

2006-07 RABBIT HUNTING COOPERATOR SURVEY REPORT



KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES

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METHODS

The 2006-07 Rabbit Hunting Cooperator Survey Report is a summary of two annual surveys conducted by the Kentucky Department of Fish and Wildlife Resources (KDFWR) to estimate rabbit production, hunter effort, and hunter success. First, the Rabbit Hunter Log Survey is a diary-type hunting log used to record information including date of hunt, county hunted, hours hunted, number of hunters, number of dogs, number of eastern cottontail rabbits, swamp rabbits, and Appalachian cottontail rabbits (jumped, harvested, and wounded). Hunters were asked to keep the log to date as the hunting season progressed, and at the season's conclusion, logs were mailed to the KDFWR for analysis. The Mail Carrier Survey represents the second survey employed to monitor rabbit populations across the state. Mail carriers recorded rabbit and quail observations as they traveled their rural delivery routes during the last full week (6 delivery days) of July. Survey cards provided space for observations of young and adult rabbits for each of the survey days. Observers also recorded the number of days surveyed, the length of the route, and the total miles driven. The mail carrier data is used to forecast the upcoming hunting season, monitor the population, and estimate rabbit productivity.

All surveys are strictly voluntary and we strongly encourage all Kentucky rabbit hunters and rural mail carriers to participate in these surveys. Hunter cooperators receive this report, detailing hunting season results, and expectations for the upcoming season. Cooperators also receive a new hunting log 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.

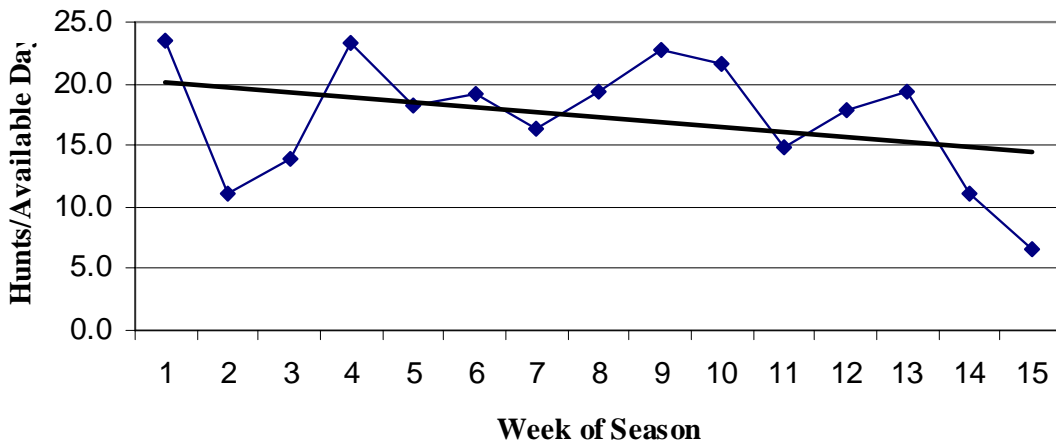
RESULTS AND DISCUSSION

I. Rabbit Hunter Log Survey

Hunting logs were received from 126 hunters who averaged 14 hunting trips each for the season. Data was grouped into weekly and monthly subsets and physiographic region subsets (Appendix A) to identify trends within the season and across the state. From 1,747 logged hunts, the average hunt included 2.4 hunters spending 3.6 hours afield with 4 dogs. Hunters recorded hunts in 101 counties across the state (Appendix B).

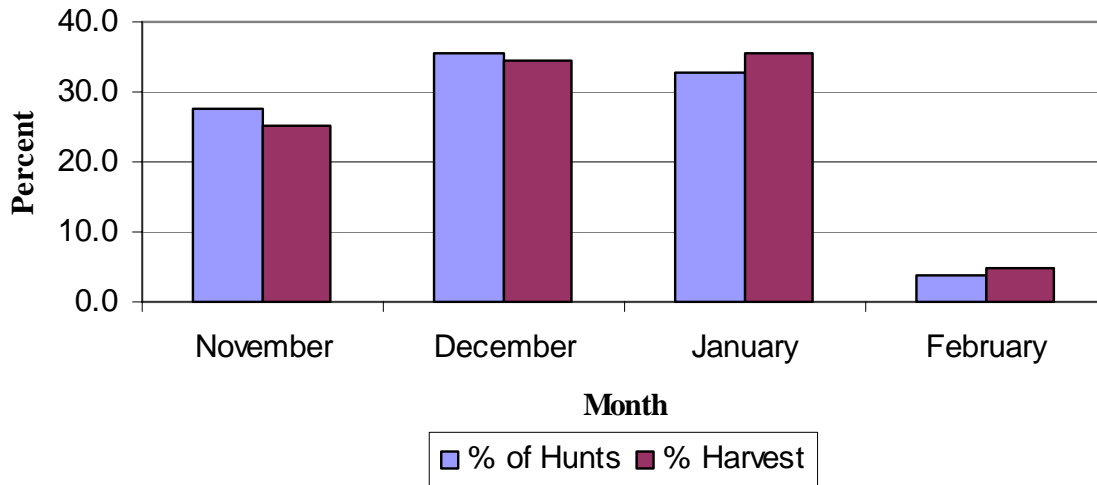
Hunting pressure declined somewhat as the season progressed (Figure 1).

**Figure 1: Hunts per available day index;
KY Rabbit Hunter Log Cooperator Survey, 2006-07**



Peaks of hunting were seen at the beginning of the season, the week of Thanksgiving and the week before and after the Christmas holidays. Monthly subsets revealed the proportion of hunts and the proportion of harvest were quite similar, but January hunts were slightly more productive (Figure 2).

**Figure 2: Hunting effort and harvest by month; KY
Rabbit Hunter Log Cooperator Survey, 2006-07**



Cooperator numbers have fluctuated in the past, but the 2006-07 season saw a significant increase, resulting in our highest number of cooperators in five years. (Table 1).

Table 1. Summary statistics from the Rabbit Hunter Log Survey in Kentucky, 2002-2007.

| Statistics | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 |
|-------------------------|----------------|----------------|----------------|----------------|----------------|
| Cooperators | 99 | 105 | 104 | 84 | 126 |
| Hunts | 1,589 | 1,593 | 1,525 | 1,188 | 1,747 |
| Counties | 99 | 93 | 96 | 82 | 101 |
| Hunts/Hunter | 16 | 15 | 15 | 14 | 14 |
| Hours Hunted | 6,037.5 | 5,847.9 | 6088.7 | 4075.6 | 6287.7 |
| Dogs Used | 6,755 | 6,883 | 6,415 | 4,535 | 6,956 |
| Total Rabbits Jumped | 11,276 | 10,126 | 9,326 | 5,710 | 9,526 |
| Total Rabbits Harvested | 5,129 | 4,222 | 3,951 | 2,152 | 3,792 |
| Total Rabbits Wounded | 226 | 259 | 293 | 160 | 312 |
| Hunting Mortality (%) | 48 | 44 | 46 | 40 | 43 |

Total rabbits jumped averaged 5.4/hunt (1.5/hr), and rabbits harvested averaged 2.2/hunt (0.6/hr). The jump and harvest rates by species have fluctuated over the last three seasons (Table 2). However, sample sizes for Appalachian cottontails are far too low to indicate any change in the population or in hunter effort and success. Harvest and jump rates by species were calculated by the following assumptions: 1) if Appalachian cottontail or swamp rabbits were jumped, it was assumed Appalachian or swamp rabbits were being hunted, 2) if eastern cottontails were jumped and an Appalachian cottontail or swamp rabbit was jumped, it was assumed the Appalachian cottontail or swamp rabbit was being hunted, and 3) if no rabbits were jumped, it was assumed the eastern cottontail rabbit was being hunted (because cottontails comprise 98% of the harvest and are the most common).

Table 2. Rabbit jump and harvest rates by species in Kentucky, 2003-2007.

| Year | Eastern | | | Swamp | | | Appalachian | | |
|----------------|---------|-------|-------|-------|-------|-------|-------------|-------|-------|
| | 04-05 | 05-06 | 06-07 | 04-05 | 05-06 | 06-07 | 04-05 | 05-06 | 06-07 |
| Total Hunts | 1,488 | 1,136 | 1,653 | 32 | 31 | 60 | 5 | 21 | 34 |
| Jumped/Hunt | 6.11 | 4.78 | 5.46 | 3.44 | 2.58 | 2.60 | 3.00 | 5.24 | 2.76 |
| Jumped/Hour | 1.54 | 1.41 | 1.53 | 0.72 | 0.56 | 0.61 | 0.71 | 1.21 | 0.73 |
| Harvested/Hunt | 2.60 | 1.82 | 2.18 | 1.13 | 1.00 | 1.02 | 0.80 | 1.29 | 0.97 |
| Harvested/Hour | 0.65 | 0.54 | 0.61 | 0.24 | 0.22 | 0.24 | 0.19 | 0.30 | 0.26 |
| Wounded/Hunt | 0.22 | 0.13 | 0.18 | 0.09 | 0 | 0.02 | 0.00 | 0.29 | 0.12 |
| Wounded/Hour | 0.06 | 0.04 | 0.05 | 0.02 | 0 | 0 | 0.00 | 0.07 | 0.03 |

Over the past five hunting seasons, hunting mortality (harvested and wounded individuals) remained less than 50% of the rabbits jumped (Table 1). Wound rates (2.8%) have remained constant as well. Cottontail rabbits continue to dominate the harvest as expected.

We have a particular interest in reports of swamp and Appalachian cottontail rabbits. Both species suffer from habitat loss and populations are declining range wide. Data from this year's hunting logs showed that Appalachian cottontails were jumped 94 times and 33 rabbits were harvested. Swamp rabbits were jumped 156 times and 61 rabbits were harvested. Based on data from hunter logs, swamp and eastern cottontail populations are declining, but both species experienced population booms in 1996. Inadequate sample sizes make annual comparisons of Appalachian cottontail data impossible. Further investigation of swamp and Appalachian cottontail rabbits may be required to identify existing population levels and locations.

II. Mail Carrier Survey Results

The Mail Carrier Survey provides a glimpse of what we can expect for the upcoming hunting season. The survey is the oldest in the program being completed for 47 years. Although no population estimates can be derived from this data, it does provide valuable trend information showing whether the population is up, down, or stable.

In 2007, mail carriers returned 744 of the approximately 1,600 survey cards issued,

which corresponds to a 46.5% response rate. Rural carriers covered 238,741 miles and observed 3,338 rabbits. The statewide observation rate was 1.40 rabbits/100 miles traveled. Juvenile rabbits comprised 56% of the rabbit observations. Observations of rabbits/100 miles by physiographic region generally showed population decreases across the state (Table 3). The Jackson Purchase region incurred the greatest increase in observation rate at 41.5%, but the Inner Bluegrass showed good increases as well. The net result was a 16% decrease in observation rates across the state since last year.

Table 3. Mail Carrier indices and rates of change in Kentucky, 1961-2006.

| PHYS. REGION | TOTAL RABBITS/100 MILES | | | PERCENT CHANGE | |
|-------------------------|-------------------------|-------------|-------------|----------------|--------------|
| | MEAN | | | MEAN | |
| | 1961-2007* | 2006 | 2007 | 2007/1961-2007 | 2006/2007 |
| Jackson Purchase | 1.59 | 0.53 | 0.75 | -52.8 | 41.5 |
| Western Pennyroyal | 2.03 | 1.07 | 1.07 | -47.3 | 0 |
| Western Coalfield | 1.71 | 1.46 | 1.17 | -31.6 | -19.9 |
| Inner Bluegrass | 2.23 | 0.87 | 1.08 | -51.6 | 24.1 |
| Knobs – Outer Bluegrass | 2.53 | 2.14 | 1.92 | -24.1 | -10.3 |
| Hills of Bluegrass | 2.45 | 1.44 | 1.08 | -55.9 | -25.0 |
| Eastern Pennyroyal | 1.67 | 1.53 | 1.22 | -26.9 | -20.3 |
| Eastern Coalfield | 2.73 | 1.97 | 1.86 | -31.9 | -5.6 |
| Statewide | 2.19 | 1.51 | 1.27 | -42.0 | -15.9 |

*No data available for 1964.

Over the last 47 years of this survey, the decline in the rabbit population is evident (Figure 3). The severe drop in population levels following the winters of 1977 and 1978 was dramatic and populations have not recovered. The rabbit population trend corresponds to a 1.0 % decline per year over the life of the survey. The overall drop in rabbit numbers since the late 1960's can be generally attributed to habitat loss because of land use changes and cleaner agricultural practices. In 2005, the statewide index decreased dramatically following five years of surveys that were quite good. Subsequently, rabbit populations have remained fairly stable for the last two decades (Figure 4).

Figure 3: Rabbits observed per 100 miles from the Mail Carrier Survey in Kentucky, 2007.

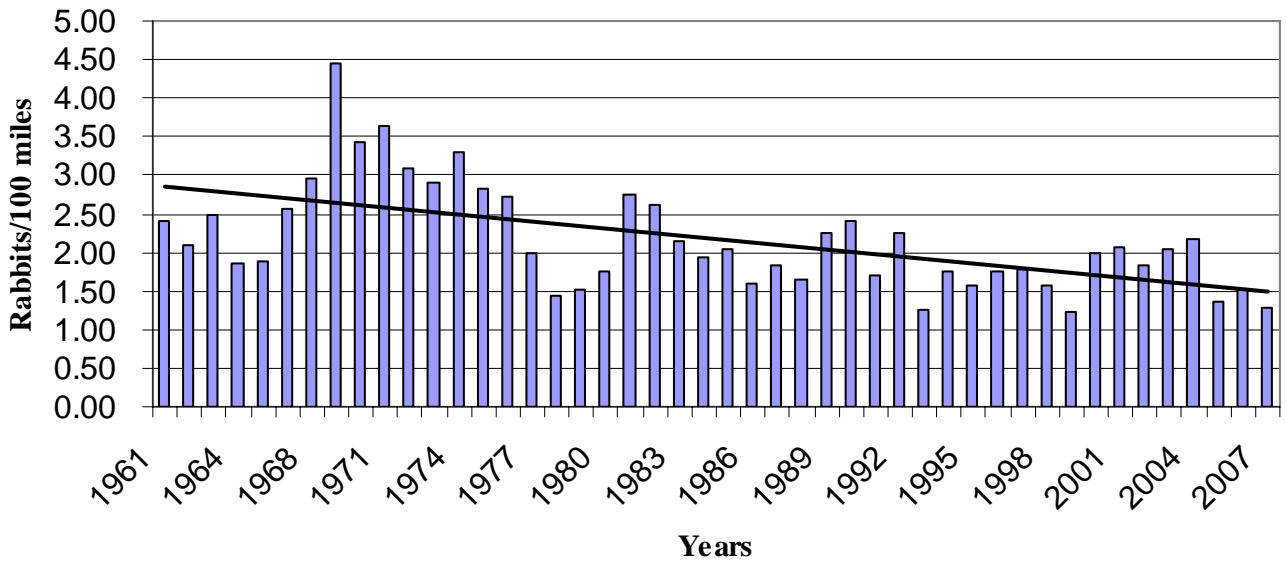
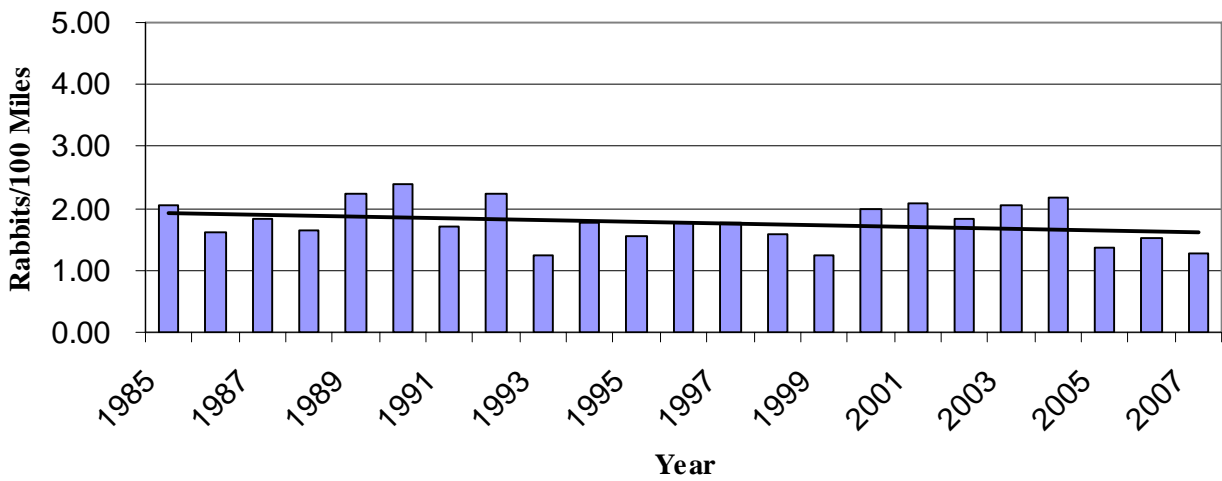


Figure 4: Rabbits observed per 100 miles; Mail Carrier Survey in Kentucky, 1985-2007



SUMMARY

The Mail Carrier Survey and the Rabbit Hunter Log Survey appear to be tracking each other well. Therefore, we can make predictions based on the Mail Carrier Survey results. Breaking down data by physiographic regions generally makes predictions more difficult as sample sizes become smaller compromising reliability. However, by combining physiographic regions into western (Jackson Purchase, Western Coalfield, and Western Pennyroyal), central (Inner, Outer, and Hills of the Bluegrass), and eastern (Eastern Pennyroyal and Eastern Coalfield) zones, projections become a little clearer. With that in mind, the western zones should remain similar to last year. Jackson Purchase saw a 41% increase in observed rabbits while the Western Coalfield experienced slight decreases. Central and Eastern zones will likely experience poor hunting action this season.

Rabbit populations seem to be stabilizing across the state. Our survey indices are showing oscillations characteristic of population stability. Upon comparison, rabbit populations are far below those on the late 60's and early 70's. Fortunately, rabbits generally have small home ranges and localized management should generate a positive response, but large-scale changes in the cottontail rabbit population in Kentucky will require widespread management of the agricultural environment. Swamp rabbits and Appalachian cottontails requirements are much more difficult to attain particularly when habitat loss is irreversible, so we continue to keep a watchful eye on both of those species.

Overall the 2006-07 rabbit season was poor. Over the last 20 years, the population has remained fairly stable with bumps up and down. Last year, jump rates were up 8.5%, and harvest rates were up 19.9% from the previous fall. Although the Mail Carrier Survey shows a decrease in the number of observed rabbits, pockets of good habitat will hold rabbits, and hunters should be able to give the dogs plenty of exercise this season.

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 rabbit populations and hunting seasons. With that in mind, we ask that you recruit your friends and neighbors who also rabbit hunt to join you in being a hunting cooperator. We need many more cooperators to accurately track rabbit populations across the state.

Participation in the rabbit hunting survey was much better last year, with 126 hunters completing hunting logs. Fortunately, those hunters did a lot of hunting (over 1,700 hunts)! Nevertheless, we would like to have at least 2,000 hunts well distributed across the state. The more cooperators we have, the more accurate picture we have of our rabbit populations. The hunting logs are no longer available in the Hunting and Trapping Guide, however they can be found on the internet (<http://fw.ky.gov/sghelp.asp>), or by contacting the Kentucky Department of Fish and Wildlife Resources at #1 Sportsman's Lane, Frankfort, KY 40601 (1-800-858-1549). 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 image provided by Wes Siegrist (www.artofwildlife.com/miniaturepaintings23.html)

Appendix A. Physiographic regions of Kentucky.

