

# 2007-08 RABBIT HUNTING COOPERATOR SURVEY REPORT



**KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES**

**Prepared By:  
Ben Robinson  
Wildlife Biologist**



## **METHODS**

The 2007-08 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.

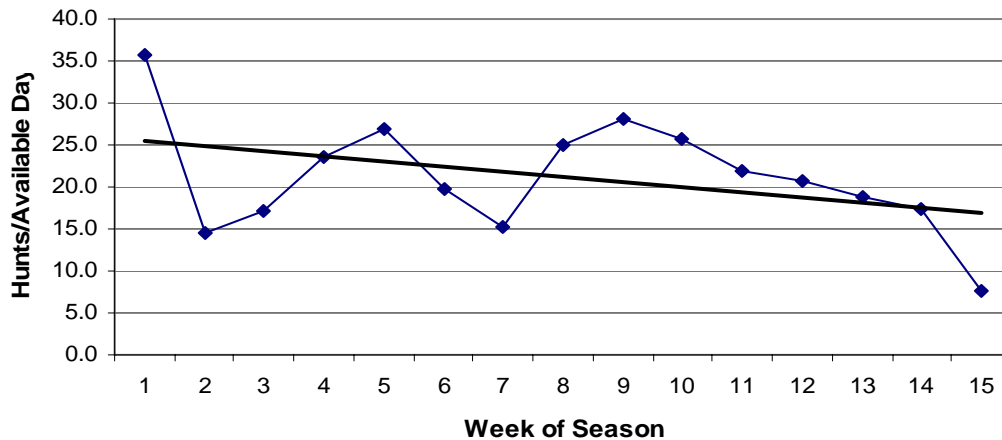
## **RESULTS AND DISCUSSION**

### **I. Rabbit Hunter Log Survey**

Hunting logs were received from 154 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 2,114 logged hunts, the average hunt included just over 2 hunters spending 3.7 hours afield with 4 dogs. Hunters recorded hunts in 100 counties across the state.

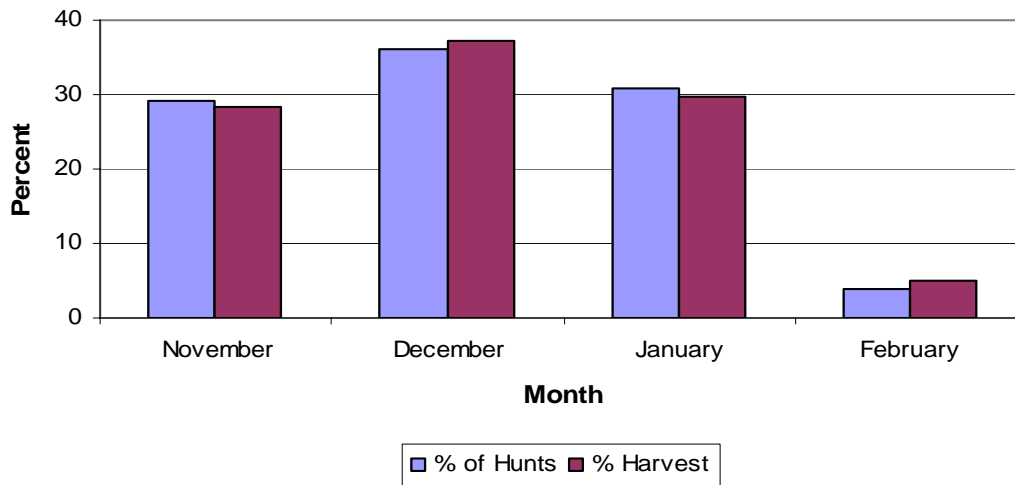
Hunting pressure declined somewhat as the season progressed (Figure 1).

**Figure 1: Hunts per available day index, 2007-08.**



Hunting season peaked during December. Monthly subsets revealed the proportion of hunts and the proportion of harvest were quite similar, but December hunts were slightly more productive (Figure 2).

**Figure 2: Hunting effort and harvest by month, 2007-08.**



Cooperator numbers have fluctuated in the past, but seem to be increasing over the last 2 years. The 2007-08 season once again saw an 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, 2003-2008.**

<b>Statistics</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>
Cooperators	105	104	84	126	154
Hunts	1,593	1,525	1,188	1,747	2,114
Counties	93	96	82	101	100
Hunts/Hunter	15	15	14	14	14
Hours Hunted	5,847.9	6088.7	4075.6	6287.7	7887.9
Dogs Used	6,883	6,415	4,535	6,956	8,243
Total Rabbits Jumped	10,126	9,326	5,710	9,526	11,974
Total Rabbits Harvested	4,222	3,951	2,152	3,792	5,236
Total Rabbits Wounded	259	293	160	312	332
Hunting Mortality (%)	44	46	40	43	46

Total rabbits jumped averaged 5.6/hunt (1.5/hr), and rabbits harvested averaged 2.5/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, 2005-2008.**

Year	Eastern			Swamp			Appalachian		
	05-06	06-07	07-08	05-06	06-07	07-08	05-06	06-07	07-08
Total Hunts	1,136	1,653	1,983	31	60	72	21	34	19
Jumped/Hunt	4.78	5.46	5.92	2.58	2.60	2.47	5.24	2.76	3.00
Jumped/Hour	1.41	1.53	1.57	0.56	0.61	0.59	1.21	0.73	0.69
Harvested/Hunt	1.82	2.18	2.57	1.00	1.02	1.03	1.29	0.97	1.84
Harvested/Hour	0.54	0.61	0.68	0.22	0.24	0.24	0.30	0.26	0.42
Wounded/Hunt	0.13	0.18	0.16	0	0.02	0.04	0.29	0.12	0.11
Wounded/Hour	0.04	0.05	0.04	0	0	0.01	0.07	0.03	0.02

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 57 times and 35 rabbits were harvested. Swamp rabbits were jumped 178 times and 74 rabbits were harvested. Based on data from hunter logs, swamp and eastern cottontail populations are declining. 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 48 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 2008, mail carriers returned 702 of the approximately 1,600 survey cards issued,

which corresponds to a 43.8% response rate. Rural carriers covered 230,500 miles and observed 3,646 rabbits. The statewide observation rate was 1.58 rabbits/100 miles traveled. Juvenile rabbits comprised 59% of the rabbit observations. Observations of rabbits/100 miles by physiographic region generally showed slight population increases across the state (Table 3). The Hills of the Bluegrass region incurred the greatest increase in observation rate at 47.2%, but the Eastern Coalfield and Inner Bluegrass showed good increases as well. The net result was a 10% increase in observation rates across the state since last year.

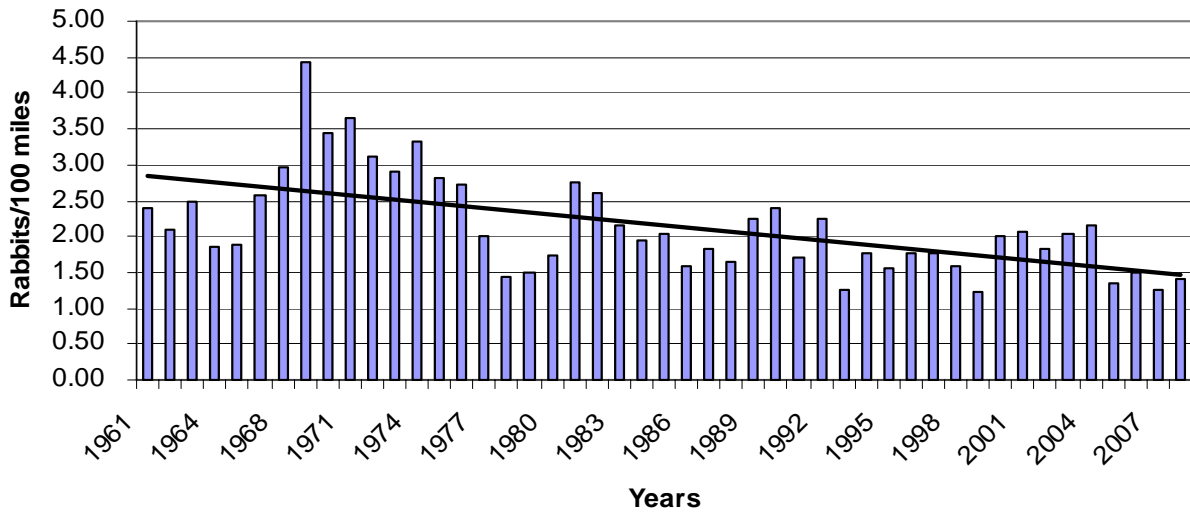
**Table 3. Mail Carrier indices and rates of change in Kentucky, 1961-2008.**

PHYS. REGION	TOTAL RABBITS/100 MILES			PERCENT CHANGE	
	MEAN (average)			MEAN (average)	
	1961- 2008*	2007	2008	2008/ 1961-2008	2007/ 2008
Jackson Purchase	1.55	0.75	0.81	-47.7	8.0
Western Pennyroyal	1.99	1.07	1.12	-43.7	4.6
Western Coalfield	1.69	1.17	1.19	-29.5	1.7
Inner Bluegrass	2.19	1.08	1.34	-38.8	24.0
Knobs – Outer Bluegrass	2.50	1.92	1.74	-30.4	-9.3
Hills of Bluegrass	2.41	1.08	1.59	-34.0	47.2
Eastern Pennyroyal	1.65	1.22	0.86	-47.8	-29.5
Eastern Coalfield	2.71	1.86	2.56	-5.5	37.6
<b>Statewide</b>	<b>2.15</b>	<b>1.27</b>	<b>1.40</b>	<b>-34.8</b>	<b>10.2</b>

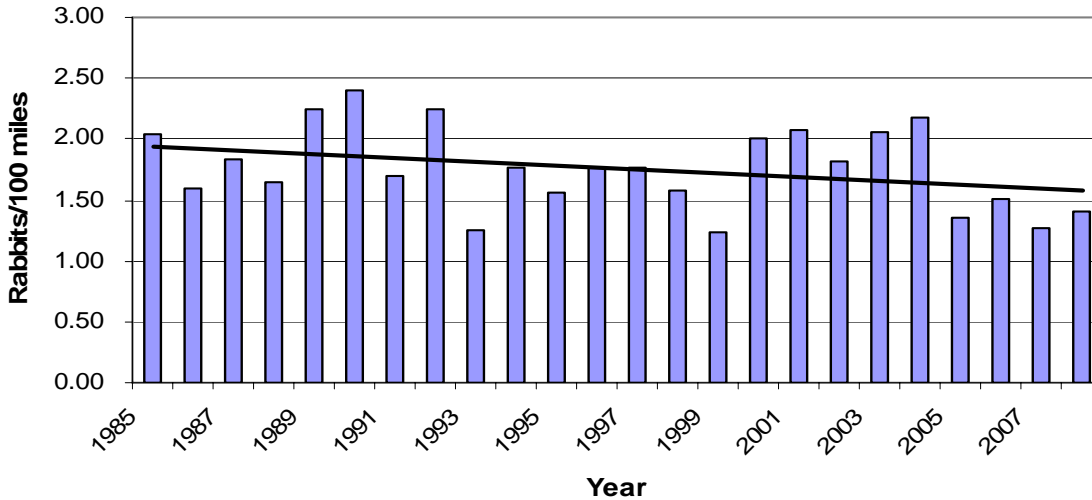
\*No data available for 1964.

Over the last 48 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, 1961-2008.**



**Figure 4: Rabbits observed per 100 miles; Mail Carrier Survey, 1985-2008.**



**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, Western Coalfield, and Western Pennyroyal all saw slight increase in observed rabbits. The Inner Bluegrass and Hills of Bluegrass regions both experienced considerable increases while the Outer Bluegrass decreased slightly. Eastern zones will likely experience hunting action similar to last 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 2007-08 rabbit season was fair. Over the last 20 years, the population has remained fairly stable with bumps up and down. Last year, harvest rates increased by 10% and jump rates remained unchanged from the previous fall (2006-07). The Mail Carrier Survey shows a 10% increase in the number of observed rabbits statewide which means there should be plenty of rabbits available for harvest this fall.

## **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 continues to increase, with 154 hunters completing hunting logs last year. Those hunters did a lot of hunting (over 2,100 hunts)! We would like to consistently have over 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](http://www.artofwildlife.com/miniaturepaintings23.html))





# Appendix A. Physiographic regions of Kentucky.

