2005-06 SQUIRREL HUNTING COOPERATOR SURVEY REPORT

KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES

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Thank you to all the hunter cooperators who sent in hunting logs for the Fall Squirrel Hunting Cooperator Survey. Your efforts are appreciated, and we encourage you to continue sending in your hunting logs. Enlist your hunting buddies to do the same! The following report will cover the results of last season's (2005-06) Fall Squirrel Hunting Cooperator Survey and the 2005 Mast Survey. Last season's harvest and hunting effort totals will be included as well as the current population trends. Of course, I will also provide an outlook for the upcoming season!

I. 2005-06 Fall Squirrel Hunter Cooperator Survey

The squirrel survey was developed in 1995 as a voluntary initiative. Hunters are asked to record data including date of hunt, county hunted, hours hunted, number of hunters, number of dogs, number of fox squirrels (seen, killed, and wounded), and the number of gray squirrels (seen, killed, and wounded) on a diary-type hunting log. Logs are available through the hunting guide, from the KDFWR website (http://fw.ky.gov/), KDFWR wildlife biologists, area managers, and conservation officers. Hunters simply keep the log up-to-date as the hunting season progresses, and mail it to KDFWR Headquarters when they're finished hunting for the season. Data collected from the survey gives the KDFWR information that can be used to monitor squirrel population trends in Kentucky and better serve the hunters of the state. Each year participating hunter cooperators are mailed a new hunting log, their log from last year, the results of the survey, and a small gift.

Summary of Last Year's Hunter Logs

Participation in last year's survey was equal to the 2004-05 season. Hunting logs were received from 95 hunters who averaged 12.6 hunting trips during the season. Twenty-three percent of hunts included the use of dogs, and hunts lasted an average of 2.5 hours. Data was provided from 1,165 hunts that occurred in 88 counties across the state. The central region had the largest number of hunts with 438, followed by the western region with 436, and the eastern region with a total of 291. The number of hunts per county was well distributed except for a couple of small pockets in the central and eastern regions (Appendix A).

Total squirrels seen by hunters averaged 3.9 per hunt or 1.5 per hour. Observations and harvest showed some variability throughout the season, but the rate of harvest of observed squirrels was stable (Figure 1). Hunters averaged seeing 3.2 gray squirrels per hunt (1.3/hr.) and 0.73 fox squirrels per hunt (0.3/hr.) statewide. Total squirrel harvest averaged 2.1 per hunt (0.8/hr.). Gray squirrel harvest averaged 1.7 per hunt (0.7/hr.), and fox squirrel harvest averaged 0.4 per hunt (0.2/hr.). The number of both gray and fox squirrels seen and harvested per hour was down sharply from 2004-2005 (Table 1). The maximum squirrels (by species) observed during a single hunt were 27 for gray squirrels (3 hunters) and 10 for fox squirrels (2 hunters). Last year's survey results yielded a roughly 53% hunting mortality rate for an observed squirrel, and showed a slight decrease in hunter effort (12.6 hunts/cooperator)(Table 2).

Hunter Effort

Hunting effort was greater towards the beginning of squirrel season. Forty-two percent of the hunts took place in August and September (weeks 1-8). The first seven weeks comprised only 25% of the squirrel season, but accounted for 41% of the total squirrel harvest (Figure 2). The hunter effort index declined steadily throughout the season, and squirrel-hunting trips were rare in January and February (Figure 3). Squirrel hunting is one of a few seasons open in August and September, and later season opening dates for deer, waterfowl, rabbit, grouse, and quail may account for the greater hunting effort taking place towards the beginning of squirrel season. Only 12% of the total hunts took place in November, and the dramatic drop in hunting rate was likely a direct result of the onset of deer gun season. Accordingly 64.4% of the squirrels harvested in the 2005-06 Fall Squirrel Hunter Cooperator Survey were taken before modern gun deer season (November 12, 2005, Week 13).

This was the second year of the February 28th closing date for squirrel season, and the 2005-06 season showed an overall increase in late season hunting. In 2004-05, January hunts comprised 4.2% of the hunts and 2.4% of the harvest. However, this year, the month totaled 11.1% of the hunts and 9.3% of the harvest. February saw fewer hunts, comprising just 5.8% of the hunts and 4.0% of the harvest.

Harvest

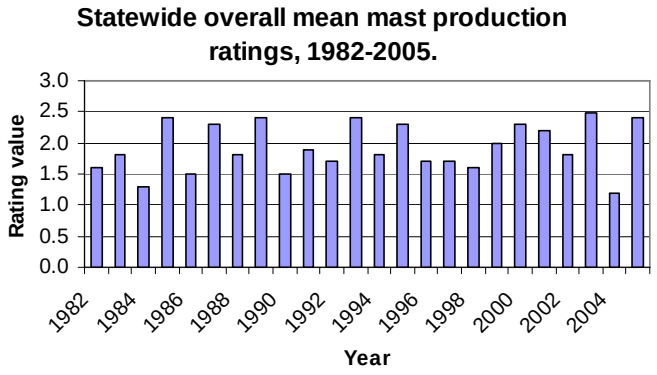
Hunters harvested 52.8% of squirrels seen and wounded 2.3%. Assuming wounded squirrels did not survive, the hunting mortality rate was 55.1 % of squirrels seen in 2005-06. Gray squirrels were harvested 4 to 1 compared to fox squirrels statewide. Regional trends varied from fox squirrels comprising 30.1% of the harvest in the central region to as low as 11.5% in the eastern region (Figure 4). The rate suggests Kentucky squirrel hunters prefer hunting in more extensive forests and woodlands than small woodlots and fencerow-type habitats. It also implies that gray squirrels are more abundant than fox squirrels. However, fox squirrels were harvested at a higher rate when observed. Gray squirrels were harvested 52% of the time observed, and fox squirrels were harvested 57% of the time observed. Fox squirrels may be more easily harvested because of their larger size, more solitary behavior, level of wariness, or use of open habitats.

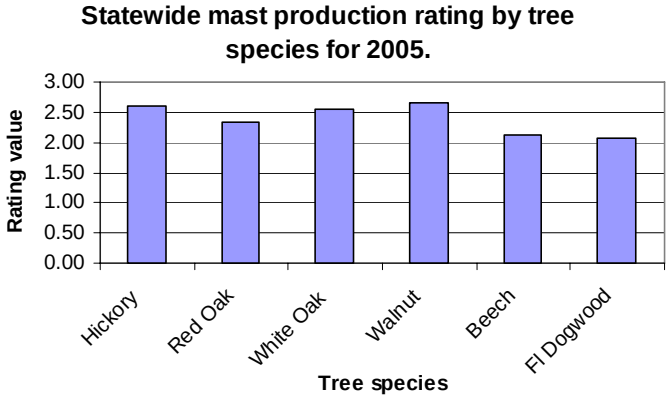
II. 2005 Mast Survey Results

A statewide mast production survey of Kentucky's most important producers of wildlife foods was initiated in 1953 and has been conducted annually thereafter. A close relationship has been found between a given year's mast production and the following year's squirrel population level statewide. The 2005 mast survey inventoried three tree groups (hickories, red oaks, and white oaks) and three individual species (black walnut, American beech, and flowering dogwood) that previous studies have revealed to be of primary importance in Kentucky. Production was rated by visual estimates made primarily during September and October and recorded on standardized forms.

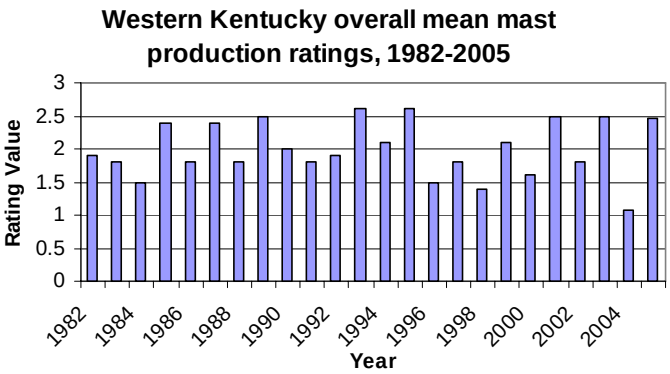
Summary of the Survey

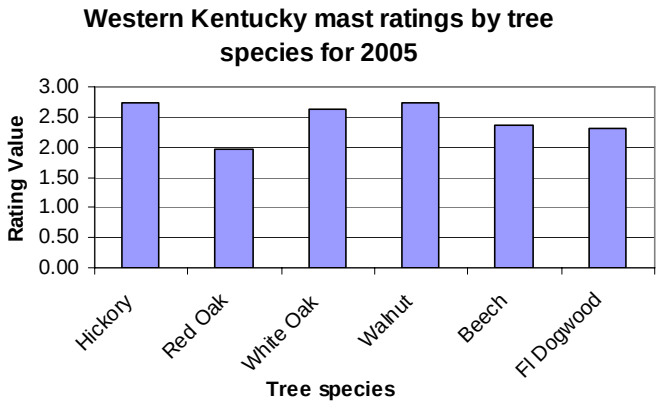
On a statewide basis, this year's mast production was rated at 2.4, tying the second highest rating on record (below left). As a result, the winter food source was considered heavy statewide. Increases in production were recorded for all species compared to 2004. The soft mast production of dogwoods for the state was rated at 2.1, the same moderate rating received by American Beech (below right). The heavy mast crop last year should contribute to an increase in forest wildlife populations, because higher food supplies lead to lower rates of winter mortality and higher reproductive potential.



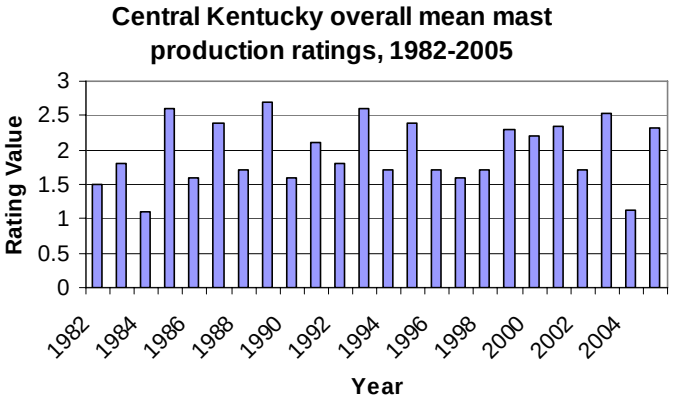


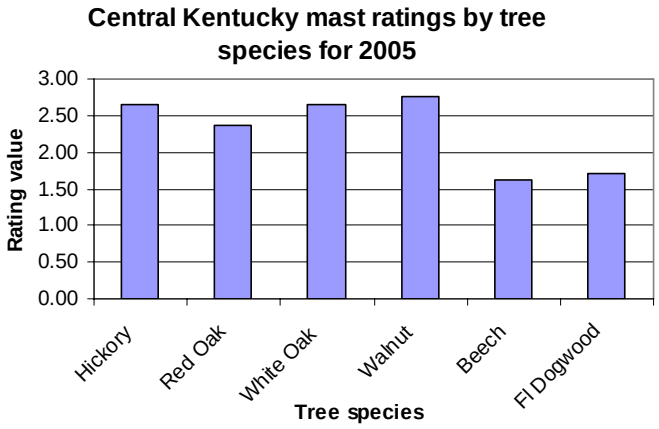
<u>Western Region:</u> The overall 2005 mast production for the western Kentucky region was rated as moderate to heavy (2.5). This represents an increase of 127% (1.4) from last year (below left). Production was high for hickories, white oaks, and black walnut. Flowering dogwood and beech production was moderate (below right). The increase in overall production could cause forest wildlife populations to climb in the western region.



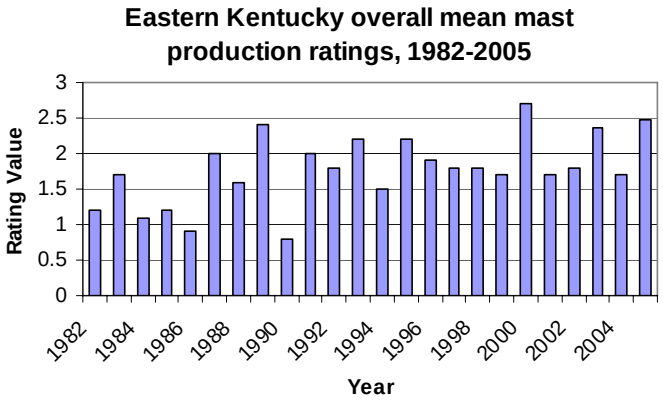


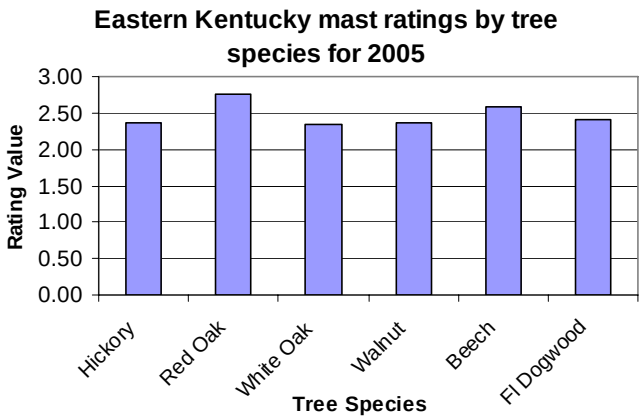
<u>Central Region</u>: The overall mast production index for central Kentucky (2.3) corresponded to a 109% (1.2) increase from last year (below left). The moderate to heavy rating for the hard mast species will provide increased food supply for forest wildlife species in this region. The light to moderate (1.7) rating for soft mast (below right) will further help with food availability through the winter.





Eastern Region: The eastern region production rating (2.5) for 2005 (below left) was a 47% increase from the previous year's figure, which represents the smallest increase from 2004 compared to the other region's ratings. Increases were documented for all species, and all recorded moderate to heavy production (below right). As with the western and central regions, the increase in mast production will likely lead to increasing forest wildlife populations in the eastern region.





III. 2006-07 Fall Squirrel Hunt Forecast

A near mast crop failure in 2004 provided last year's hunters with a significant decrease in gray and fox squirrel populations. The result was a major reduction in the harvest from the previous year. Hunters observed 1.5 squirrels per hour, and harvested just over half of those seen. Looking at the results from the last five years of surveys, gray squirrels were showing population growth up until last season (figure 5), whereas fox squirrel populations were showing stability or a slight decline (figure 6). Hopefully, the fox squirrel population is staying around carrying capacity (which means as many fox squirrels as Kentucky's habitat can support, but we will need a few more years of data to be sure).

The question remains - can we top last year's performance? You bet! I am excited about this fall's squirrel season. Last fall, KY had a tremendous mast crop. Actually, one of the best mast season in over 20 years according to our survey! This should help squirrel numbers rebound from the mast crop failure we experienced in 2004. While they may not be as plentiful as they were in the fall of 2003, hunters should see over 2 squirrels / hour. So go out and enjoy the fruits of nature's bounty! Have a safe and enjoyable squirrel season and thanks for your support!

Table 1. Observation and harvest rates of fox and gray squirrels from Fall Squirrel Hunter Cooperator Surveys, 2000-2006.

	Fox Squirrels				Gray Squirrels			
	Seen		Harvested		Seen		Harvested	
Season	Hour	Hunt	Hour	Hunt	Hour	Hunt	Hour	Hunt
2000-01	0.4	1.3	0.3	0.7	1.4	3.9	0.9	1.8
2001-02	0.5	1.4	0.3	0.8	1.7	4.7	1.0	2.0
2002-03	0.5	1.2	0.3	0.7	2.3	6.2	1.4	3.1
2003-04	0.3	0.9	0.2	0.5	1.9	5.0	0.9	2.3
2004-05	0.4	1.0	0.2	0.5	2.1	5.5	1.0	2.7
2005-06	0.3	0.7	0.2	0.4	1.3	3.2	0.7	1.7

Table 2. Summary of Fall Squirrel Hunter Cooperator Survey data, 2000-2006.

STATISTICS	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Total cooperators	101	120	95	114	95	95
Total hunts	1186	1425	1049	1321	1432	1165
Total counties	80	91	83	83	81	88
Average hunts/cooperator	11.7	11.9	11.0	11.6	15.1	12.3
Total hours	3389	3916	2854	3518	3786	2955
Hunts using dogs (%)	16.7	17.5	13.0	14.2	19.0	22.6
Total fox squirrels seen	1520	1956	1297	1173	1373	846
Total fox squirrels killed	877	1098	775	632	777	482
Total fox squirrels wounded	48	50	51	36	44	9
Total gray squirrels seen	4648	6690	6463	6701	7894	3712
Total gray squirrels killed	2095	2802	3203	3053	3846	1926
Total gray squirrels wounded	182	235	254	273	297	96
Harvest of squirrels seen (%)	48.2	45.1	51.3	46.8	49.9	52.8
Squirrels wounded (%)	3.7	3.3	3.9	3.9	3.7	2.3
Hunting mortality (%)	51.9	48.4	55.2	50.7	53.6	55.1

Figure 1. Squirrels seen and harvested per hour of hunting from the Squirrel Cooperator Survey, 2005-06.

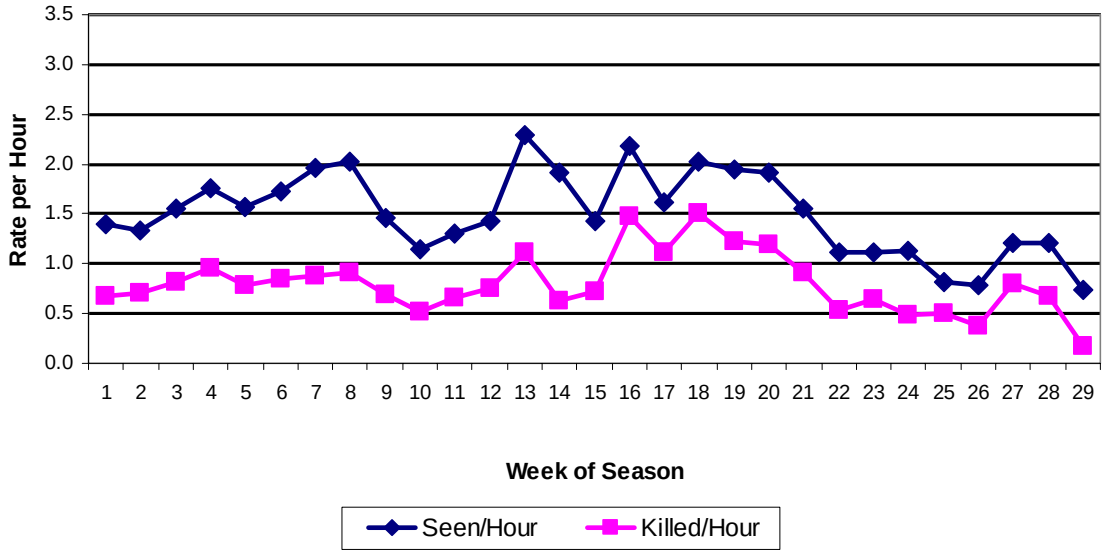


Figure 2. Proportion of hunts and harvest by month from the Fall Squirrel Hunter Cooperator Survey, 2005-06.

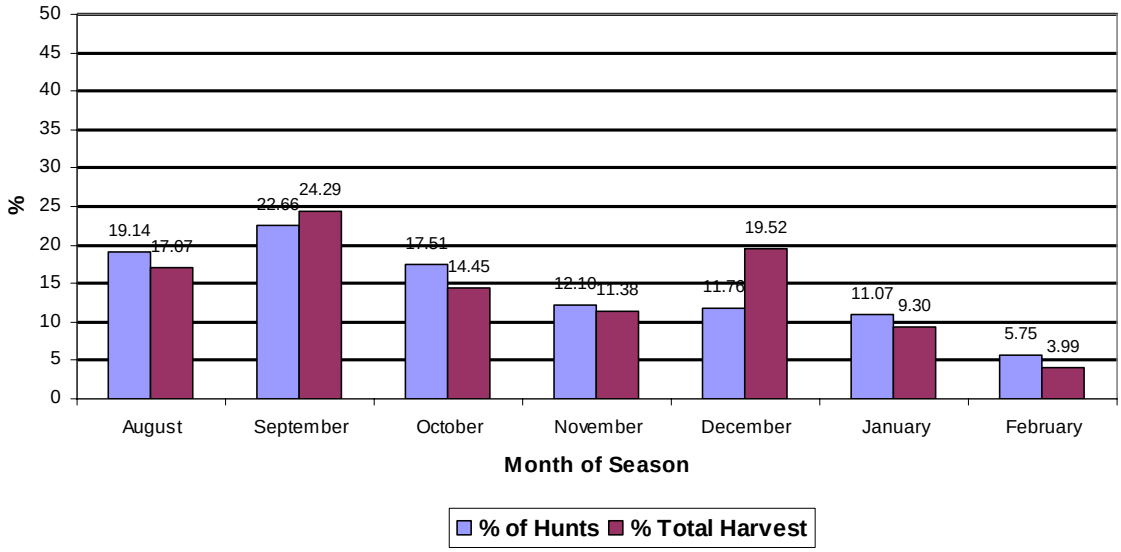


Figure 3. Hunts/availabe day index from the Fall Squirrel Hunter Cooperator Survey, 2005-06.

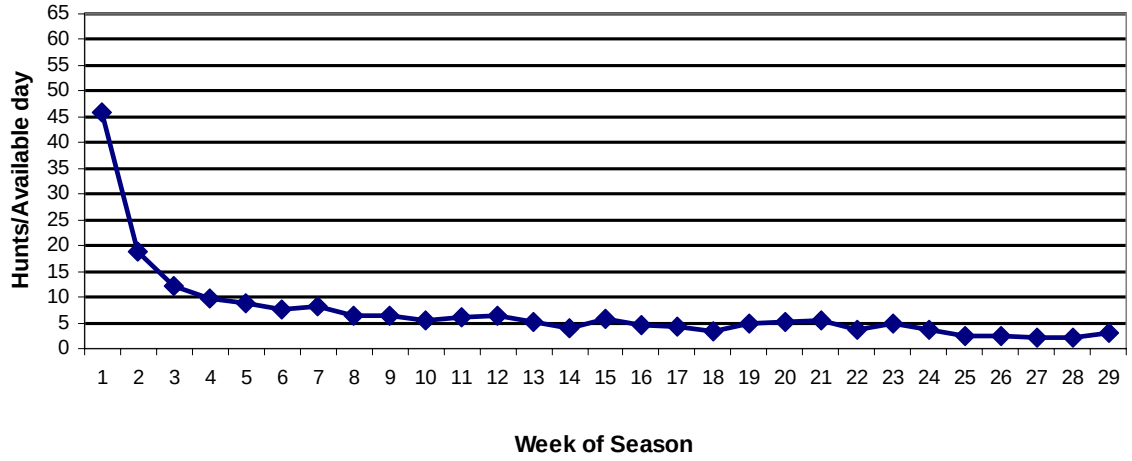


Figure 4. Species composition of the harvest from Fall Squirrel Hunter Cooperator Survey, 2005-06.

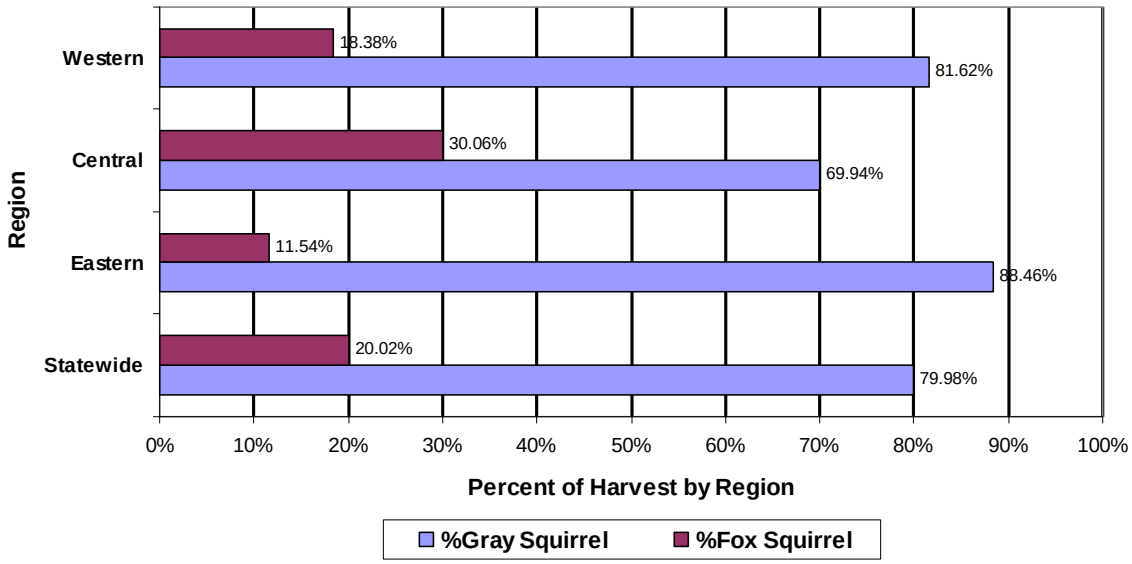


Figure 5. Gray squirrels seen and harvested from Fall Squirrel Hunter Cooperator Survey, 1999-2006.

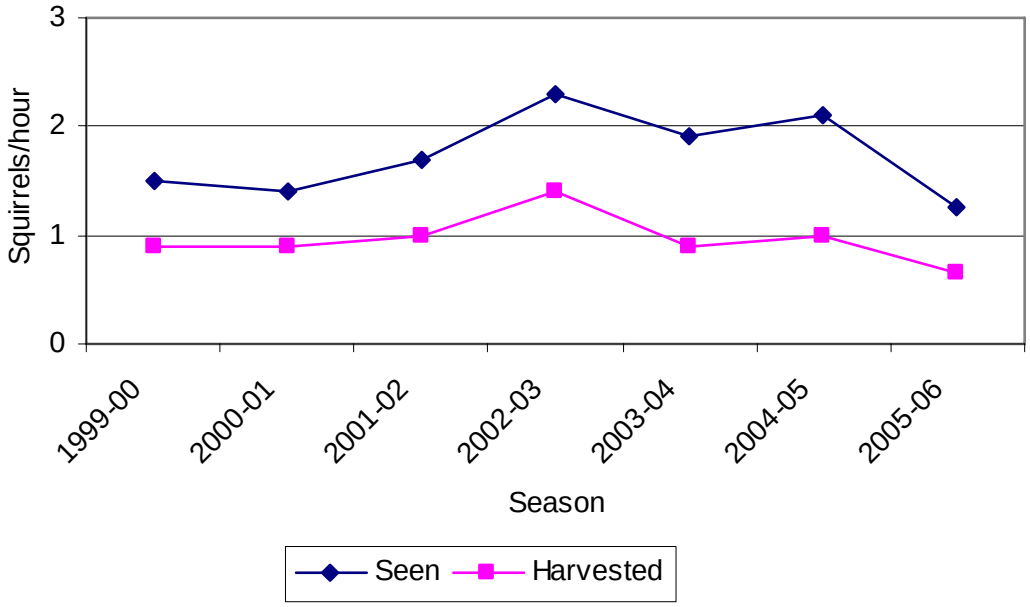
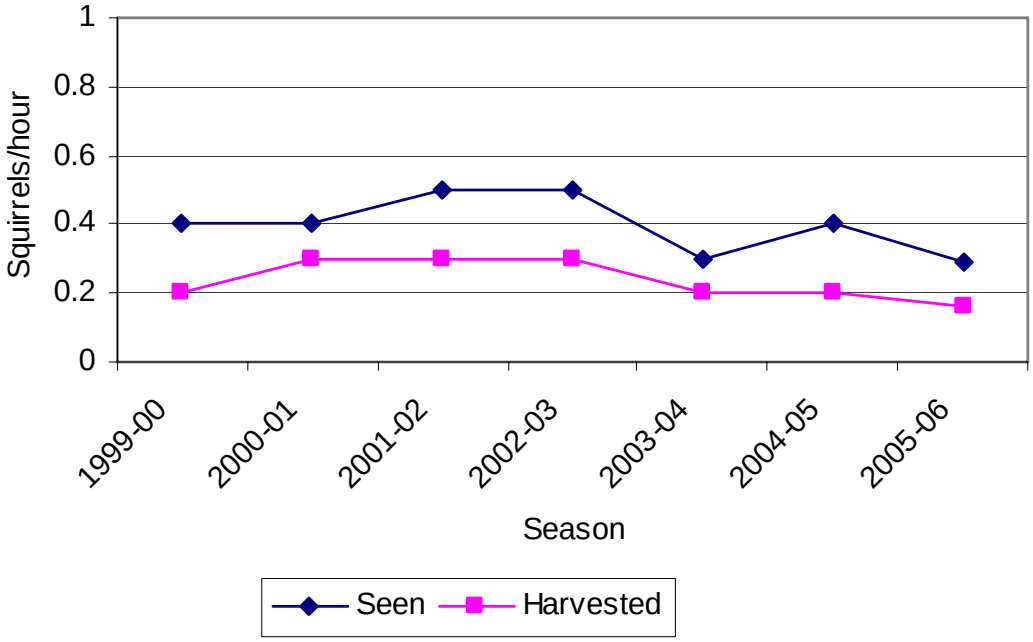


Figure 6. Fox squirrels seen and harvested from Fall Squirrel Hunter Cooperator Survey, 1999-2006.



Appendix A. Distribution of Hunts from Squirrel Hunting