



**The 2003
Bird Shooting
Season Report**

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**Prepared by the
National Environment and Planning Agency**

May 2004

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1.0 Introduction

1.1 Regulations

The 2003 Bird Shooting Season was declared under the Wild Life Protection Act. The Regulations enacted were:

- Wild Life Protection Act (Shooting Season) Order, 2003.
- Wild Life Protection (Hunters' Licences) (Amendment) Regulations, 2003.
- Wild Life Protection (Game Bird Hunting Limit) Regulations, 2003.

The provisions under the Wild Life Protection Act (Shooting Season) Order, 2003 were as follows:

- a. The 2003 Shooting Season commenced on the 16th day of August 2003 and ended on the 21st day of September 2003.
- b. Only four species of birds may be lawfully hunted on Saturdays from sunrise to 9:00 a.m. and 2:30 p.m. to sunset; and on Sundays from sunrise to 9:00 a.m. They are the Long-tailed Pea Dove (*Zenaida macroura*), Bald-pate (*Columba leucocephala*), White-winged Dove (*Zenaida asiatica*) and Pea Dove (*Zenaida aurita*).
- c. It revoked the Wild Life Act (Shooting Season) Order 2002.

The Wild Life Protection (Hunters' Licences) (Amendment) Regulations, 2003 addressed the increase of Hunters' Licences fee from Two Thousand Five Hundred dollars (\$2,500.00) to Three Thousand Five Hundred dollars (\$3,500.00) and the Wild Life (Game Bird Hunting Limit) Regulations, 2003 stated the number of birds that may be hunted in any one session or one day.

2.0 Budget

2.1 Expenditure

Projected expenditure for the 2003 Bird Shooting Season was \$3,349,388.00. This took into account data collection, printing of licences and receipt books, public education programme, delivery and collection of licences to vendors, boat rental, travelling and accommodation for monitoring. However, the actual amount spent was \$2,439,918.99.

2.2 Income

Fifteen private business enterprises sold a total of 1,349 licences on behalf of the Authority. National Environment and Planning Agency (NEPA) sold an additional 51 licences. Total income inclusive of late processing fees collected for the 2003 period was \$5,115,472.60.

3.0 **Monitoring**

Eight monitoring teams, comprising of officers from NEPA, the Island Special Constabulary Force (ISCF), Environmental NGO's and Honorary Game Wardens monitored the shooting activities in all parishes.

During monitoring, bag limits, Hunters' and Firearms' Licences were checked and the relevant information recorded on a data sheet. This was submitted weekly as an addendum to the monitoring report to NEPA. One hundred and twenty-two (122) shooting locations across the island were visited and 1,745 checks were made on hunters. The total number of birds recorded as shot during monitoring was 18,221.

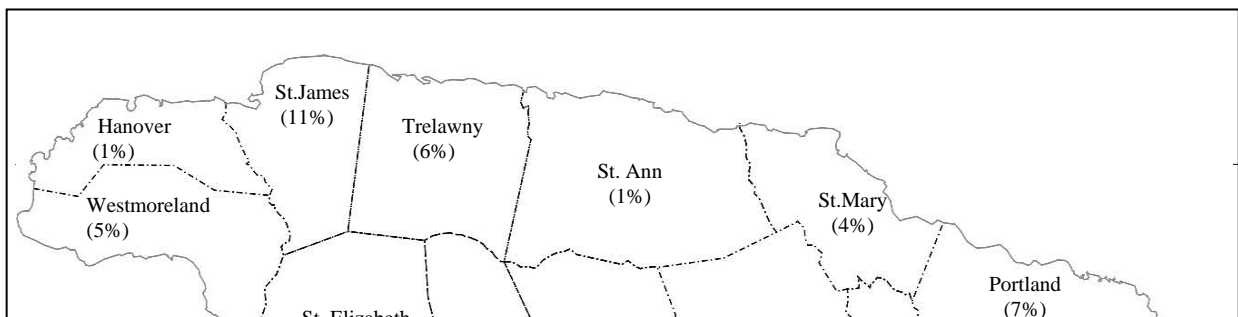
4.0 **Returns**

In accordance with the Wild Life Act (Hunters)(Amendment) Regulations, 1999, all hunters should submit their Hunting Returns to the Natural Resources Conservation Authority by December 31 of each year. On December 31 2003, 1,205 returns were received and by the end of April 2004, an additional 70 bringing the total to 1,275. The following data analysis is based upon these returns.

5.0 **Data Analysis**

5.1 Shooting Activities

Shooting activities for the 2003 Bird Shooting Season was reported for all parishes except Kingston (Figure 1). St. Elizabeth (25%) accounted for the highest percentage, followed by Clarendon (13%), St. James (11%), St. Catherine (11%) and Manchester (8%). The other parishes accounted for the remaining 32%.



The weekly trend (Figure 2) for the island showed a gradual decline in the shooting activity as the season progressed, with the first weekend accounting for 19 % of the total activities and the last weekend 14%.

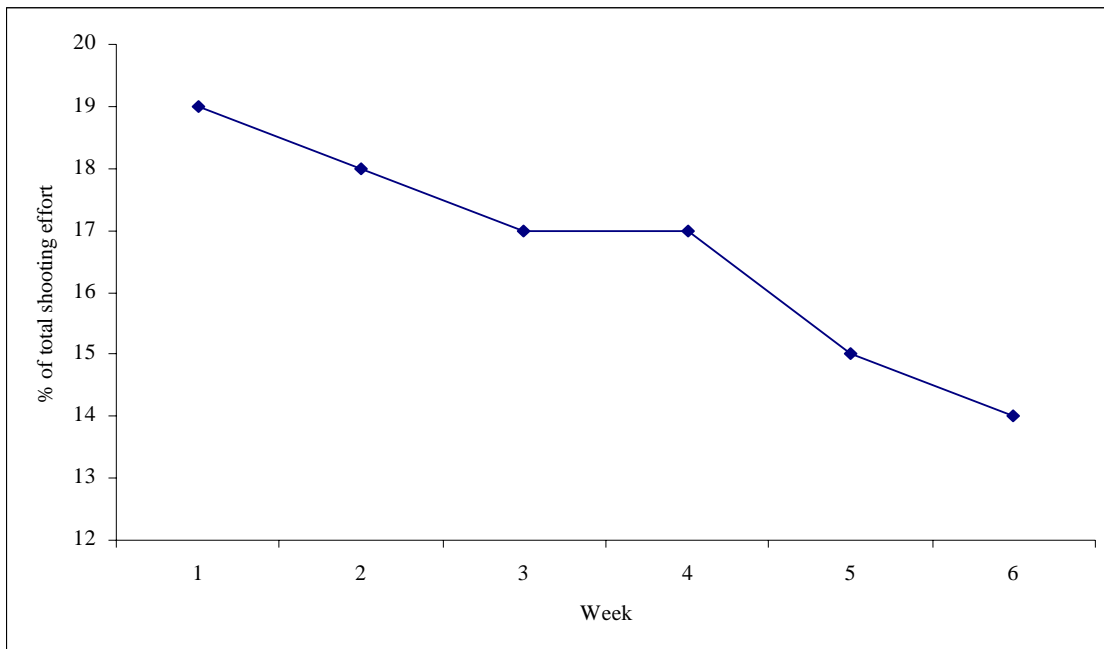


Figure 2. Line graph illustrating the weekly trend in shooting activity for the island during the 2003 Bird Shooting Season

5.2 Game Birds Shot

A total of 127,024 game birds were recorded as being shot during the 2003 Bird Shooting Season (Table 1).

Table 1. Number of Birds Shot for the 2002 Shooting Season.

Game Birds	Total	% of Total
White-winged Doves	55,048	44
Paloma ¹	13,942	11
Bald-pates	55,177	40
Pea Dove	6,857	5
Grand Total	127,024	

With respect to the total number of birds shot, the parish of St. Elizabeth (Table 2) accounted for 27%, followed by St. Catherine (12%), St. James (12%) and Clarendon (11%)

Table 2. Distribution totals, percentages and average birds shoot per session for the various parishes.
NB: WW-White-winged Dove; BP- Bald-pate; PD-Pea Dove.

PARISHES	WW	PALOMA	BP	PD	TOTAL	AV SS	% of TOTAL
Hanover	387	31	256	43	717	12.2	1
St. Andrew	129	4	551	1	685	12.9	1
St. Ann	1142	29	556	121	1848	13.3	1
St. Mary	2096	93	2162	199	4550	11.0	4
Westmoreland	2920	2056	1244	367	6587	13.4	5
Trelawny	2814	412	5239	170	8635	13.8	7
Portland	1735	66	5436	213	7450	9.8	6
Manchester	1657	455	4823	861	7796	9.8	6
St. Thomas	4815	972	2900	242	8929	12.2	7
St. James	3104	361	12120	174	15759	14.1	12
St. Catherine	9469	2299	3526	533	15827	13.4	12
Clarendon	6322	2285	4312	1031	13950	10.1	11
St. Elizabeth	18458	4879	8052	2902	34291	13.4	27
TOTAL	55048	13942	51177	6857	127024	12.3	100

¹ Paloma = Long-tailed Pea Dove = Mourning Dove

At the species level (Table 2), White-winged doves dominated the shoot in the parishes of Hanover, St. Ann, Westmoreland, St. Thomas, St. Catherine, Clarendon and St. Elizabeth; while Bald-pates dominated the shoot in the remaining parishes. Palomas were significant in Westmoreland where it was the second highest.

An examination of the parish totals indicated that St. Elizabeth accounted for the highest total (18,458) in White-winged Doves, Long-tailed Pea Doves (4,879) and Pea Doves (2,902). St. James accounted for the highest total in Bald-pates(12,120).

Despite the fact that St. Elizabeth accounted for the majority of birds shot during the season, on average St. James had more birds (14.1) per session while Manchester and Portland had the lowest, 9.8 birds per session.

The general trend for the season showed a decline in the total number of birds shot as the season progressed (Table 3 & Figure). At the species level, this trend was reflected by the Bald-pates and White-winged Doves. However, there was very little fluctuation in the trends shown by the Pea Dove and the Paloma. Paloma registered its highest total in the second week. In all the six weeks White-winged Doves total exceeded that of the three other species. Bald-pates were second to White-winged Doves.

Table 3. Weekly totals for all four species of game birds shot during the 2004 Bird Shooting Season.

Week	White-winged Doves	Paloma	Bald-pate	Pea Dove	Total
1	13,745	2,475	13,136	1,318	30,674
2	10,795	2,986	10,579	1,275	25,635
3	8,621	2,473	8,406	1,108	20,608
4	7,966	2,113	7,677	1,183	18,939
5	7,309	2,226	6,111	1,010	16,656
6	6,612	1,669	5,268	963	14,512
TOTAL	55,048	13,942	51,177	6,857	127,024

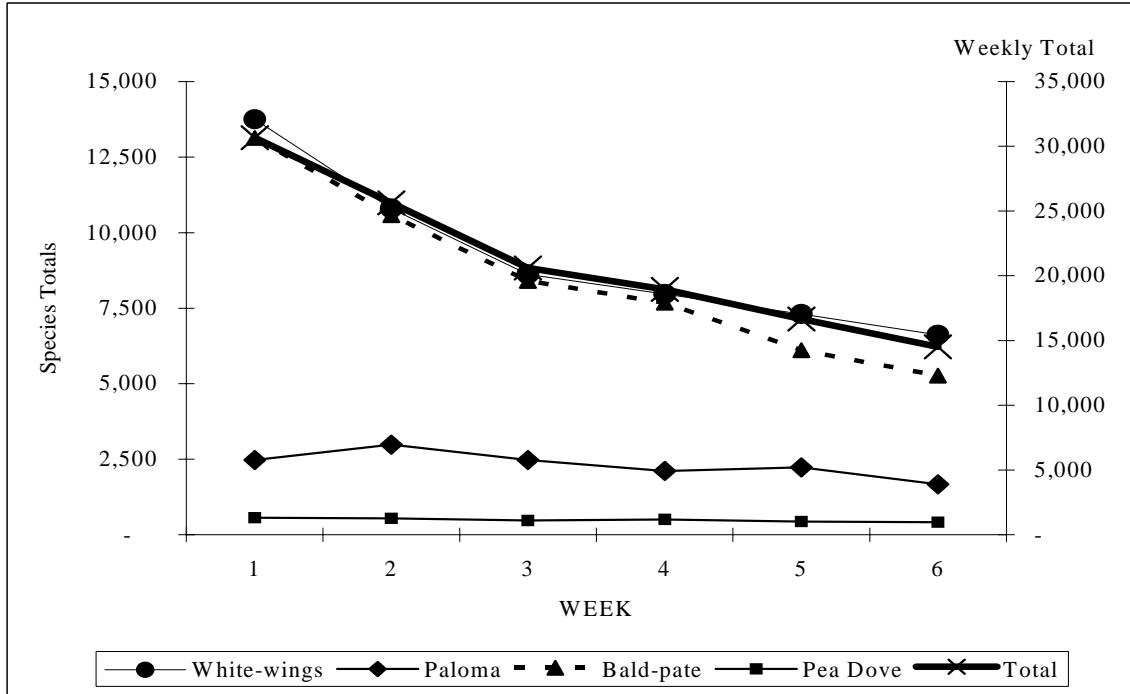


Figure 3. Weekly trend for birds shot and accounted for during the 2003 Bird Shooting Season.

5.3 Vegetation Trend

The majority of shooting activities occurred in inland woodland areas (Figure 4) while only 4% of the shooting activities was reported for mangroves. A similar trend was observed for the number of birds reported for these areas (Figure 5). Of the reported total (127,024) inland woodland accounted for 48% while mangrovs accounted for 4%.

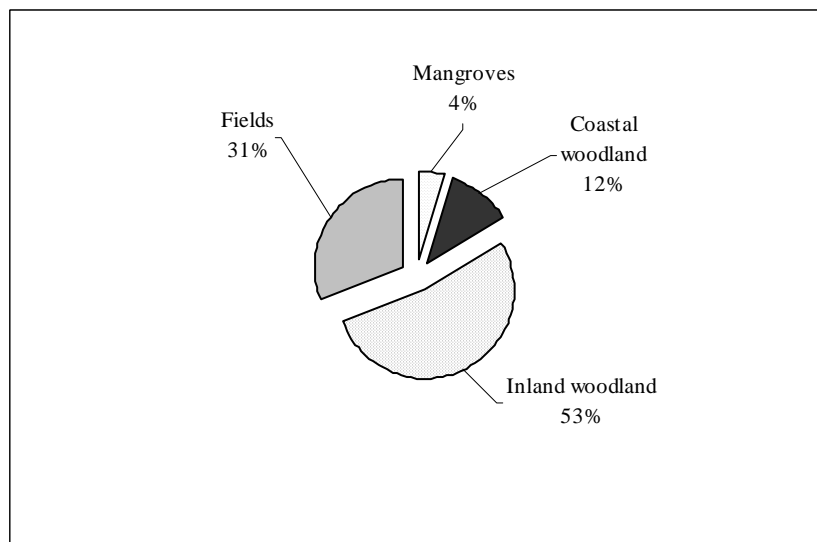


Figure 4. Pie chart illustrating the percentage distribution of shooting activities in the four vegetation types during the 2003 Bird Shooting Season.

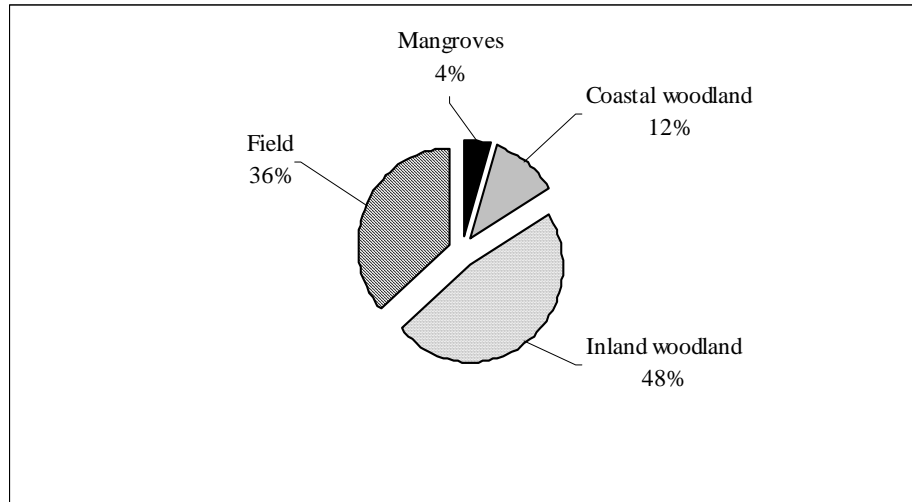


Figure 5. Pie chart illustrating what percentage of the total birds was shot in the vegetation types during the 2003 Bird Shooting Season.

Figure 6 shows the percentage composition of each species for the total number of birds shot in the vegetation types. White-winged Doves were dominant only in mangroves, while the Bald-pate showed dominance in woodland areas. Palomas were dominant in the field.

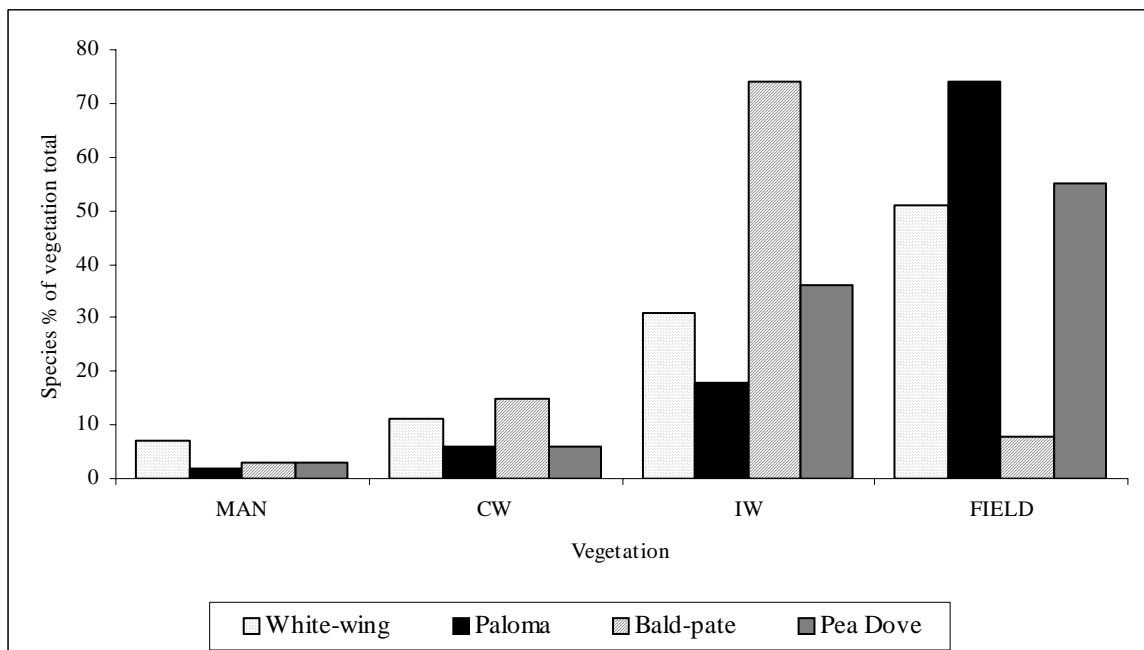


Figure 6 Histogram illustrating the percentage distribution for each species for the total number of birds shot in each vegetation type.

5.4 Weather Trend

Hunters reported that the shooting season was moderate with 61% of the shooting activities recorded as sunny (Figure 7) Figure 8 gives the annual average rainfall for the island in 2003.

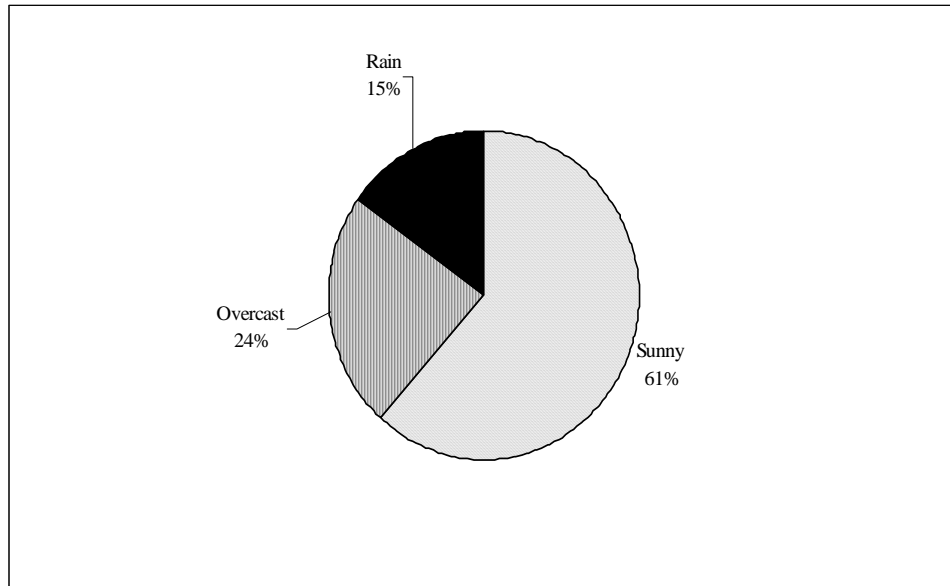


Figure 7. Pie chart illustrating weather patterns for the 2002 Bird Shooting Season.

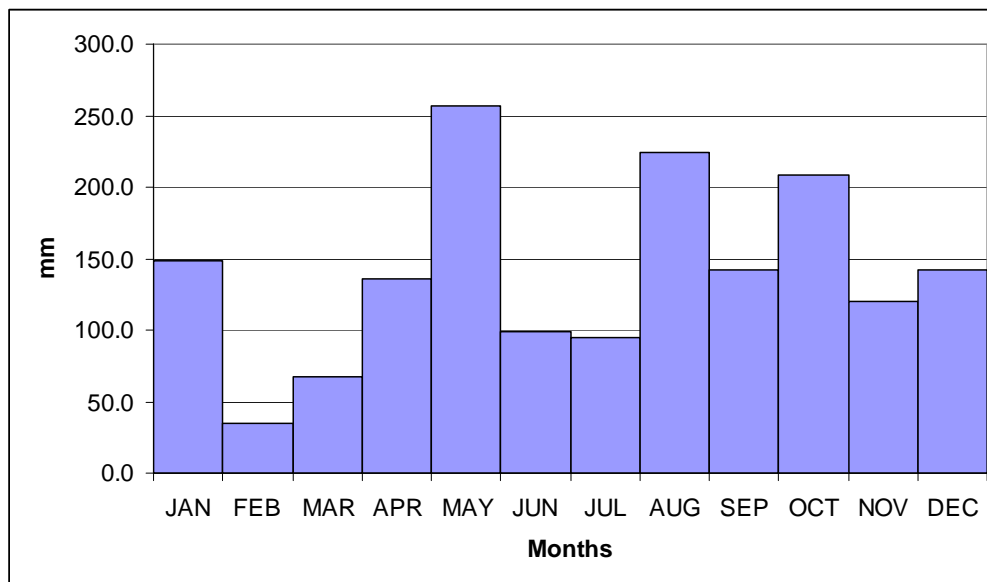


Figure 8. Histogram showing the trend in the island's average rainfall data for 2003. (Courtesy of the Meteorological Service)

6.0 Discussion

Table 1 summarizes the recorded total number (127,024) of birds shot for the 2003 season. White-winged Doves accounted for 44%, Palomas accounted for 11%, Bald-pates accounted for 40% and Pea Dove 5%. During the season the average number of birds shot by each hunter was 122 and considering that 10% of the birds shot were lost in the field. Using the season's average per hunter then by extrapolation the grand total for the 2003 season was 168,945.

This gives the following the results:

# of White-winged Dove	=	74,336
# of Paloma	=	18,584
# of Bald-pate	=	67,578
# of Pea Dove	=	8,447

Table 4. Comparative figures for the 1999 to 2003 Bird Shooting Seasons. NB: WW – White-winged Dove, BP – Bald-pate and * this species was not on the prescribed list for those seasons.

YEAR	PERMITS	WW	PALOMA	BP	PEA DOVE	TOTAL	AVERAGE
1999	1,194	66,692 (40%)	40,016 (24%)	60,023 (36%)	*	166,732	121
2000	1,278	48,585 (41%)	28,440 (24%)	30,743 (35%)	*	118,545	84
2001	1,344	68,675 (41%)	33,500 (20%)	65,356 (39%)	*	167,431	124
2002	1,398	58,380 (35%)	25,020 (15%)	75,060 (45%)	8340 (5%)	166,867	112
2003	1,400	74,336 (44%)	18,584 (11%)	67,578 (40%)	8,447 (5%)	168,945	122

Table 4 gives summary figures for the last five seasons. There is a general increase in the number of licences sold. The 2003 Season recorded the highest number of birds. The best average per hunter for a season was that of the 2001 Season while the worst was the 2002 Season which also recorded the lowest number of birds shot.

At the species level, White-winged Doves dominated the shoot in all the seasons except 2002, where it was dominated by Bald-pates. Not only were the White-winged Doves dominant, but at a considerable high percentage (ranging from 40 to 44). The lowest figure for Bald-pates was in

2000 after which it increased to its highest percentage (45) in 2002, and then fell to 40% in 2003. There has been a steady decrease in the Paloma over the period while the Pea Dove remains the same since their inclusion on the list of game birds to be shot in 2002.

7.0 Violation

During the Season, a number of violations were noted two of which led to court cases. These were:-

- On Saturday September 20, 2003, a monitoring team from NEPA accompanied by officers from the ISCF apprehended, Mr. Andre Dunbar in the Spot Valley area of St. James where he was found with 26 Baldpates and 3 White-winged Doves. He was charged for overshooting the bag limit of 15 Bald-pates. Mr. Dunbar appeared in the Montego Bay Resident Magistrate Court in St James on Wednesday October 1, 2003 where he pleaded guilty to the charges and was fined \$50,000 or six months.
- On Saturday August 23, 2003, Enforcement Officers from NEPA and ISCF apprehended Mr. Eric Brown while he was shooting birds in the Baltimore Area of Portland. He was found in possession of nine birds, five of which were game birds. The other four were one Stripe Headed Tanager, one Mountain Witch and two Partridges. He appeared in the Buff Bay Resident Magistrate's Court on January 28, 2004 where he pleaded guilty to hunting without a Hunters' Licence and unlawful possession of Protected Birds. Mr. Brown was fined \$10,000 or three months in prison on each charge.

General warnings given in the field were:-

- Where persons had one bird above the bag limit.
- Failure to have Hunter's Licence in their possession.

8.0 Recommendations for 2004 Bird Shooting Season

8.1 Duration

The season should commence on Saturday, August 21, 2004 and end on Sunday, September 26, 2004.

8.2 Hunting Days

The hunting days are Saturdays from sunrise to 9:00 a.m. and from 2:30 p.m. to sunset; and Sundays from sunrise to 9:00 a.m.

8.3 Game Birds

During the season only the following game birds should be hunted: Bald-pate (*Columbia leucocephala*), White-winged Dove (*Zenaida asiatica*), Mourning Dove (*Zenaida macroura*) and Pea Dove (*Zenaida aurita*)

8.4 Bag Limit

The maximum number of game birds, which should be hunted by any one person on any one day during a shooting season, should remain in effect. This is as follows:

- a. Where the only game bird being hunted is the Bald-pate:
 - i) thirty on a Saturday, that is to say fifteen during the period from sunrise to 9:00 a.m. and fifteen from the period 2:30 p.m. to sunset.
 - ii) fifteen on a Sunday during the period sunrise to 9:00 a.m.
- b. Where the only game bird being hunted is the Mourning Dove or White-winged Dove or the Pea Dove:
 - i) forty on a Saturday, that is to say twenty during the period from sunrise to 9:00 a.m. and twenty from the period 2:30 p.m. to sunset.
 - ii) twenty on a Sunday during the period sunrise to 9:00 a.m.
- c. Where the game birds being hunted are Mourning Dove and White-winged Dove; or the Mourning Dove and Pea Dove; or the White-winged Dove and Mourning Dove:
 - i) a total of forty on a Saturday, that is to say twenty during the period from sunrise to 9:00 a.m. and twenty from the period 2:30 p.m. to sunset.
 - ii) a total of twenty on a Sunday during the period sunrise to 9:00 a.m.
- d. Where the game birds being hunted are:
 - i) the Bald-pate and Mourning Dove or
 - ii) the Bald-pate and White-winged Dove or
 - iii) the Bald-pate and Pea Dove or
 - iv) the Bald-pate, Mourning Dove and White-wing or
 - v) the Bald-pate, Mourning Dove and Pea Dove or
 - vi) the Bald-pate, White-winged and Pea Dove
 - vii) the Bald-pate, White-winged, Mourning Dove and the Pea Dove,

A total of twenty during each period from sunrise to 9:00 a.m. and from 2:30 p.m. to sunset on a Saturday and from sunrise to 9:00 a.m. on a Sunday of which the maximum number of Bald-pate shall not exceed fifteen.

8.5 Hunters' Licences Fee

The current fee of \$3,500.00 per Hunter's Licence should remain in effect.

8.6 Vendors' Commission

The commission for vendors should remain in effect, that is, \$200 per licences sold.

8.7 Hunters Licences Form B

A database system is now in place to better manage the tracking of licences sold and report forms submitted. A person's name is used as the search criteria, however, this poses a problem when persons do not give full name or correct addresses especially in creating new accounts. As such a unique identification number would make the process easier and more efficient and therefore it is proposed that the Tax Registration Number (TRN) be used for this purpose, therefore the permit is to be amended to reflect the change as shown in appendix

8.8 Game Reserves

8.8.1 St. Catherine

8.8.1.1 Amity Hall

The Amity Hall Game Reserve, at the request of the private landowners, is to be amended to exclude lands which were incorporated into the boundaries when it was first declared.

8.8.1.2 Portmore

All that area of South-eastern St. Catherine which encompasses the communities of Portmore and Greater Portmore will be designated as Game Reserve to reduce the impact of hunting on the communities.

8.8.2 Portland - Port Antonio Corridor

A corridor extending 2 km inland from the coastline, starting at Byrans Bay and extending east to include the towns of Port Antonio, Anchovy Valley, Williamsfield, Drapers and Fairy Hill, will be designated as a Game Reserve to reduce the impact that the shooting during the season has on these communities.

8.8.3 St. Thomas - Holland Bay Game Reserve.

A request has been made for the area to be remapped to exclude the cane lands of the Duckenfield Sugar Estate from the current boundaries. When these reserves were first mapped roads were used as the physical boundaries hence the use of the cane roads and subsequently the solid lands were taken into the reserve. Bearing in mind that most of these game reserves were declared on the basis of being a wetland it is therefore recommended that the area be re-mapped.

8.8.4 Clarendon - West Harbour Game Reserve

A similar approach was taken for the West Harbour Game Reserve as there were concerns of solid and private lands been taken into the boundaries. As such it is recommended that the area be re-mapped.

9.0 Game Bird Wing Assessments - 2003 Season

The following report has been prepared by Dr. Peter Vogel of the Department of Life Sciences, the University of the West Indies

Introduction

In an effort to study the age distribution of columbid game birds in Jamaica, wings of collected birds were assessed over a four year period starting in 2000. The assessments of the 2003 hunting season complete the programme.

Methods

Juvenile pigeons and doves replace their ten primary wing feathers one by one from inside out during their first six month of life. The replaced feathers can be distinguished from the juvenile feathers by colour and shape. It is thus possible to identify the approximate age of juvenile

birds up to six months by their wings. In all four years of the study, over 90% of the birds could be assessed by this method.

The 2003 game bird hunting season lasted for six weeks from August 16 to September 21. Hunters were allowed to shoot in the morning and afternoon of each Saturday, and in the morning of each Sunday. Game species were the White-crowned Pigeon (“Bald Pate”), White-winged Dove (“Whitewing”), Mourning Dove (“Long-tailed Peadove”) and Zenaida Dove (“Pea Dove”). The Zenaida Dove was newly added to the list for the 2002 season. The bag limit was 20 (with a maximum of 15 White-crowned Pigeons).

Prior to the hunting season, the data collectors met at a workshop to standardize assessments. Teams visited hunters in the parishes of Portland, St. Catherine, Clarendon, St. Elizabeth, St. James and Trelawny. The data from Clarendon are not included in the present report. They are being analyzed separately in the context of a postgraduate study at the Department of Life Sciences, UWI.

Results

The number of assessed wings amounted to 2450 in White-crowned Pigeons, 1861 in White-winged Doves, 222 in Mourning Doves, and 145 in Zenaida Doves; the overall total of assessed wings was 4678. White-crowned Pigeons dominated in the parishes of St. James and Portland, and White-winged Doves in St. Catherine and St. Elizabeth (Fig. 9). In Trelawny, similar numbers of both these species were assessed. Mourning and Zenaida Doves represented only a small fraction of the total wings in all parishes. The number of assessed wings steadily declined in the course of the hunting season from 1469 in week 1 to 133 in week 6.

Most birds had at least one juvenile primary retained, indicating an age of less than six months. The percentage of such young animals was 98.1 in White-crowned Pigeons, 97.7 in White-winged Doves, 95.9 in Mourning Doves, and 93.8 in Zenaida Doves.

The distribution of the number of replaced juvenile primaries indicated a strongly seasonal reproductive pattern in all four species (Fig. 11-14). The mode of replaced primaries was six for White-crowned Pigeon, White-winged Dove and Mourning Dove in week 1-2, suggesting a

modal age of about 4 months at the beginning of the hunting season. Amounting to 7-8 in week 1-2, the mode of replaced primaries was somewhat higher in Zenaida Doves, suggesting a modal age of 4-5 months at the beginning of the hunting season. The latter species also showed a strong secondary peak at 3 replaced primaries.

Despite the marked peak, reproduction at a decreased level occurred over a much more extended period and continued throughout the hunting season in all four species. The percentage of very young birds with all 10 juvenile primaries retained (ca. 1 month old) amounted to 6.5 in White-crowned Pigeons, 2.8 in White-winged Doves, 9.5 in Mourning Doves, and 4.8 in Zenaida Doves.

Figures 11-14 demonstrate that the birds were getting older in the course of the hunting season. The peak of replaced juvenile primaries increased by 1-2 from week 1 & 2 to week 3 & 4. Overall, the rate of change suggested a replacement of 2-3 primaries per month.

The age distribution of the collected game birds in 2003 was very similar to the previous three years (Fig. 15-17). Differences indicate small shifts in age peaks of 1-2 weeks between years, and variations in the breadth of the peak. White-crowned Pigeons in 2003 were close to the species averages in the previous 3 years except for a somewhat reduced rate of the oldest two classes of birds. In White-winged Doves, the peak of the number of juvenile primaries replaced shifted from 7 in the previous three years to 6 in 2003. The marked secondary peak observed in Mourning Doves in the previous three years was no longer prominent in 2003.

Patterns of age distribution in White-crowned Pigeons were fairly similar across parishes (Fig. 18). The strongest difference was observed in the height of the modal age class (6 juvenile primaries replaced); about 30% of the birds in Trelawny, but only about 20% of those in St. James and Portland belonged to this class at the beginning of the hunting season. A prominent secondary peak observed in Trelawny in the previous three years was only weakly present in 2003.

Discussion

The results of the 2003 wing assessment fell within the range of results of the previous years, and confirmed a number of consistent patterns:

- Over 95% of the collected birds are less than 6 month old.
- The age of the collected birds suggests a strong breeding peak from April to May.
- Reproduction at lower intensity occurs over an extended period including the hunting season.
- Secondary peaks may occur but vary between bird species, region and year.

Given the overall close agreement in the age distribution of the collected game birds across the four study years, the conclusions of the previous reports can be reiterated.

The most likely explanation for the vast preponderance of young birds is that they flock and accumulate in certain areas that are targeted by hunters because of high returns. This hypothesis is supported by observations of large number of birds appearing in shooting areas 1-2 months before the hunting season.

The timing of the hunting season appears adequate. It occurs several months after the main nesting season. Even though some birds continue to nest during the hunting season, they rarely become the target of hunters. Collecting young birds has probably a lower impact on the population than collecting a similar number of reproductively active animals. A sufficient number of juveniles appear to survive the hunting season. However, this may change if hunting pressure continues to increase, or if exceptional climatic conditions such as hurricanes have a severe impact on survival and reproduction.

The consistency of the results over the four years justifies the decision to discontinue the annual wing assessment, and instead establish a research programme that addresses the hypotheses suggested to explain the high rate of juvenile birds among the collected animals. A study of geographical patterns in seasonal abundance appears most promising.

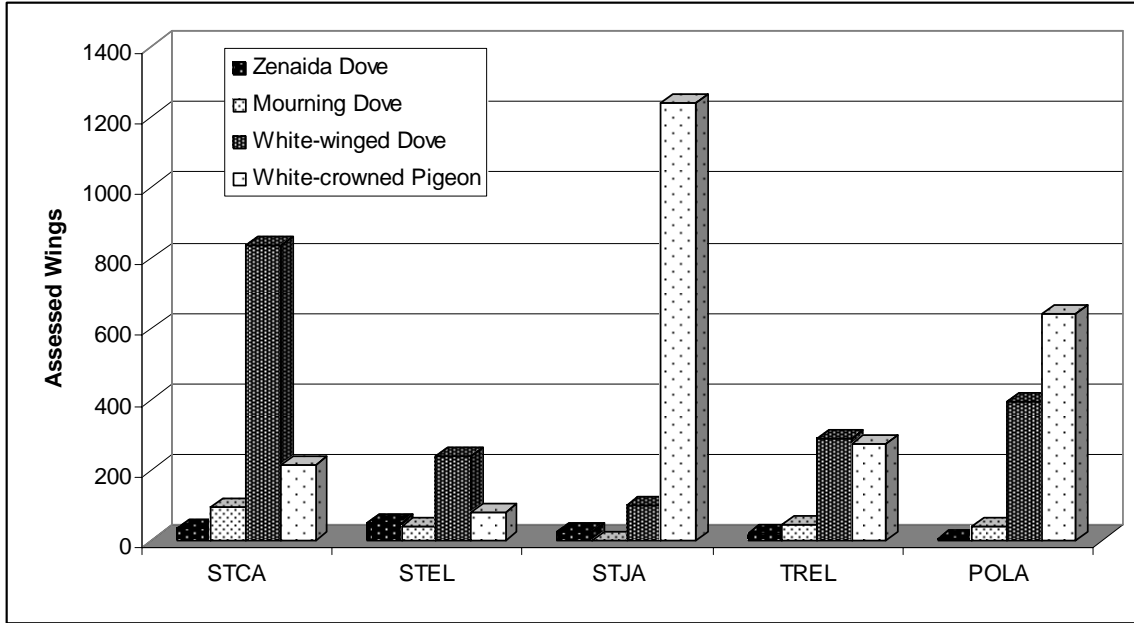


Figure 9. Number of wings assessed by bird species and Parish. STCA = St. Catherine, STEL = St. Elizabeth, STJA = St. James, TREL = Trelawny, POLA = Portland.

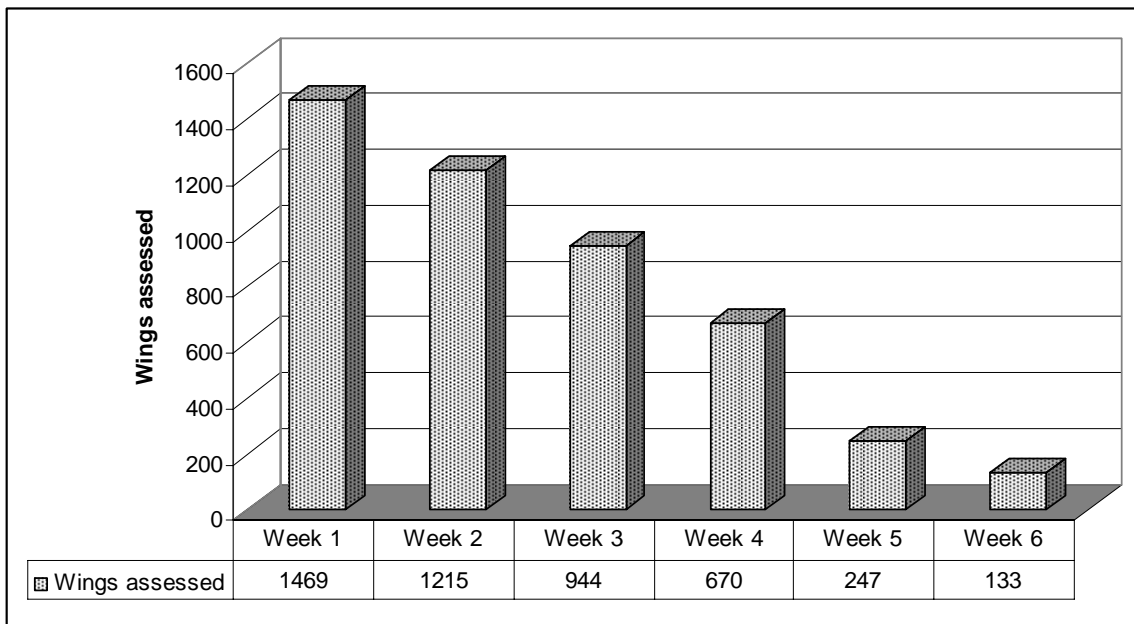


Figure 10. Number of wings assessed by week of hunting season.

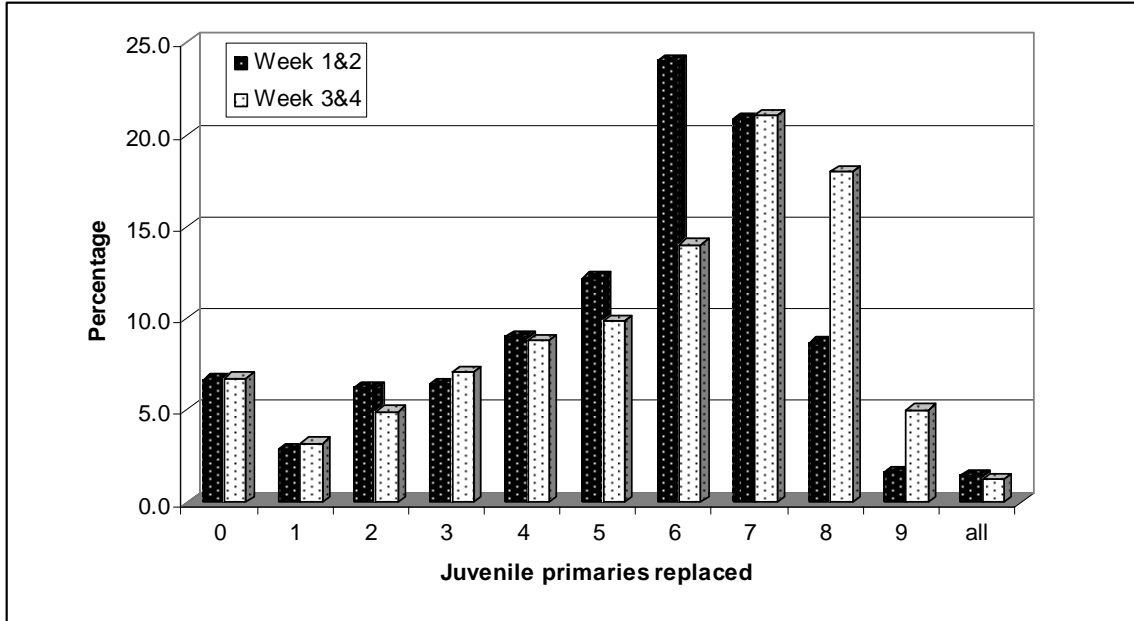


Figure 11. Distribution of replaced primaries in White-crowned Pigeons.

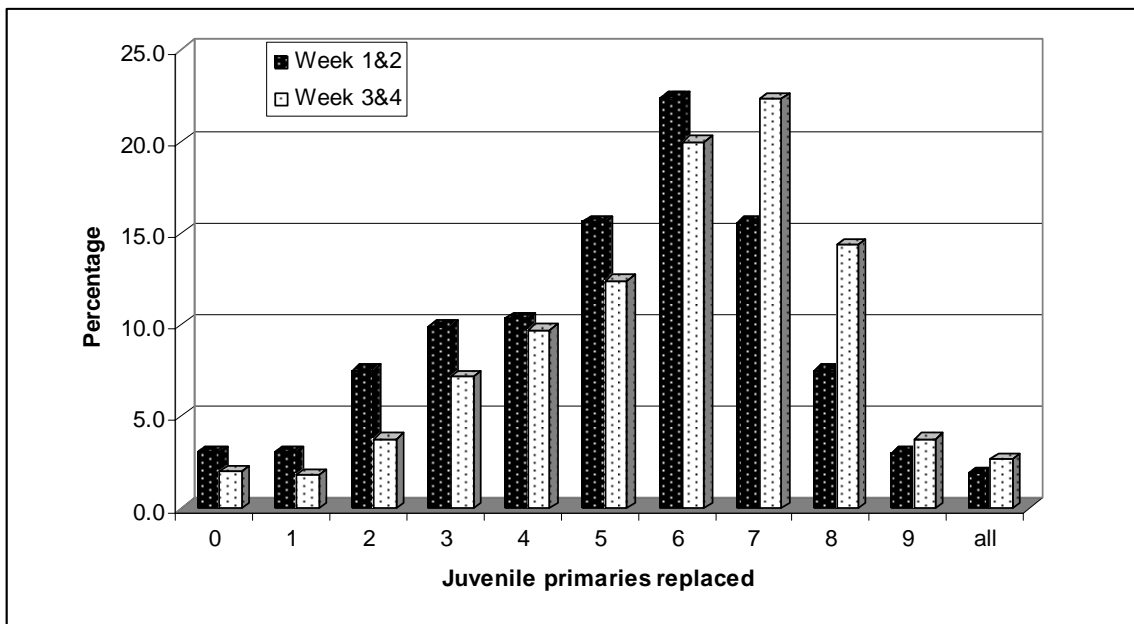


Figure 12. Distribution of replaced primaries in White-winged Doves.

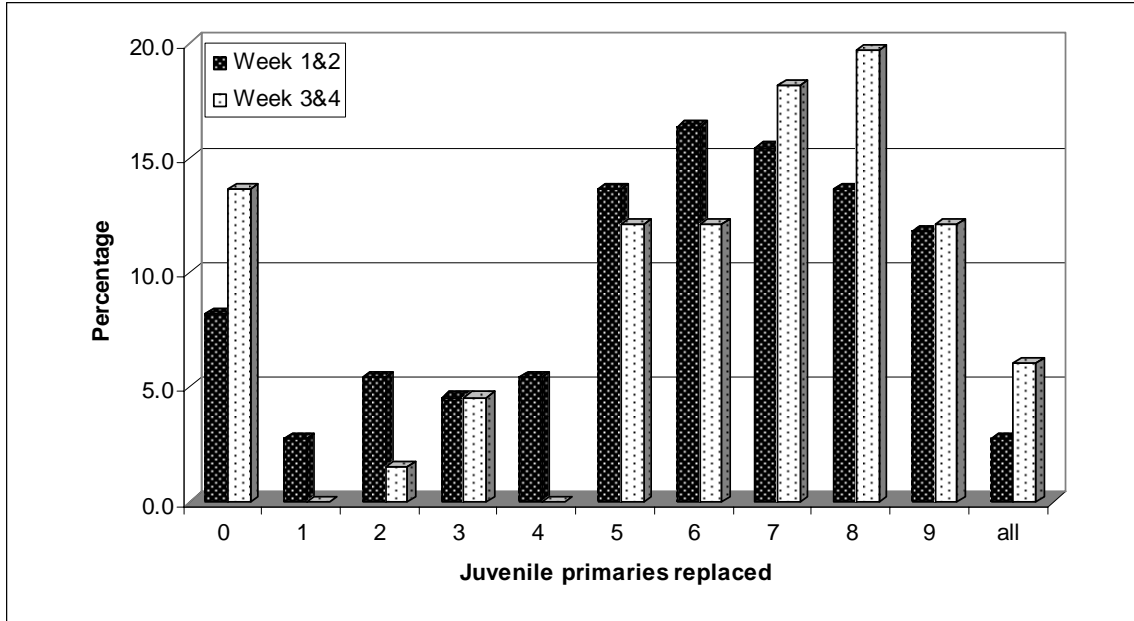


Figure 13. Distribution of replaced primaries in Mourning Doves.

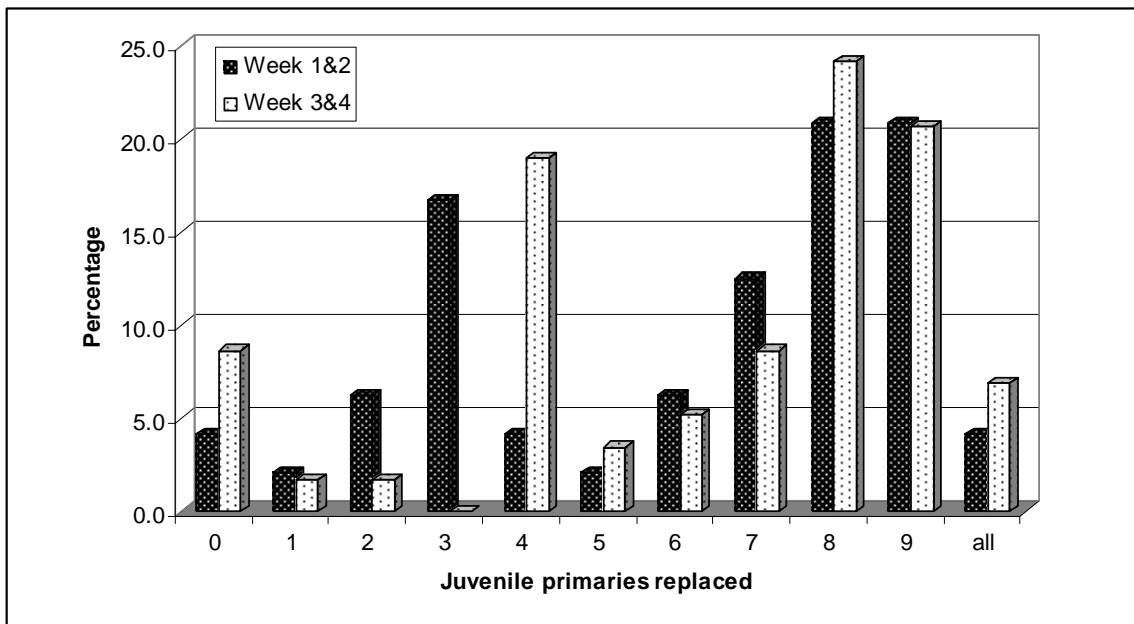


Figure 14. Distribution of replaced primaries in Zenaida Doves.

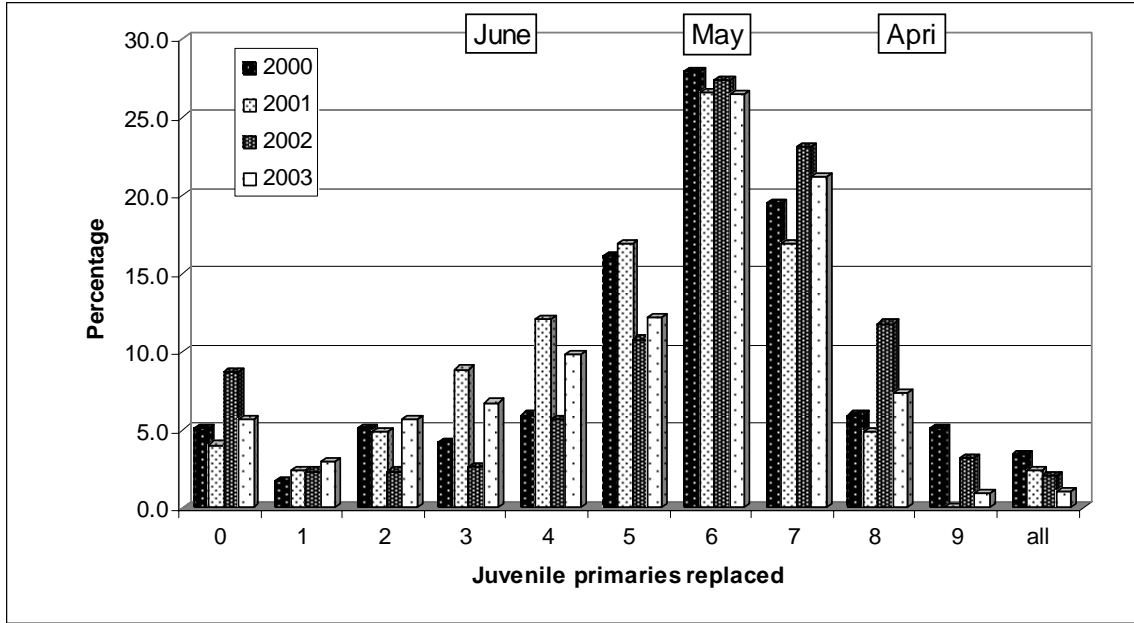


Figure 15. Age distribution of White-crowned Pigeons 2000-2003 at beginning of hunting season. Month labels indicate approximate hatching time.

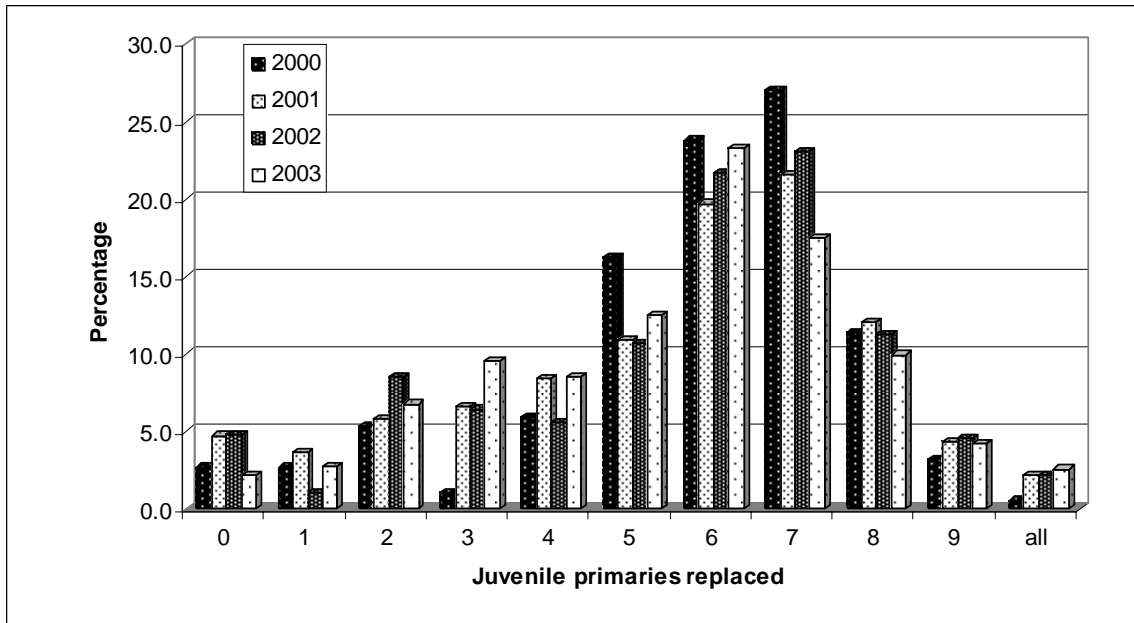


Figure 16. Age distribution of White-winged Doves 2000-2003 at beginning of hunting season.

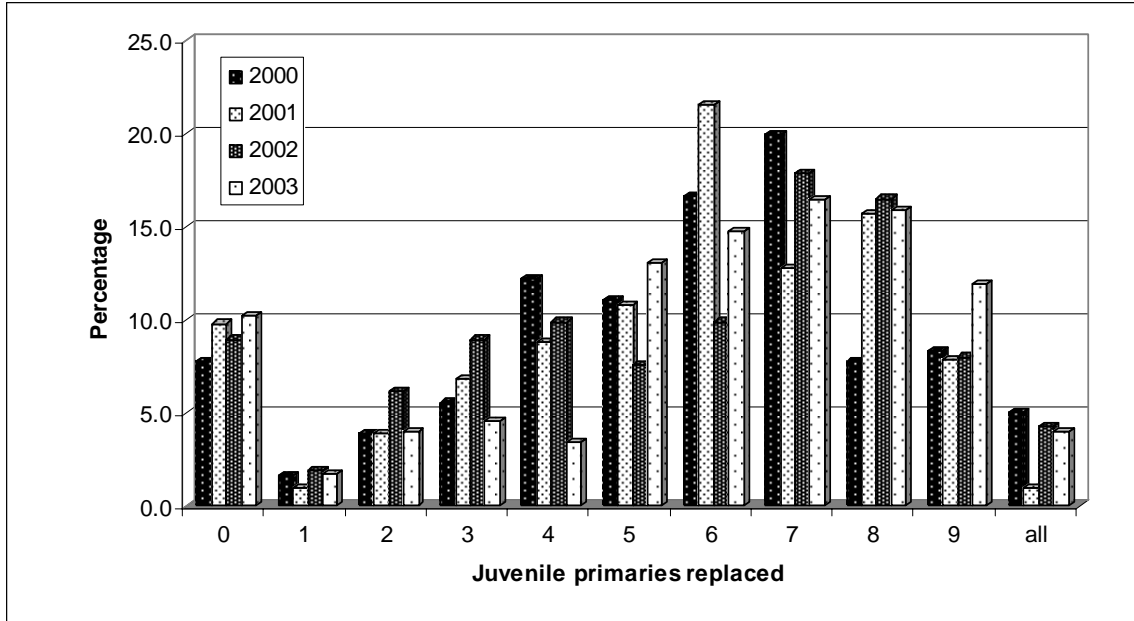


Figure 17. Age distribution of Mourning Doves 2000-2003 at beginning of hunting season.

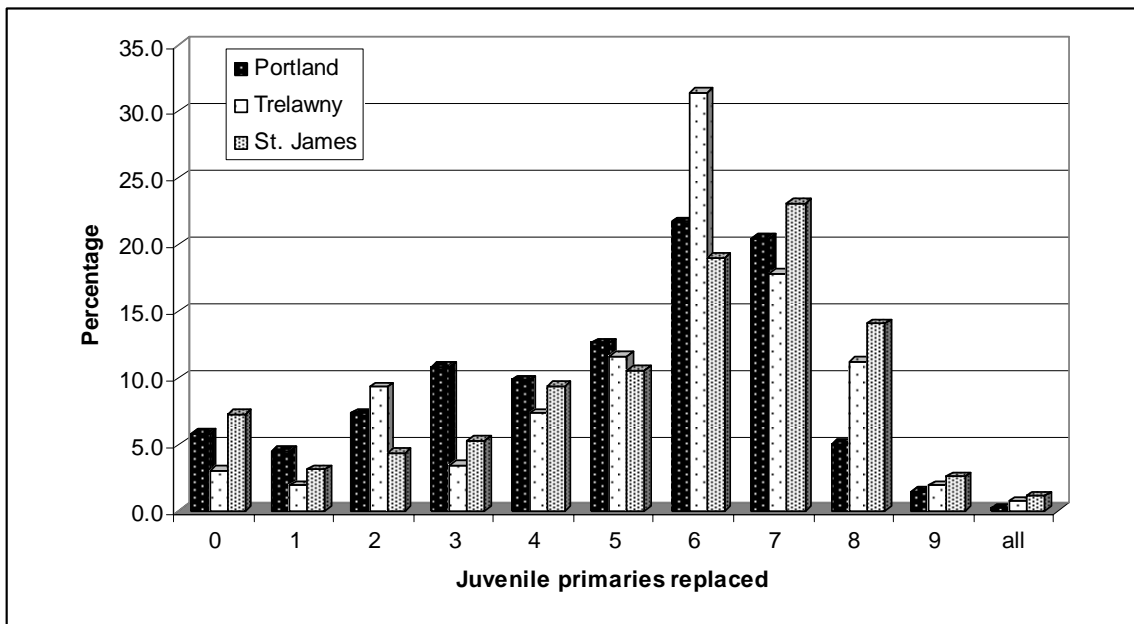


Figure 18. Regional comparison of age distribution of White-crowned Pigeons.