

**PENNSYLVANIA GAME COMMISSION
BUREAU OF WILDLIFE MANAGEMENT
PROJECT ANNUAL JOB REPORT**

PROJECT CODE NO.: 06550

TITLE: Mourning Dove Research/Management

JOB CODE NO.: 55001

TITLE: Mourning Dove Banding

PERIOD COVERED: 1 July 2013 through 30 June 2014

COOPERATING AGENCIES: U.S. Fish and Wildlife Service; U.S. Geological Survey, Biological Resources Division, Bird Banding Laboratory

WORK LOCATION(S): Statewide

PREPARED BY: Lisa M. Williams

DATE: 3 March 2014

ABSTRACT The objective of this project is to band a representative sample of mourning doves (*Zenaida macroura*) as part of a cooperative effort by state and federal agencies to collect data needed for management of this migratory game bird. During summer 2013, 29 individuals banded 1,124 doves at 49 locations in 25 counties and in 18 of 23 Wildlife Management Units throughout Pennsylvania. Of 1,124 doves banded, 407 were adults, 589 were juveniles, and 128 were of unknown age. Adult birds included 268 males, 115 females, and 24 of unknown gender. All Bird Conservation Region level quotas for both adults and juveniles were met. The modified band allocations of 2013 provided the closest fit yet to recommended strata weight goals for the 3 bird conservation regions in Pennsylvania. I recommend we continue dove banding efforts during Fiscal Year 2014 in support of the national cooperative management program.

OBJECTIVE

1. To band a representative sample of mourning doves as part of a cooperative effort by state and federal agencies to produce estimates of age-specific harvest and survival rates, and recruitment rates, in each dove management unit. This data is used in demographic models that are integral to the implementation of the Mourning Dove National Strategic Harvest Management Plan (U.S. Fish and Wildlife Service 2005).

2. Secondary objectives are to provide information on geographic patterns of migration and harvest, and estimates of breeding site fidelity.

METHODS

Levels and distribution of banding effort generally followed those in the Mourning Dove Banding Needs Assessment (Otis 2009), which assigns banding goals for Pennsylvania of 145 adults and 130 juveniles, with effort to be weighted approximately 0.08 to Bird Conservation Region (BCR) 13, 0.66 to BCR 28, and 0.26 to BCR 29 (Fig. 1). Stratum weights are derived from a combination of dove population density based on Breeding Bird Survey data, and the area of the BCR. Due to large within-BCR differences in dove habitat and harvest, banding only the minimum number of doves needed to meet goals would likely produce biased estimates of demographic parameters. To obtain the geographic diversity necessary for a more representative sample, total band allocations were increased proportionally for each BCR, and further stratified by Wildlife Management Units (WMUs). Allocations for individual WMUs were based on a combination of the WMU's proportional contribution to Pennsylvania's dove harvest and logistical considerations.

Dove bands were distributed to various personnel from the Pennsylvania Game Commission (PGC) Bureau of Wildlife Management, PGC regions, temporary employees and volunteers. Bands were allocated for use in 18 of the 23 WMUs in Pennsylvania and in all 6 PGC regions (Table 1). The largest allocation was in the Southeast Region (300 bands), followed by the Southwest (259), Southcentral (250 bands), Northwest (185), Northeast (100), and Northcentral (90) regions. The resulting total allocation was 1,184 bands.

Two doves were banded in June as part of dove banding training sessions. Statewide banding occurred between 1 July and 17 August 2013. Following 1-3 weeks of pre-baiting with small grain, doves were captured in baited Kniffin modified funnel traps (Reeves et al. 1968), and banded with standard U.S. Geological Survey, Biological Resources Division Bird Banding Laboratory (BBL) butt-end metal bands inscribed with a toll-free number for reporting via telephone, as well as an internet website address for online reporting. Research conducted during 2008-2010 indicated that web-address bands have a higher recovery probability than toll-free bands, and a national reporting rate adjustment factor (nationally $P = 1.081$, $SE = 0.027$) has been calculated (Sanders and Otis 2012).

Age and gender were determined for each bird using plumage characteristics (Petrides 1950, Reeves and Amend 1970). Banded birds were assigned an age [hatching year (HY), after hatching year (AHY), or unknown (UNK)] and gender [male (M), female (F), or UNK]. All HY birds were classified as unknown gender. A primary feather molt score was also recorded for each bird; in previous years, this data was used to develop a calibration factor to account for unknown-age wings in the U.S. Fish and Wildlife Service (USFWS) Dove Parts Collection Survey, and it continues to provide state banding coordinators with a quality control check on accuracy of aging. However, molt data are not reported here. Following trapping efforts, banding data was compiled using Bandit software. Electronic files of banding schedules were submitted to the BBL within 2 weeks of the conclusion of field banding efforts, so capture data would be available before the start of the September dove season. All recaptures of doves banded in prior years were also recorded and reported to the BBL.

RESULTS

Capture and banding work was carried out at 49 locations in 25 counties and in 18 of 23 WMUs throughout Pennsylvania between 1 July and 17 August of 2013. Two additional doves were banded in June 2013 as part of dove banding training sessions. Unused bands were returned to the project coordinator immediately after the banding season and will be re-allocated in 2014. Four allocated bands were neither returned nor placed on birds: one was destroyed and three were lost. Twenty-nine individuals banded 1,124 doves (Table 1). These included 407 adults, 589 juveniles and 128 of unknown age. Adult birds included 268 males, 115 females, and 24 of unknown gender. The ratio of known-age birds was 1.45 juveniles per adult, which was equal to that of 2012 and 22% greater than that of 2011 (1.19 juveniles per known adult).

All Bird Conservation Region (BCR) level quotas for both adults and juveniles were met (Table 2). BCR 13 accounted for nearly twice its recommended stratum weight, BCR 28 and BCR 29 fell slightly short of the recommended stratum weights. Recent changes in banding effort in BCR 28 and BCR 29 have resulted in sampling effort between BCRs that now more-closely approximates USFWS recommended strata weight goals than in recent years (since 2009). These allocation changes resulted from the fact that BCR 28 was consistently under-represented in the statewide sample relative to USFWS goals. Addressing this under-representation was a priority in 2013. Actions taken to adjust sampling intensity have served to more-closely achieve desired goals and will be maintained in 2014 if staffing permits.

RECOMMENDATIONS

1. Continue operational dove banding efforts during Fiscal Year 2014 in support of the national cooperative research and management program. Continue to allocate band numbers, weighted for dove harvest density, by WMU to meet BCR quotas and to obtain a representative sample and approximate recommended strata weight goals.

2. Acquire and distribute bands and equipment to field personnel for 2014 banding effort by 1 July 2014.

3. Participate as needed with USFWS, Eastern Management Unit (EMU) Dove Technical Committee, and Atlantic Flyway Migratory Game Bird Technical Section in analysis of banding data and in ongoing evaluation and attainment of EMU banding goals.

4. Analyze harvest distribution and derivation of doves banded and recovered in Pennsylvania.

LITERATURE CITED

Otis, D. L. 2009. Mourning dove banding needs assessment. U.S. Geological Survey Iowa Cooperative Fish and Wildlife Research Unit, Ames, Iowa, USA.

Petrides, G. A. 1950. Notes on determination of sex and age in the woodcock and mourning dove. *Auk* 67(3):357-360.

Reeves, H. M., A. D. Geis, and F. C. Kniffin. 1968. Mourning dove capture and banding. U.S. Fish and Wildlife Service Special Scientific Report 117, Washington, D.C., USA.

Reeves, H. M., and S. R. Amend. 1970. External age and sex determination of mourning doves during the pre-season banding period. U.S. Fish and Wildlife Service Mimeograph, Washington, D.C., USA.

Sanders, T. A., and D. L. Otis. 2012. Mourning dove reporting probabilities for web-address versus toll-free bands. *The Journal of Wildlife Management* 76:480–488.

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Table 1. Numbers of mourning doves banded, by age, sex and Wildlife Management Unit, in Pennsylvania during the 2013 banding season.

WMU ^a	Region(s)	Bands Allocated	Doves Banded					Total
			AM ^b	AF	AU	JUV	UNK	
1A	NW	100	6	6	9	73	6	100
1B	NW	60	13	1	0	46	0	60
2A	SW	25	6	1	0	18	0	25
2B	SW	73	3	3	0	66	1	73
2C	SW	61	4	1	0	46	10	61
2D ^c	NW,SW	125	23	14	2	70	15	124
3B	NC	50	19	1	0	13	17	50
3C	NE	25	12	0	0	12	1	25
3D	NE	25	10	0	0	7	8	25
4A ^{c,d}	SC	75	17	4	1	7	3	32
4B ^c	SC	25	10	7	0	2	5	24
4C	NE,SE	50	8	7	0	22	8	45
4D	NC, SC	65	25	7	1	9	9	51
4E	NE, SE	25	1	0	0	23	1	25
5A ^d	SC	100	21	30	8	70	13	142
5B ^c	SE	150	43	21	2	49	9	124
5C	SE	125	47	11	1	32	22	113
5D	SE	25	0	1	0	24	0	25
Total		1,184	268	115	24	589	128	1,124

^a No bands allocated or used in WMUs 2E, 2F, 2G, 3A, or the newly-created 2H

^b AM = adult male, AF = adult female, AU = adult unknown sex, JUV = juvenile, UNK = unknown age

^c Single band destroyed or lost from allocation

^d Forty-two unused bands from WMU 4A re-allocated to WMU 5A

Table 2. Numbers of adult and juvenile mourning doves banded, by Bird Conservation Region, in Pennsylvania during the 2013 banding season, and comparison to BCR banding goals.

BCR	Adults		Juveniles		BCR Proportion of Total ^a	Stratum Weight
	Banded	Goal	Banded	Goal		
13	35	12	119	11	0.15	0.08
28	246	95	365	85	0.61	0.66
29	126	38	105	34	0.23	0.26

^a calculations based on known-age birds only

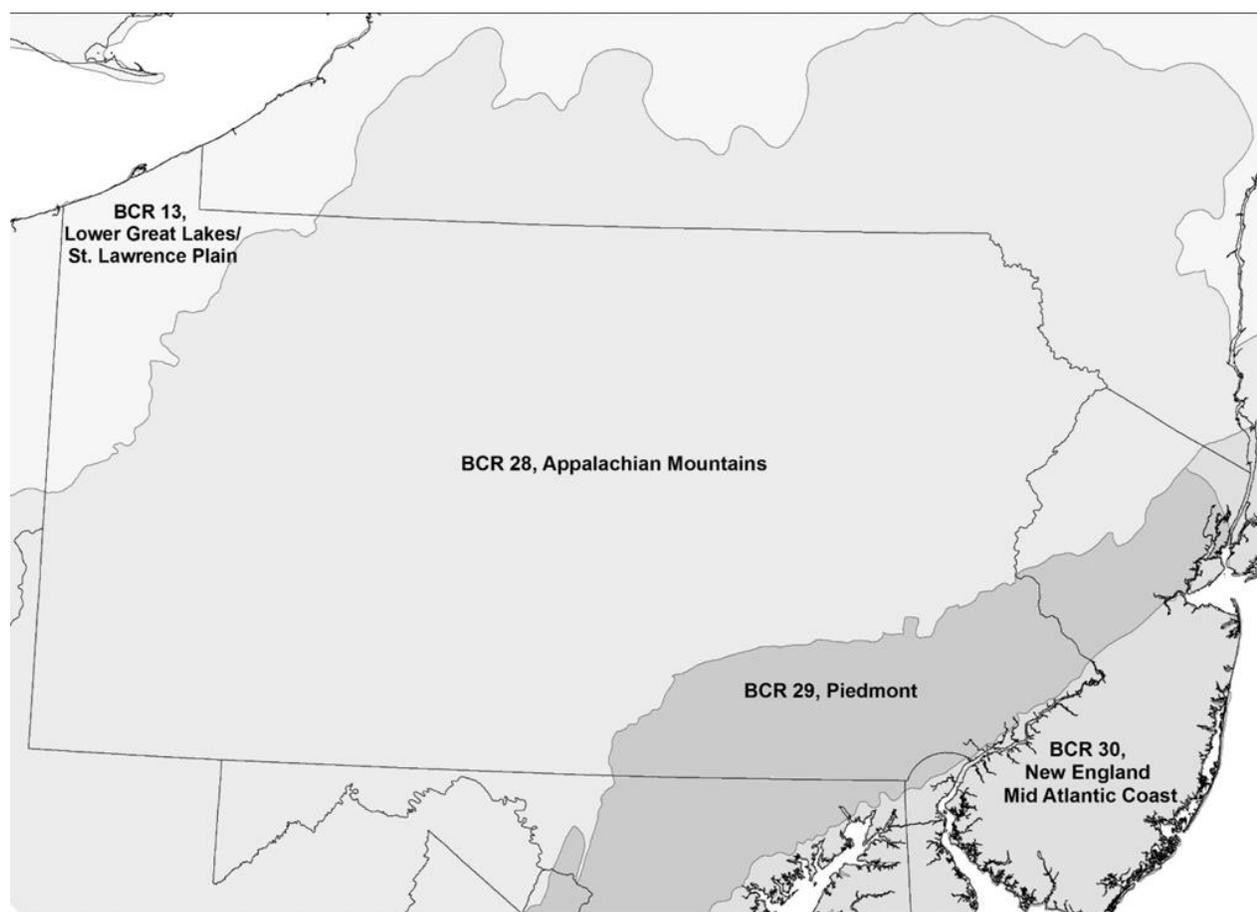


Figure 1. Bird Conservation Regions in Pennsylvania.