

2006-07 SQUIRREL HUNTING COOPERATOR SURVEY REPORT



KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES

Prepared by:
Ben Robinson
Wildlife Biologist



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. Encourage your hunting buddies to do the same! This year was our highest participation ever, so please, keep up the good work and continue to mail in your logs! The following report will cover the results of last season's (2006-07) Fall Squirrel Hunting Cooperator Survey and the 2006 Mast Survey. Last season's harvest and hunting effort totals will be included as well as the current population trends along with an outlook for the upcoming season.

I. 2006-07 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 on the internet: fw.ky.gov/smallgamelogs.asp, or by calling 800-858-1549. 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, the results of the survey, and a small gift. Hunters who wish to receive a copy of their log from the previous year may call 800-858-1549 ext. 492 or e-mail ben.robinson@ky.gov.

Summary of Last Year's Hunter Logs

Participation in last year's survey greatly surpassed the 2005-06 season. Hunting logs were received from 171 hunters who averaged 10.5 hunting trips during the season. Thirty-one percent of hunts included the use of dogs, and hunts lasted an average of 2.8 hours. Data was provided from 1,794 hunts that occurred in 106 counties across the state. The central region had the largest number of hunts with 790, followed by the western region with 515, and the eastern region with a total of 488. The number of hunts per county was well distributed (Appendix A).

Total squirrels seen by hunters averaged 5.3 per hunt or 1.9 per hour. The rate of harvest of observed squirrels was stable (Figure 1) throughout the season. Hunters averaged seeing 4.1 gray squirrels per hunt (1.5/hr.) and 1.1 fox squirrels per hunt (0.4/hr.) statewide. Total squirrel harvest averaged 2.6 per hunt (0.9/hr.). Gray squirrel harvest averaged 2.0 per hunt (0.7/hr.), and fox squirrel harvest averaged 0.6 per hunt (0.2/hr.). The number of both gray and fox squirrels seen and harvested per hour was slightly higher than the 2005-06 season (Table 1). The maximum squirrels (by species) observed during a single hunt were 35 for gray squirrels (3 hunters) and 47 for fox squirrels (8 hunters). Last year's survey results yielded roughly 53% hunting mortality rate for an observed squirrel, and showed a slight decrease in hunter effort (10.5 hunts/cooperator)(Table 2).

**Figure 1: Squirrels Seen and Harvested per Hour by Week;
Hunter Cooperator Survey 2006-07**

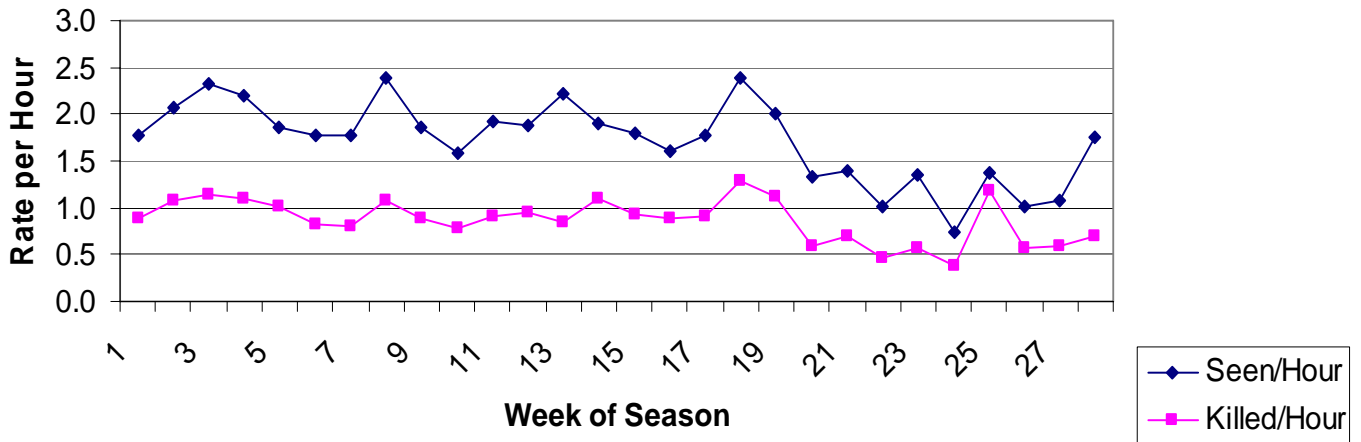


Table 1. Observation and harvest rates of fox and gray squirrels from Fall Squirrel Hunter Cooperator Surveys, 2000-2007.

Season	Fox Squirrels				Gray Squirrels			
	Seen		Harvested		Seen		Harvested	
	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
2006-07	0.4	1.1	0.2	0.6	1.5	4.1	0.7	2.0

Table 2. Summary of Fall Squirrel Hunter Cooperator Survey data, 2000-2007.

STATISTICS	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Total cooperators	101	120	95	114	95	95	171
Total hunts	1186	1425	1049	1321	1432	1165	1794
Total counties	80	91	83	83	81	88	106
Average hunts/cooperator	11.7	11.9	11.0	11.6	15.1	12.3	10.5
Total hours	3389	3916	2854	3518	3786	2955	4982
Hunts using dogs (%)	16.7	17.5	13.0	14.2	19.0	22.6	31.0
Total fox squirrels seen	1520	1956	1297	1173	1373	846	2060
Total fox squirrels killed	877	1098	775	632	777	482	1046
Total fox squirrels wounded	48	50	51	36	44	9	73
Total gray squirrels seen	4648	6690	6463	6701	7894	3712	7420
Total gray squirrels killed	2095	2802	3203	3053	3846	1926	3667
Total gray squirrels wounded	182	235	254	273	297	96	282
Harvest of squirrels seen (%)	48.2	45.1	51.3	46.8	49.9	52.8	49.7
Squirrels wounded (%)	3.7	3.3	3.9	3.9	3.7	2.3	3.7
Hunting mortality (%)	51.9	48.4	55.2	50.7	53.6	55.1	53.4

Hunter Effort

Hunting effort was greater towards the beginning of squirrel season. Forty-four percent of the hunts took place in August and September (weeks 1-8) (Figure 2). The hunter effort index declined as the season progressed, 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. The percentage of hunts dropped sharply beginning in November, with only 13% of the total hunts occurring in this month (Figure 2). The drop in hunting rate was likely a direct result of the onset of deer gun season. Accordingly, 70% of the total hunts occurred before modern gun season (November 11, 2006, Week 13).

Figure 2: Proportion of Hunts and harvest by Month; Fall Hunter Cooperator Survey 2006-2007

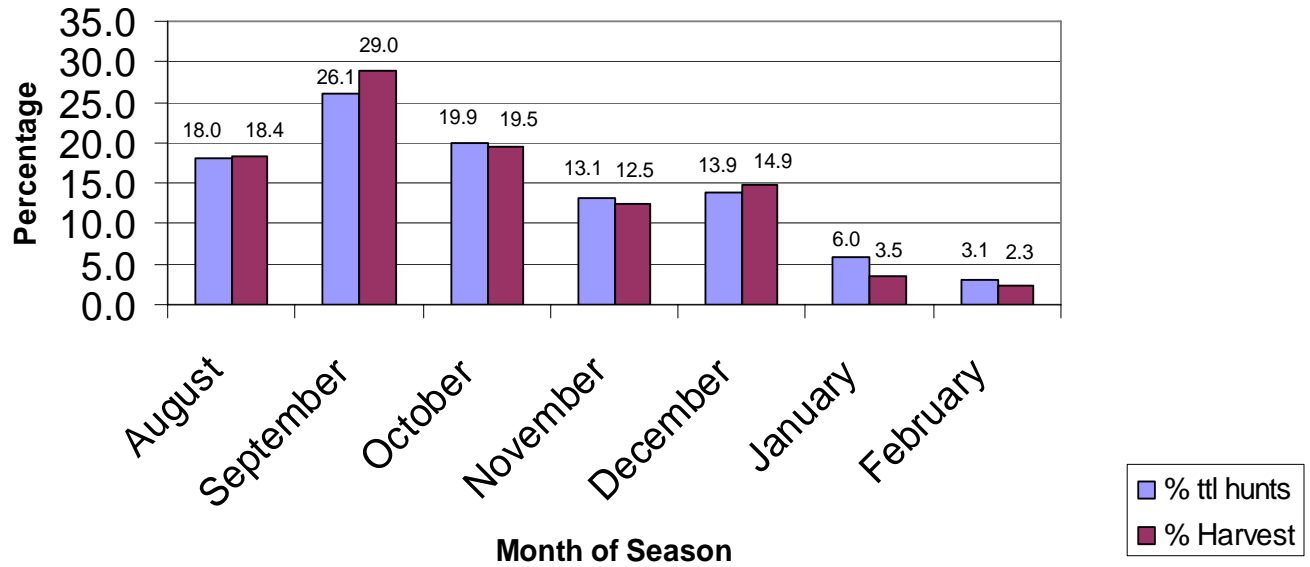
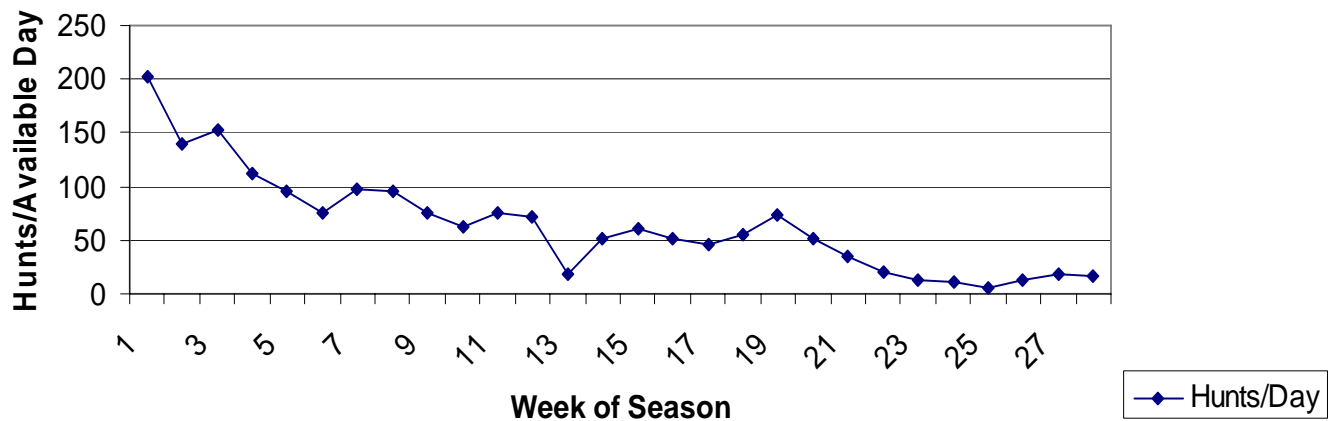


Figure 3: Hunts/Day Index; Fall Hunter Cooperator Survey 2006-2007



Harvest

Hunters harvested 49.7% of squirrels seen and wounded 3.7%. Assuming wounded squirrels did not survive, the hunting mortality rate was 53.4% of squirrels seen in 2006-07. Gray squirrels were harvested 4 to 1 compared to fox squirrels statewide. Regional trends varied from fox squirrels comprising 35.2% of the harvest in the central region to as low as 11.1% in the eastern region (Figure 4). The rate suggests Kentucky squirrel hunters prefer hunting in more extensive forests and woodlands, common to gray squirrels, than small woodlots and fencerow-type habitats where fox squirrels are often found. It also implies that gray squirrels are more abundant than fox squirrels.

**Figure 4: Species Composition of Fall Harvest;
Hunter Cooperator Survey, 2006-2007**

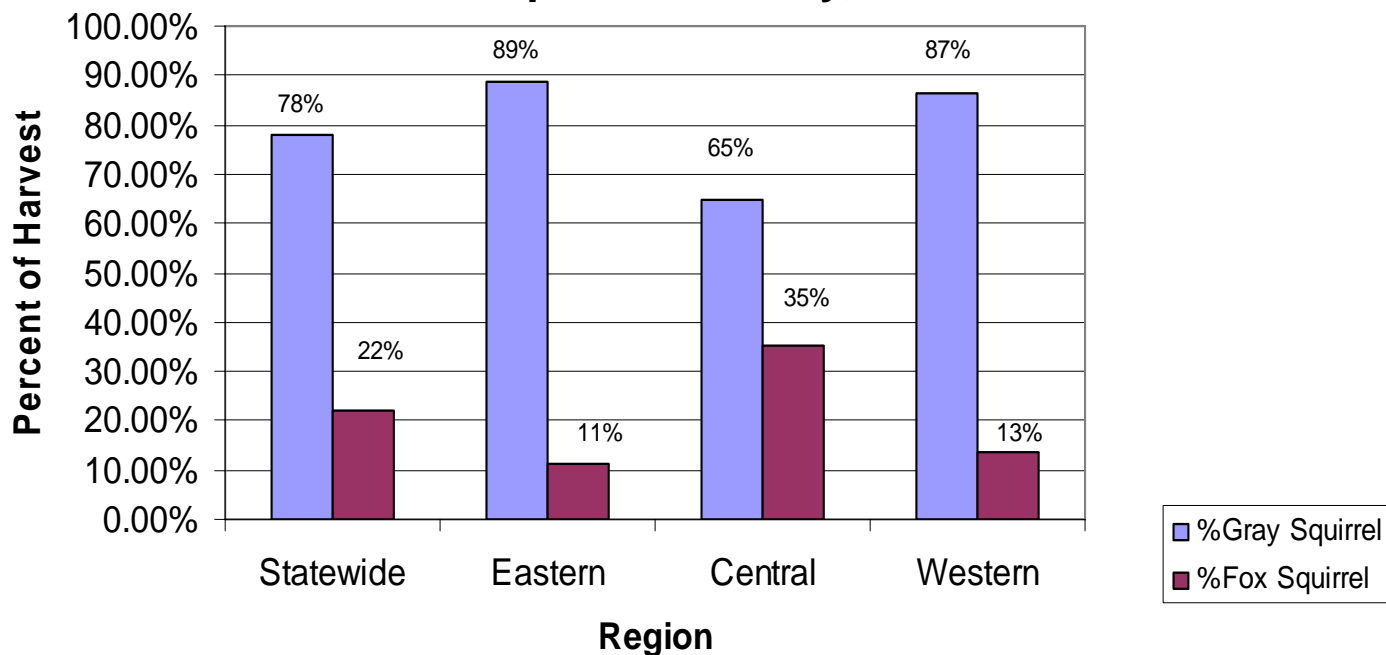


Figure 5: Squirrels Seen & Killed Per Hour by Month of Season

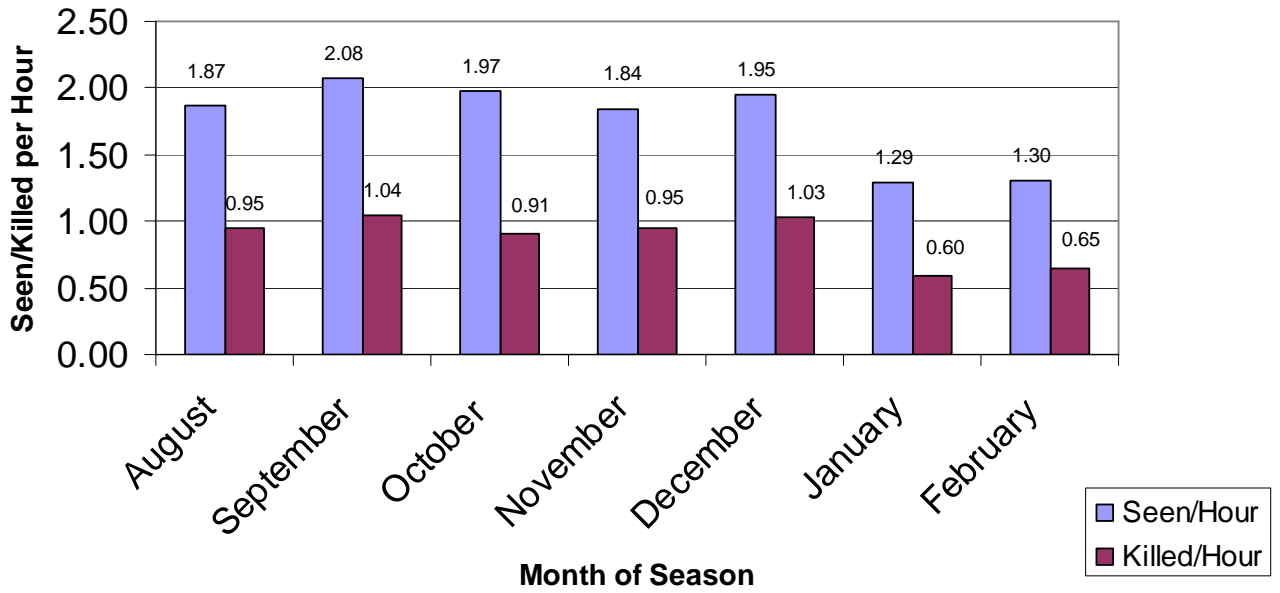
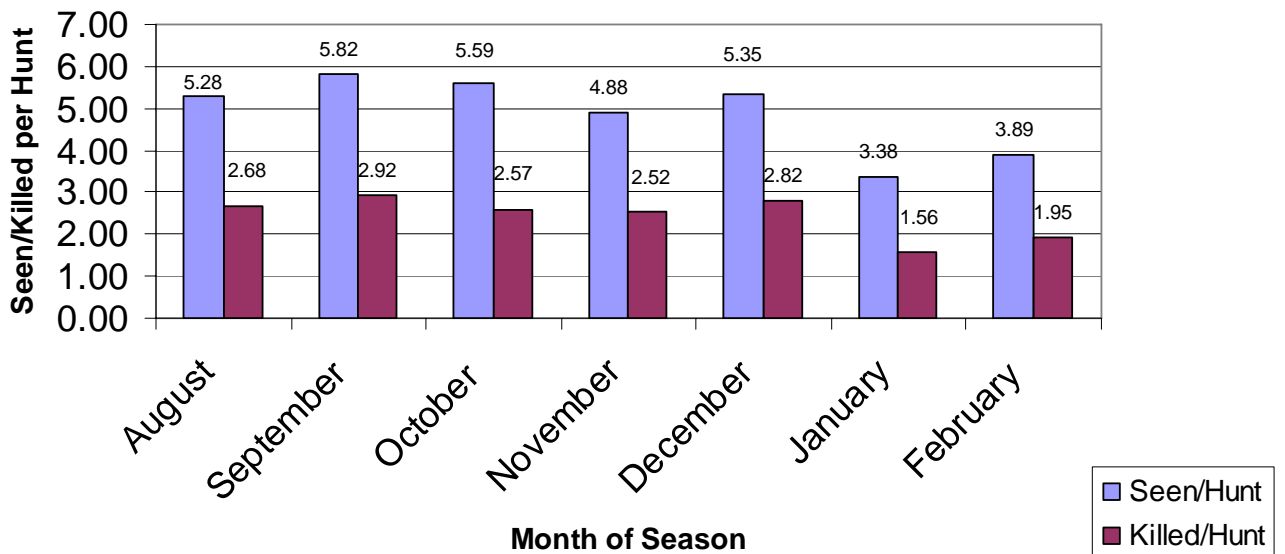


Figure 6: Squirrels Seen & Killed per Hunt by Month of Season



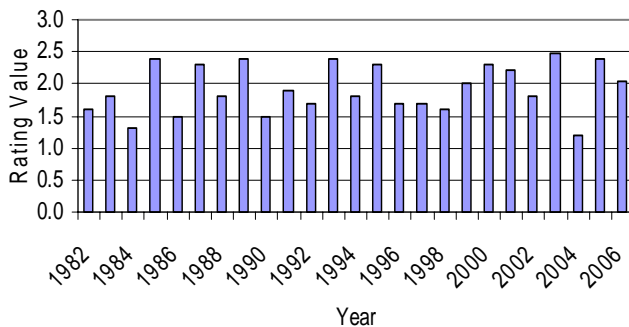
II. 2006 Mast Survey Results

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 2006 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.

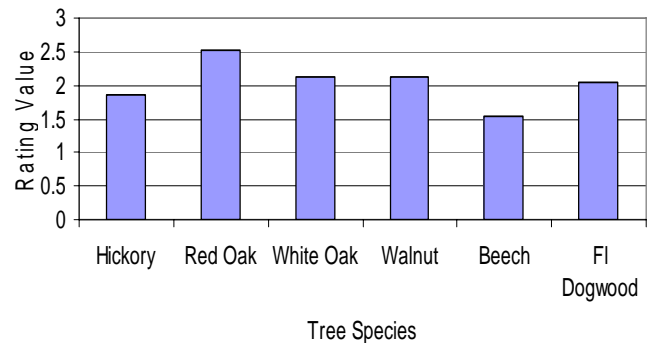
Summary of the Survey

On a statewide basis, this year's mast production was rated at 2.0 out of a possible 3.0. As a result, the winter food source was considered moderate statewide. Numbers were down slightly when compared to 2005; however 2006 was considered a good year for mast production. The soft mast production of dogwoods for the state was rated at 2.0, with American Beech rated at 1.5 (below right). The moderate mast crop last year should provide stability if not increases in forest wildlife populations, because higher food supplies lead to lower rates of winter mortality and higher reproductive potential.

KY Average Mast Production 1982-2006

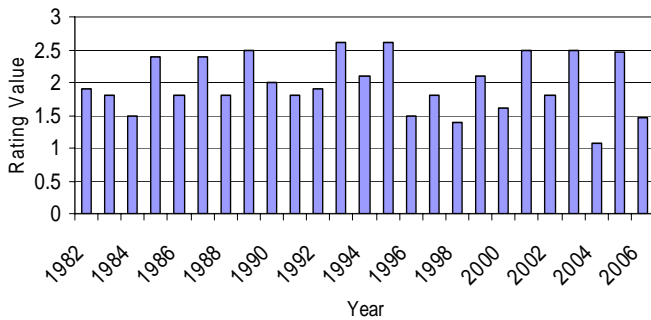


Average Mast Production by Tree Species 2006

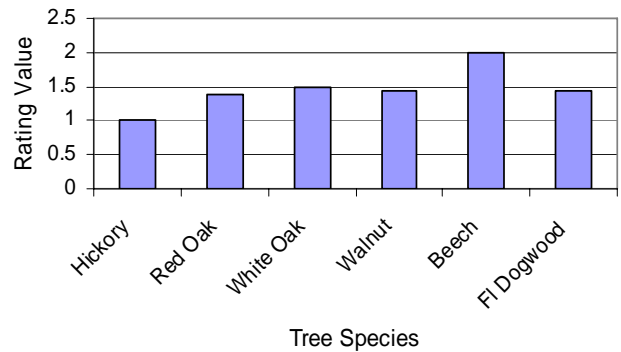


Western Region: The overall 2006 mast production for the western Kentucky region was rated as light to moderate (1.5). This was a decrease from the previous years rating (2.5) however; the decrease could be a result of a very small sample size from this region of the state? Squirrel populations should not be noticeably different from last year in the western region.

Western KY Overall Average Mast Production, 1982-2006

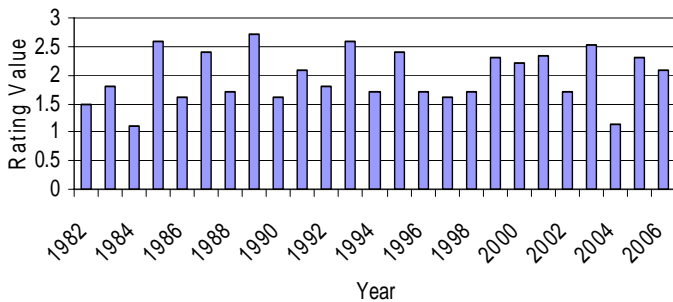


Western KY Average Mast Production by Species, 2006

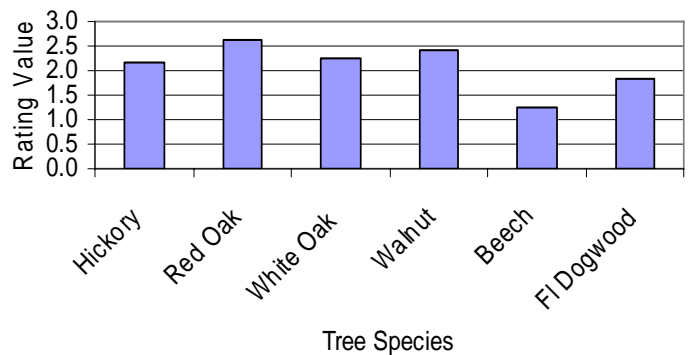


Central Region: The overall mast production index for central Kentucky (2.1) remained similar to the previous year (2.3). The moderately-heavy rating for the hard mast species provided increased food supply for forest wildlife species in this region. The light to moderate (1.5) rating for soft mast (below right) further helped with food availability through the winter.

Central KY Overall Average Mast Production, 1982-2006

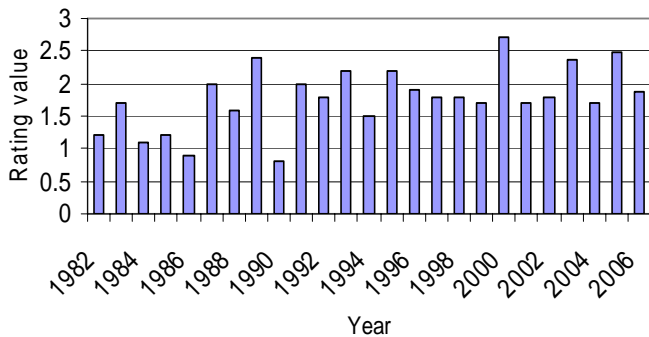


Central KY Average Mast Production by Species, 2006

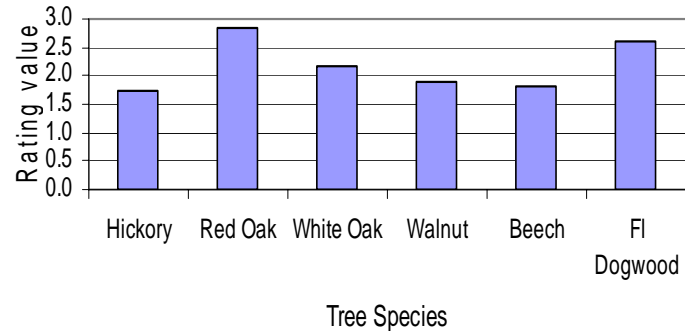


Eastern Region: The eastern region production rating (1.9) for 2006 (below left) can be considered moderate which should provide stable to increasing squirrel populations in the eastern region of the state. Soft mast trees including Flowering Dogwood seemed to be highly productive, along with the hard mast Red Oak group.

Eastern KY Overall Average Mast Production, 1982-2006



Eastern KY Average Mast Production by Species, 2006



III. 2007-08 Fall Squirrel Hunt Forecast

The 2005 mast crop was considered relatively high which provided for increases in both observed and harvested gray and fox squirrels during the 2006-07 season. With the 2006 mast crop following close behind the previous year, winter food abundance was good which generally leads to high reproduction and low winter mortality. The result should be noticed as hunters enter the forests this fall. Squirrel numbers should be similar to the 2006-07 season in all areas of the state with the central region reporting the most productive mast crop. It should be noted that the state experienced some unseasonable late spring freezes this year that could potentially result in a mast failure in certain portions of the state. Some area experienced more severe conditions than others. Limited food supplies result in excessive squirrel movements, which could provide for an excellent hunting season this year! Hunters should expect to see over 2 squirrels/hour, which will provide for some exciting times this fall and winter. Have a safe and enjoyable squirrel season and thanks again for your support! And don't forget to turn in your Hunter Cooperator log at the completion of this years hunt!

