

2016-17 NORTHERN BOBWHITE POPULATION STATUS REPORT



KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES



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METHODS

The 2016-17 Northern Bobwhite Population Status Report is a compilation of three surveys the Kentucky Department of Fish and Wildlife Resources conducts annually to monitor quail production and hunter success. First, the **Quail Wing Survey** provides samples that can be used to determine the age and sex of quail. Juvenile quail wings collected from successful quail hunters across the state are backdated to determine the hatch date, which allows us to identify peak hatching and length of the nesting season. Additionally, juvenile to adult female ratios can be generated to estimate annual recruitment rates. Second, the **Quail Hunter Log Survey** summarizes hunting activity and success of hunters across the state. With that information, we can create population trends from flush and harvest data and track hunter effort and success. Finally, the rural mail carriers of Kentucky contribute observations from their routes through the **Mail Carrier Survey**. During the last full week of July, rural route carriers record quail observations and miles driven. We use that information to develop an index of the population and as a means to make predictions about the upcoming hunting season.

All surveys are strictly voluntary and we strongly encourage all Kentucky quail hunters and rural mail carriers to participate in these surveys. Hunter cooperators receive this report, detailing the past year's hatch, hunting season results, and expectations for the upcoming season. Cooperators also receive a new hunting log and wing envelopes for the upcoming season and a small gift of appreciation for their participation. Participating mail carriers receive a subscription to *Kentucky Afield* magazine for their support.

RESULTS AND DISCUSSION

I. Quail Wing Survey

Envelopes were provided to quail hunters prior to the 2016-17 hunting season. Successful quail hunters mailed in one wing from each harvested bird.

Age of the harvested birds was determined by measuring the length of certain primary feathers (Petrides 1942, Petrides and Nestler 1943, Rosene 1969). Juveniles were backdated from date of harvest to determine the primary hatching dates for the nesting season. Hunters in the field, utilizing instructions on the wing collection envelopes, determined the sex of collected individuals.

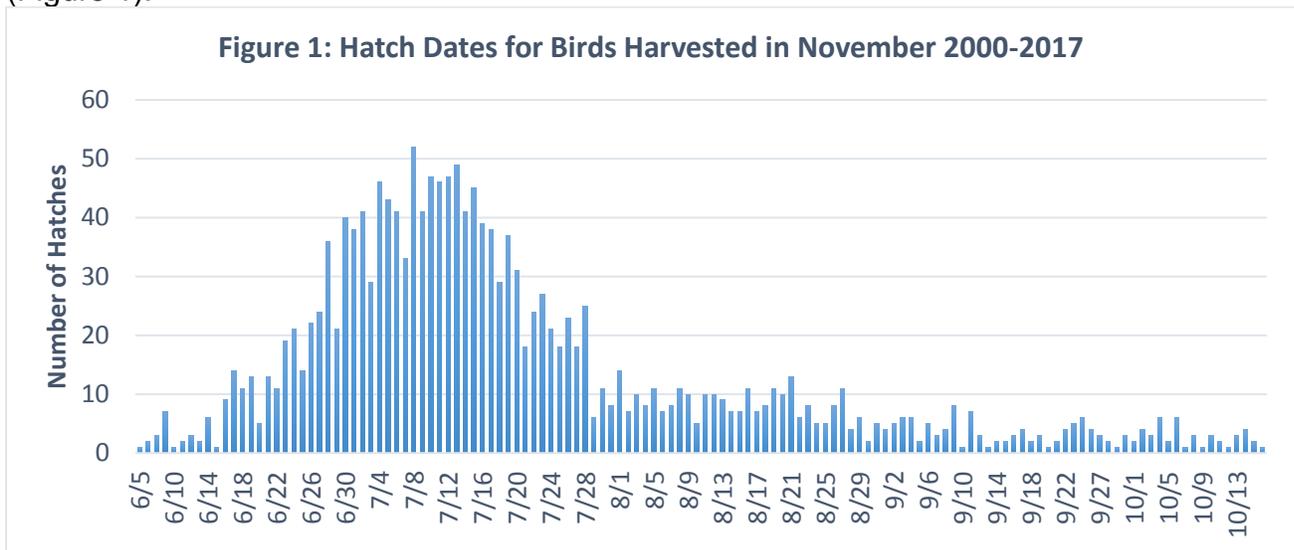
2016-17 Wing Data

- Hunters mailed in 100 wings.
- Juvenile = 72% Adult = 28%
- Male = 61% Female = 38%

Wing Data 2000-2017

We have data for the Quail Wing Survey going back to 2000. By pooling these data, we are able to get a better picture of the hatch dates across years in the Commonwealth. If we further pool these data by considering only birds harvested in November we will be able to get our best guess as to when the peak hatch occurs in the summer, due to the greater number of older birds harvested as the season goes on. These older birds that are harvested as the season goes on become a less reliable form of capturing the peak hatch because the feathers we use to measure for the aging process are completely grown and no longer tell us the exact hatch date.

It appears that the peak hatch in Kentucky spans from late June to early-mid July (Figure 1):



II. Hunter Log Survey

The Quail Hunter Log Survey is a diary-type log that hunters keep to date throughout the hunting season. Hunters record specific information about their hunts including date, hours hunted, number of hunters, coveys flushed, number of birds harvested, among others.

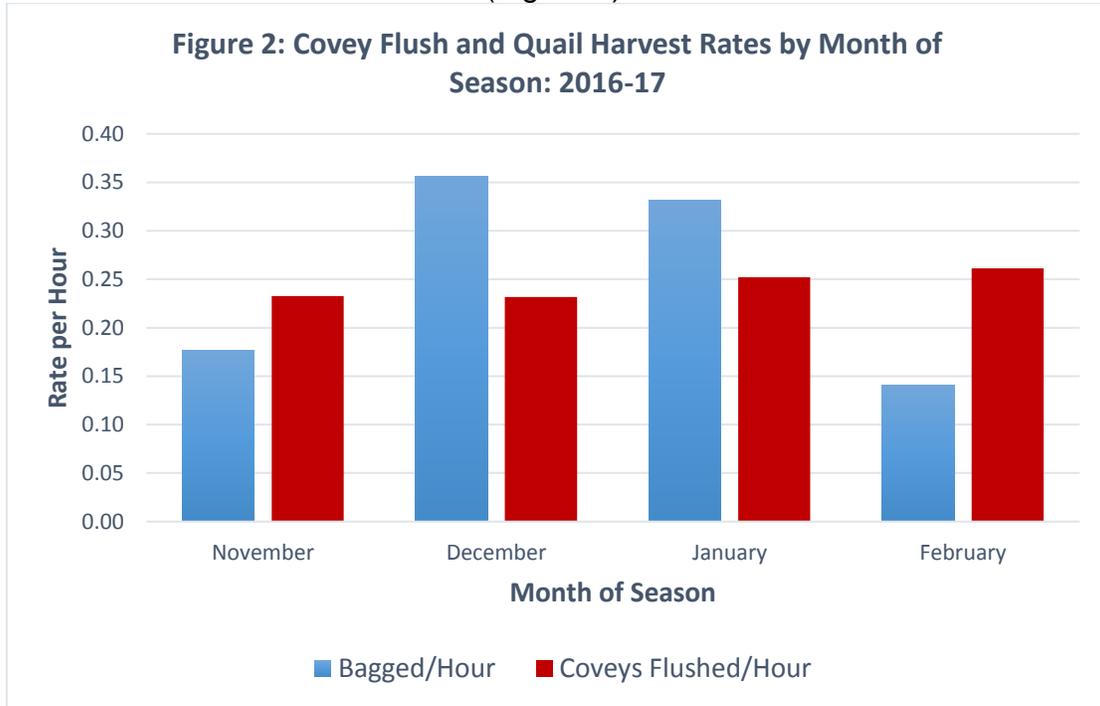
- Hunting logs were received from 23 hunters.
- Hunters averaged 9 quail hunts during the 2016-17 season.
- Average hunt lasted 2.9 hours.
- Data were provided from 208 quail hunts.
- Hunters averaged 0.82 quail killed/hunt.

The most important data collected from the hunter logs are the flush and bag rates.

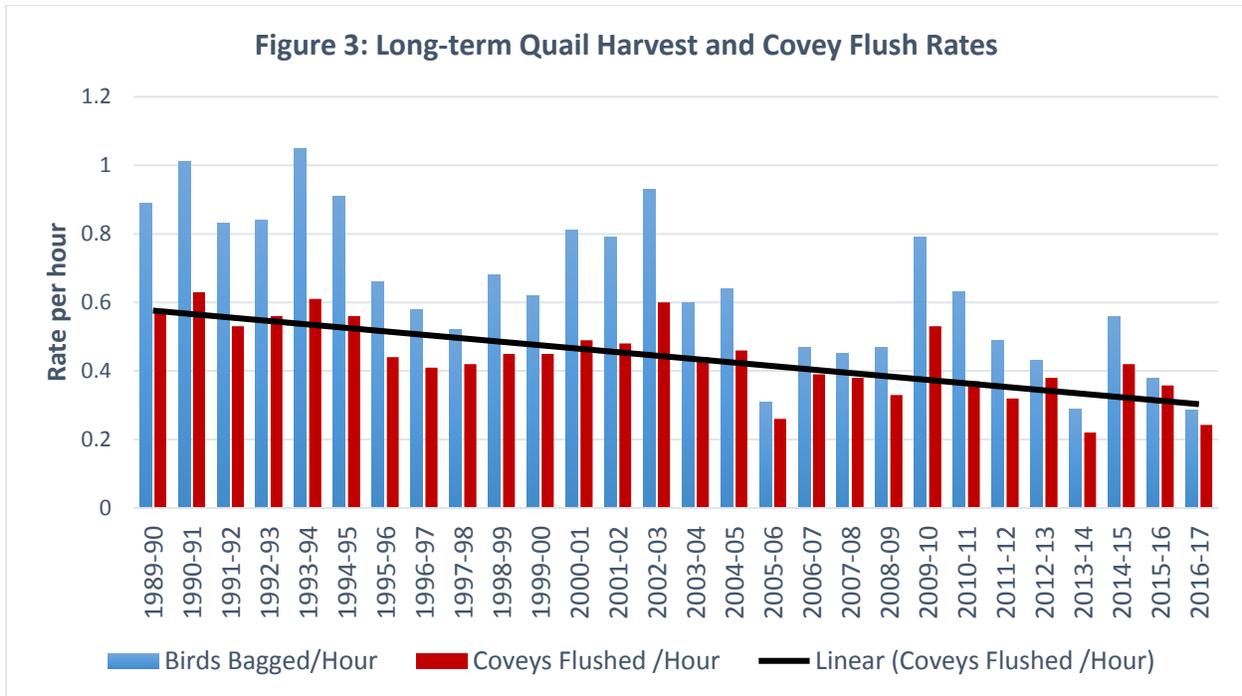
- 2016-17 covey flush rate = 0.24 coveys/hour (0.7/hunt).
Note: 2015-16 covey flush rate = 0.36

- 2016-17 bag rate = 0.56 birds/hour (0.8/hunt).
- The most coveys flushed on a single hunt = 4 coveys (5 hrs).

The rate at which coveys were flushed along with harvest rates are shown below (Figure 2).



According to our data, the 2016-17 season flush and harvest rates were lower than the previous season (Figure 3). The most recent season with similar flush rates was the 2013-2014 hunting season (0.22), which was the lowest we have on record from the hunter logs since the 1989-1990 hunting season.



III. Mail Carrier Survey

The Mail Carrier Survey gives us a glimpse of what we can expect for the upcoming season. The survey is the oldest in the program being completed for 57 years. Although no population estimates can be derived from these data, it does provide valuable trend data showing whether the population is up, down, or stable.

Volunteer mail carriers record all observations of quail and rabbits as they travel their normal mail delivery routes. The blank survey cards are sent to the postmasters 1 week prior to the census period, which was the last full week (6 delivery days) of July. Each observer recorded the number of days surveyed, the length of the route, and each quail observation on the card. The state of Kentucky is divided into four weather divisions for comparison of quail data (Appendix A).

2017 Mail Carrier Survey

- 662 mail carriers returned survey cards.
- Rural carriers drove 232,815 miles.
- Total number of quail observed = 985
- Statewide observation rate = 0.42 quail/100 miles.

Table 1. Comparison of total quail/100 miles observed by rural mail carriers.

	TOTAL QUAIL/100 MILES			PERCENT CHANGE	
	Average			Average	
	1960-2017*	2016	2017	1960-2017	2016 to 2017
<u>Western</u>	2.04	0.55	0.49	-82%	-10%
<u>Central</u>	1.15	0.55	0.51	-61%	-7%
<u>Bluegrass</u>	0.77	0.36	0.43	-48%	+19%
<u>Eastern</u>	0.54	0.14	0.23	-60%	+64%
Statewide	1.14	0.42	0.42	-69%	±0%

*No data available for 1964.

Since 1960, mail carrier data have shown a steady decline in Kentucky's quail population (Figure 4). Following the 2015 survey, 2016 saw a 12.5% decrease statewide from the previous year. The state did not experience an increase or decrease in the number of quail observed between 2016 and 2017. This was due in part to the gains observed in the Bluegrass and Eastern Weather Region. Environmental conditions were generally favorable over the last season. The winter was mild and primary breeding conditions were fair to good, therefore no change or even an increase was to be expected for this year's Rural Mail Carrier Survey.

SUMMARY

The mail carrier survey is conducted during the peak of the breeding season (according to the information collected from our wing cooperators), and the outcome of birds nesting during the survey may be critical to the quality of the upcoming season. So, the Mail Carrier and Hunter Log Survey may not always match. Generally, a good Mail Carrier Survey should correspond to a good hunting season, but a poor Mail Carrier Survey does not guarantee poor hunting conditions.

The Missouri Department of Conservation conducts a similar survey to Kentucky's hunter logs and measures hunt quality by the following:

- 1 hour per covey flush = excellent
- 2 hours per covey flush = good
- 3 hours per covey flush = poor

Utilizing this rating system, the 2016-17 quail-hunting season (roughly 4 hours per covey flush) in Kentucky would be rated below poor.

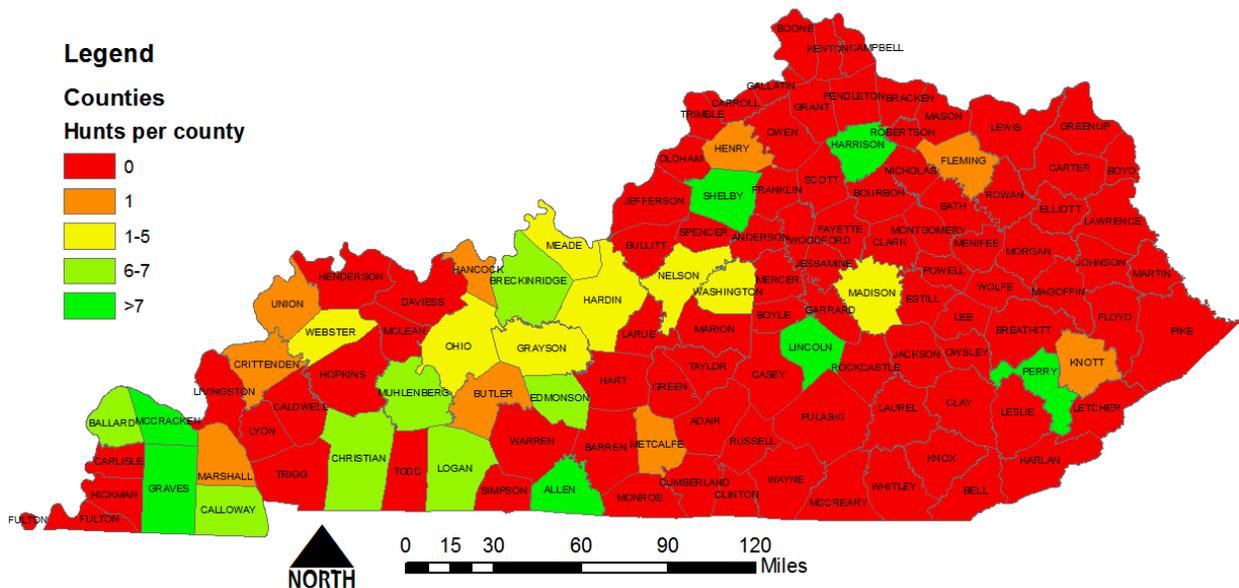
Predictions

In summary, hunters will need to work hard to find birds in many parts of the state. Much like last season, bird hunters need a new pair of boots and dog power to successfully bring birds to the bag. Despite favorable winter conditions and a fantastic growing season, we are seeing a stable trend at best with bobwhite populations. Since 1960, data have demonstrated a cycle in our bobwhite and rabbit populations. It appears that we are on the downswing of that cycle. The reasons for this phenomenon have yet to be understood. Best of luck afield and make sure to bring a friend or youth along with you!

ACKNOWLEDGMENTS

We would like to say a special thanks to all those who have participated in the various small game surveys over the years. Your cooperation provides us with valuable data necessary to make wise management decisions regarding quail populations and hunting seasons. With that in mind, we ask that you recruit your friends and neighbors who also hunt quail to join you in being a hunting cooperater. We need many more cooperators to accurately track quail populations across the state.

Please take a look at the below figure and plan a hunt in a county that has few hunts reported:

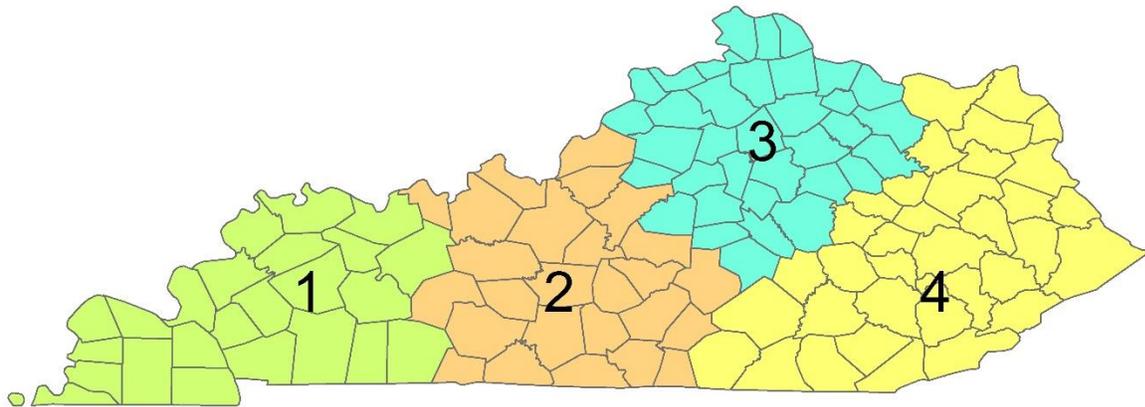


Last season, only 23 hunters completed hunting logs. Fortunately, those hunters did a good deal of hunting (208 hunts). However, these numbers continue to decrease annually. We would like to have at least 1,000 hunts well distributed across the state.

The more cooperators we have, the more accurate picture we have of our quail populations. The hunting logs are available on the internet at <http://fw.ky.gov/Hunt/Pages/Game-Species.aspx> or by contacting the Kentucky Department of Fish and Wildlife Resources at #1 Sportsman's Lane, Frankfort, KY 40601 (1-800-858-1549). We will gladly send you a gift to say "thank you" for participating. Thank you to all whom participated this year, and we hope to hear from you and all of your hunting partners in next season's surveys.

Cover photo from Quail Unlimited Mall website (www.qumall.com). Artist Richard Plasschert's 1983 Quail Stamp print

Appendix A



Legend

- 1 Western Region
- 2 Central Region
- 3 Bluegrass Region
- 4 Eastern Region