because the HIP program is still in development, all estimates are preliminary.

Year	State			Western Management Unit
	Arizona	California	Nevada	
1999	86,400 (20%)	36,800 (37%)	100 (143%)	123,300 (18%)
2000	66,200 (22%)	39,800 (53%)	0	105,900 (24%)
2001	97,500 (17%)	45,300 (29%)	100 (112%)	142,900 (15%)
2002	102,700 (16%)	50,000 (37%)	200 (87%)	152,800 (16%)

APPENDICES

APPENDIX A. White-winged dove hunting seasons, bag, and possession limits in Arizona.

Year	Season Dates ¹	Season Length	Bag/possession Limits ²
1956	9/1-10/4 & 12/8-23	34 & 16	12/15
1957	9/1-29 & 12/7-27	29 & 21	25/25
1958	9/1-28 & 12/13-1/3	27 & 23	25/25
1960	9/1-25 & 12/10-1/3	25 & 25	25/25
1961	9/1-24 & 12/9-1/3	24 & 26	25/25
1962	9/1-24 & 12/8-1/2	24 & 26	25/25
1963	9/1-25 & 12/7-31	25 & 25	25/25
1964	9/1-27 & 12/12-1/3	27 & 23	25/25
1965	9/1-26	26	25/25
1966	9/1-25	25	25/25
1967	9/1-24	24	25/25
1968	9/1/24 & 12/11-1/5	24 & 26	25/25
1969	9/1-28 & 12/21-1/11	28 & 22	25/25
1970	9/1-20 & 12/12-1/10	20 & 30	10/10
1971	9/1-12	12	10/10
1972	9/1-12	12	10/10
1973	9/1-23	23	10/10
1974	9/1-22	22	10/10
1975	9/1-21	21	10/10
1976	9/1-20	20	10/10
1977	9/1-25	25	10/10
1978	9/1-24	24	10/10
1979	9/1-23	23	10/10
1980 ³	9/1-28	28	(5/10 North.6/12 South)
1981	9/1-27	27	6/12
1982	9/1-26	26	6/12
1983	9/1-26	25	6/12
1984	9/1-23	23	6/12
1985	9/1-22	23	6/12
1986	9/1-21	22	6/12
1987	9/1-13	21	6/12
1988	9/1-11	13	6/12
1989	9/1-10	10	6/12
1990	9/1-10	10	6/12
1991	9/1-10	10	6/12
1992	9/1-10	10	6/12
1993	9/1-12	12	6/12
1994	9/1-11	11	6/12

APPENDIX A. Continued.

Year	Season Dates ¹	Season Length	Bag/possession Limits ²
1995	9/1-10	10	6/12
1996	9/1-10	10	6/12
1997	9/1-14	14	6/12
1998	9/1-15	15	6/12
1999	9/1-15	15	6/12
2000	9/1-15	15	6/12
2001	9/1-15	15	6/12
2002	9/1-15	15	6/12
2003	9/1-15	15	6/12

¹ Federal white-winged dove frameworks have been set to coincide with those of mourning doves. The frameworks have allowed a white-winged dove season only during the first segment of a split mourning dove season from 1971 to present. From 1983–1986, all WMU states were permitted a mourning dove framework option (including white-wings in CA, AZ, and NV) of 60 days (45 in 1982) and 15/30 aggregate bag/possession. In 1987, WMU states were given the option of a 30-day consecutive day season any time between September 1 and January 15 or a 45 day split season to be divided within two time periods (September 1-15 and November 1 to January 15). In 1992, Arizona was permitted a 60-day split season to be divided within two overall time periods (September 1-15 and November 1-January 15). Shooting hour frameworks were ½ hour before sunrise to sunset throughout the 36-year period. However, Arizona elected to allow only the ½ day white-wing hunting (1/2 hour before sunrise until noon) from 1989–2002.

² Between 1957 and 1979, mourning and white-winged doves had separate limits; since 1980, aggregate bag limits permitting either 10 or 12 doves, no more than 5 or 6 could be white-wings, have been in effect.

³ Arizona was divided into a special white-winged dove zone and the remainder of the state in 1979. Hunting was permitted from noon to sunset during the first 3 days of the season in the special zone. In 1980, the state was divided into North and South zones, that latter having shooting hours of sunrise to noon. Since then season and bag limits have applied statewide.

APPENDIX B. White-winged dove hunting seasons, bag, and possession limits in California.

Year	Season Dates ¹	Season Length	Bag/possession Limits ²
1956	9/1-30	30	10/10
1957	9/1-30	30	10/10
1958	9/1-30	30	10/10
1960	9/1-30	30	10/10
1961	9/2-10/1	30	10/10
1962	9/1-30	30	10/10
1963	9/1-30	30	10/20
1964	9/5-10/14	40	10/20
1965	9/1-10/3 & 12/10-19	33 & 10	12/24
1966	9/1-10/2 & 12/10-18	32 & 9	10/20
1967	9/2-10/11	40	10/20
1968	9/1-30 & 11/30-12/8	30 & 9	10/12
1969	9/1-30 & 11/29-12/14	30 & 16	10/12
1970	9/1-30 & 11/28-12/13	30 & 16	10/12
1971	9/1-30 & 11/27-12/12	30 & 16	10/12
1972	9/1-30 & 11/25-12/10	30 & 16	10/12
1973	9/1-30 & 11/24-12/9	30 & 16	10/12
1974	9/1-30 & 11/23-12/8	30 & 16	10/12
1975	9/1-30 & 11/22-12/7	30 & 16	10/12
1976	9/1-30 & 11/20-12/5	30 & 16	10/12
1977	9/1-30 & 11/19-12/4	30 & 16	10/12
1978	9/1-30 & 11/18-12/3	30 & 16	10/12
1979	9/1-30 & 11/17-12/2	30 & 16	10/12
1980	9/1-30 & 11/15-12/4	30 & 20	10/12
1981	9/1-30 & 11/21-12/10	30 & 20	10/12
1982	9/1-30 & 11/20-12/4	30 & 15	10/12
1983	9/1-30 & 11/19-12/3	30 & 15	10/12
1984	9/1-10/15 & 11/17-12/1	45 & 15	10/12
1985	9/1-10/15 & 11/16-30	45 & 15	10/12
1986	9/1-10/15 & 11/15-29	45 & 15	10/12
1987	9/1-30	30	10/12
1988	9/1-15 & 11/12-12/26	15 & 45	10/12
1989	9/1-15 & 11/11-12/25	15 & 45	10/12
1990	9/1-15 & 11/10-12/24	15 & 45	10/12
1991	9/1-15 & 11/9-12/23	15 & 45	10/12
1992	9/1-15 & 11/14-12/28	15 & 45	10/12
1993	9/1-15 & 11/13-12/27	15 & 45	10/12
1994	9/1-15 & 11/14-12/26	15 & 45	10/12

APPENDIX B. Continued.

Year	Season Dates ¹	Season Length	Bag/possession Limits ²
1995	9/1-15 & 11/11-12/25	15 & 45	10/12
1996	9/1-16 & 11/9-12/23	15 & 45	10/12
1997	9/1-15 & 11/8-12/22	15 & 45	10/12
1998	9/1-14 & 11/8-12/28	15 & 45	10/20
1999	9/1-15 & 11/13-12/27	15 & 45	10/12
2000	9/1-15 & 11/11-12/25	15 & 45	10/12
2001	9/1-15 & 11/14-12/28	15 & 45	10/12
2002	9/1-15 & 11/9-12/23	15 & 45	10/12
2003	9/1-15 & 11/8-12/22	15 & 45	10/12

¹ Federal white-winged dove frameworks have been set to coincide with those of mourning doves. White-winged dove hunting is permitted in Imperial, Riverside, and San Bernadino counties only. From 1983–1986, all WMU states were permitted a mourning dove framework option (including white-wings in CA, AZ, and NV) of 60 days (45 in 1982) and 15/30 aggregate bag/possession. In 1987, WMU states were given the option of a 30-day consecutive day season any time between September 1 and January 15 or a 45 day split season to be divided within two time periods (September 1-15 and November 1 to January 15). In 1992, California was permitted a 60-day split season to be divided within two overall time periods (September 1-15 and November 1-January 15). Shooting hour frameworks were ½ hour before sunrise to sunset throughout the 36-year period.

² Aggregate limits were in effect since 1956, in 1964 and again during 1982–1986, the aggregate bag limit was 12, no more than 10 of which could be white-winged doves.

APPENDIX C. White-winged dove hunting seasons, bag, and possession limits in Nevada.

Year	Season Dates ¹	Season Length	Bag/possession Limits ²
1956	Closed	Closed	0/0
1957	Closed	Closed	0/0
1958	Closed	Closed	0/0
1959	Closed	Closed	0/0
1960	Closed	Closed	0/0
1961	9/1-10/20	50	10/20
1962	9/1-10/20	50	10/20
1963	9/1-10/20	50	10/20
1964	9/1-10/20	50	10/20
1965	9/1-10/20 12/24	50	10/20
1966	9/1-10/20	50	10/20
1967	9/1-10/20	50	10/20
1968	9/1-10/20	50	10/20
1969	9/1-10/20	50	10/20
1970	9/1-10/20	50	10/20
1971	9/1-10/20	50	10/20
1972	9/1-10/20	50	10/20
1973	9/1-10/20	50	10/20
1974	9/1-10/20	50	10/20
1975	9/1-10/20	50	10/20
1976	9/1-10/20	50	10/20
1977	9/1-10/20	50	10/20
1978	9/1-10/20	50	10/20
1979	9/1-10/20	50	10/20
1980	9/1-10/20	50	10/20
1981	9/1-10/20	50	10/20
1982	9/1-10/15	45	15/30
1983	9/1-10/30	60	15/30
1985	9/1-10/20	60	15/30
1986	9/1-10/20	60	15/30
1987	9/1-30	30	10/20
1988	9/1-10/20	30	10/20
1989	9/1-10/20	30	10/20
1990	9/1-10/20	30	10/20
1991	9/1-10/20	30	10/20
1992	9/1-10/20	30	10/20
1993	9/1-10/20	30	10/20
1994	9/1-10/20	30	10/20

APPENDIX C. Continued.

Year	Season Dates ¹	Season Length	Bag/possession Limits ²
1995	9/1-10/20	30	10/20
1996	9/1-10/20	30	10/20
1997	9/1-10/20	30	10/20
1998	9/1-10/20	30	10/20
1999	9/1-10/20	30	10/20
2000	9/1-10/20	30	10/20
2001	9/1-10/20	30	10/20
2002	9/1-10/20	30	10/20
2003	9/1-10/20	30	10/20

¹ Federal white-winged dove frameworks have been set to coincide with those of mourning doves. From 1983–1986, all WMU states were permitted a mourning dove framework option (including white-wings in CA, AZ, and NV) of 60 days (45 in 1982) and 15/30 aggregate bag/possession. In 1987, WMU states were given the option of a of a 30-day consecutive day season any time between September 1 and January 15 or a 45 day split season to be divided within two time periods (September 1-15 and November 1 to January 15). In 1992, Nevada was permitted a 30-day consecutive day season between September 1 and January 15. Shooting hour frameworks were ½ hour before sunrise to sunset throughout the 36-year period.

² Aggregate limits were in effect since 1962, in 1964 and again during 1982–1986, the aggregate bag limit was 12, no more than 10 of which could be white-winged doves.

APPENDIX D. White-winged dove hunting seasons, bag, and possession limits in New Mexico.

Year	Season Dates ¹	Season Length	Bag/possession Limits ²
1956	Closed	Closed	0/0
1957	9/1-25 & 10/1-25	25 & 25	10/10
1958	9/1-10/20	50	10/20
1959	9/1-10/20	50	10/20
1960	9/1-10/30	60	10/20
1961	9/1-10/20	50	10/20
1962	9/1-10/30	60	10/20
1963	9/1-10/30	60	10/20
1964	9/1-10/30	60	10/20
1965	9/1-30 & 11/27-12/26	20 & 30	12/24
1966	9/1-10/2 & 12/3-30	32 & 28	12/24
1967	9/1-10/1 & 12/2-30	31 & 29	12/24
1968	9/1-10/30 & 11/29-12/28	60	10/20
1969	9/1-30 & 11/29-12/28	30 & 30	10/20
1970	9/1-30 & 11/28-12/27	30 & 30	10/20
1971	9/1-30 & 11/27-12/26	30 & 30	10/20
1972	9/1-30 & 11/18-12/17	30 & 30	10/20
1973	9/1-30 & 11/18-12/17	30 & 30	10/20
1974	9/1-30 & 11/23-12/22	30 & 30	10/20
1975	9/1-30 & 11/27-12/26	30 & 30	10/20
1976	9/1-10/30	60	10/20
1977	9/1-30 & 11/24-12/23	30 & 30	10/20
1978	9/1-30 & 11/23-12/22	30 & 30	10/20
1979	9/1-30 & 11/24-12/23	30 & 30	10/20
1980	9/1-30 & 11/22-12/21	30 & 30	10/20
1981	9/1-30 & 11/21-12/20	30 & 30	12/24
1982	9/1-10/10 & 11/20-12/19	40 & 30	12/24
1983	9/1-39 & 11/19-12/18	30 & 30	15/30
1984	9/1-30 & 11/17-12/16	30 & 30	15/30
1985	9/1-30 & 12/1-30	30 & 30	15/30
1986	9/1-30 & 12/1-30	30 & 30	15/30
1987	9/1-30 & 12/1-30	30 & 30	15/30
1988	9/1-30 & 12/1-30	30 & 30	15/30
1989	9/1-30 & 12/1-30	30 & 30	15/30
1990	9/1-30 & 12/1-30	30 & 30	15/30
1991	9/1-30 & 12/1-30	30 & 30	15/30
1992	9/1-30 & 12/1-30	30 & 30	15/30
1993	9/1-30 & 12/1-30	30 & 30	15/30

APPENDIX D. Continued.

Year	Season Dates ¹	Season	Bag/possession Limits ²
1994	9/1-30 & 12/1-30	30 & 30	15/30
1995	9/1-30 & 12/1-30	30 & 30	15/30
1996	9/1-30 & 12/1-30	30 & 30	15/30
1997	9/1-30 & 12/1-30	30 & 30	15/30
1998 ³	North 9/1-10/30, South 9/1-30, 12/1-30	30 & 30	15/30
1999	North 9/1-10/30, South 9/1-30, 12/1-30	30 & 30	15/30
2000	North 9/1-10/30, South 9/1-30, 12/1-30	30 & 30	15/30
2001	North 9/1-10/30, South 9/1-30, 12/1-30	30 & 30	15/30
2002	North 9/1-10/30, South 9/1-30, 12/1-30	30 & 30	15/30
2003	North 9/1-10/30, South 9/1-30, 11/15-12/14	30 & 30	15/30

¹ New Mexico is largely within the Central Management Unit and uses those Federal white-winged dove frameworks.

² In New Mexico, the aggregate bag limit has been 10, 12, or 15 doves, singly or in the aggregate since 1963.

³ New Mexico was divided into North and South zones in 1998. The North zone season was September 1-10/30, and the South zone season was September 1-30 and December 1-30.