

# 2010 WEST VIRGINIA MAST SURVEY AND HUNTING OUTLOOK



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*Wildlife Resources Bulletin Number 10-5*

**WEST VIRGINIA DIVISION  
OF NATURAL RESOURCES  
WILDLIFE RESOURCES SECTION**



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## 2010 West Virginia Mast Survey

Randy Tucker, Michael Peters, William Igo and Christopher Ryan

The Division of Natural Resources (DNR) in cooperation with the Division of Forestry, annually surveys the State to determine relative abundance of soft and hard mast of important trees and shrubs. Information on the quantity of wildlife food is provided to our cooperators, our hunters, and the news media.

Three hundred fifty three (353) locations covering all regions of West Virginia were surveyed in 2010. Professionals from a variety of disciplines, including wildlife managers, foresters, wildlife biologists, retired wildlife managers and biologists, several conservation officers, one Natural Resources Commissioner, and a few other cooperators devoted their time to collect data. Without the efforts from all of these individuals this survey would not be possible. We sincerely thank everyone and extend our special thanks to retired persons and sportsmen that gave their time and effort without any monetary compensation.

The mast survey is a relative estimation of mast produced by 18 different species. A sample of the mast survey form is included in the Appendix. To collect mast survey information, cooperators are assigned counties and areas familiar to them. Mast data is subjectively evaluated as abundant, common, or scarce. The surveyor also documents species not seen. The mast index is calculated for each species by the following formula:

$$\text{Mast Index} = \frac{[\text{abundant observations} \div \text{total observations}] + [\text{common observations} \times 0.5 \div \text{total observations}]}{\text{total observations}} \times 100$$

The mast index is calculated by species for each ecological region and elevation (high and low). The current year's index is compared to the previous year's index. It is also compared to a long-term average index spanning the life of the survey.

Many wildlife species are highly dependent on mast produced by our trees and shrubs. Energy available in mast is more important for survival of many wildlife species than energy available in forage from agriculture crops and herbaceous plants. Seeds and fruits from trees and shrubs are necessary for not only overwinter survival, but also to assure that wildlife is in good physical condition to reproduce. Because of the importance of mast conditions, biologists and wildlife managers are able to forecast black bear, squirrel, white-tailed deer, wild boar, and wild turkey population changes and harvests.

Compared to the 2009 survey, the mast this year increased considerably (Table 1). All species except yellow poplar and dogwood increased from last year's estimate. Indices for chestnut oak and white oak increased 482 and 242 percent, respectively. Apple also had a considerable increase of 206 percent. All oak (except scrub oak) indices increased more than 100 percent. Black cherry was also a heavy producer this year and cherry increased by 124 percent from last year's index. Walnut and hickory

increased moderately from 2009. Walnut increased 12 percent and hickory increased 48 percent. Several soft mast species were also monitored. Greenbrier decreased by two percent from last year. Of the soft mast species, dogwood declined the most from 2009 (16 percent).

Many remember the dismal mast crop in 2009. Although the black/red index declined 14 percent in 2009, the indices for black/red oaks increased by 176 percent in 2010. These oaks require two years for the fruit to mature so the index is clearly a product of last year's germination.

Compared to the 40-year average (Fig. 1), the 2010 mast index for all species combined increased above the long term average (index of 43). The largest increase was observed for chestnut oak (115 percent). Beech, walnut, yellow poplar, dogwood, blackberry and greenbrier declined below the 40 year average (Table 2).

The statewide index for combined hard mast species (beech, hickory, and oaks) and black cherry was well above the 40-year average (Figs. 2 and 3). Black/red oak appeared to be best in Regions 3, 4, 5 and 6. Chestnut oak was the big hitter this year especially in Regions 2 and 4. Because mast abundance can vary at different locations, caution should be exercised when comparing the abundance values of these indices. Nevertheless, the presence or absence of acorn production can be an important predictor in harvest. The 2009 mast crop was one of the worst since we began monitoring mast production. Because we compare mast abundance to the previous year, caution should be exercised when interpreting the indices. Several factors can inflate or deflate the percent change in the index. Therefore, comparisons to the 40-year average should give us a tempered result that is more representative to the true mast condition.

Soft mast species (hawthorn, crabapple, grape, and apple) were marginally better than the 40-year average. Blackberry and greenbrier were below the 40-year average by seven (7) and 13 percent, respectively. Yellow poplar was down five percent from the 40-year average. These soft mast foods are particularly important because of their use by grouse and turkey.

As a rule, lower elevations statewide appeared to have improved more than higher elevations. This is particularly true for chestnut oak species. Soft mast species were found more abundant at higher elevations.

When the mast survey began in 1970, our main purpose was to use it to forecast squirrel populations and hunting outlook. Current mast conditions impact overwinter survival and reproductive success of many other wildlife species.

It is recommended that hunters review the regional trends in mast as shown in Tables 3 and 4 to learn of food conditions in their region of the State. There are always some regional differences. Readers not familiar with our regions should refer to Figure 4 to determine the ecological region where they hunt.

## **ECOLOGICAL REGION 1 (EASTERN PANHANDLE)**

Overall mast conditions for 2010 are better than 2009 with the exception of beech, walnut, hickory, dogwood, and greenbrier (Table 3). However, the rest of the species increased from last year and will be a significant improvement over 2009's natural food conditions. Black cherry, apple, chestnut oak, hawthorn, grape, and white oak showed a dramatic improvement in 2010. These important species should provide an adequate diversity of food sources across the region. Black/red oak and scarlet oak also improved from 2009. Although there was an increase in both the high and low elevations, both chestnut and white oak did better at higher elevations than at lower elevations. However, black cherry and hawthorn were significantly more abundant at lower elevations.

Similar to the improvement from last year, most species were above their 40-year average (Table 4). The most marked improvement was in the white and chestnut oak and black cherry abundance. Black/red and scarlet oaks were also above their 40-year average. Scrub oak, an important species in this region, was close to its long-term average. Nearly all species followed similar trends to their overall abundance with respect to elevation when compared to their 40-year average.

Because hickory, walnut, and beech indices are lower and the oak family index is higher, hunters should look for game around oak groves, especially white and chestnut oak. In addition, numerous other species including many game birds may be concentrated around the soft mast species of black cherry, grape, or hawthorn. Hunters should also notice changes in the mast abundance between the species with changes in elevation. Wildlife may change elevations or feeding areas depending upon the available mast and the preferred food conditions for the respective species.

## **ECOLOGICAL REGION 2 (MOUNTAINS)**

Hickory and all oaks (except scrub oak) are big hard mast producers in the Mountains. Beechnuts and walnuts are more than a third lower than last year. There is an abundance of black cherry (up 566% from last year!), and hawthorn, crabapple, and apple crops are well above 2009. Other soft mast species that fared better than last fall are greenbrier and sassafras. Grape, dogwood, and blackberry crops were down from last season.

All hard mast species, with the exception of scrub oak, produced above the 40-year average. All soft mast species were below the 40-year mark.

Like last year almost all species produced better at higher elevations. Dogwood, greenbrier, sassafras, and apple were more abundant along bottoms and lower slopes.

Game species will have an abundance and diversity of foods for the fall and winter periods in the Mountains Region. Critters should have good overwinter survival and be in good physiological shape for production in Spring 2011.

### **ECOLOGICAL REGION 3 (SOUTHERN)**

Beech, white oak, chestnut oak, black/red oak, scarlet oak, black cherry, hawthorn, crabapple, and apple are up dramatically in 2010 from 2009. Many of the important hard mast species were more than twice as abundant this year compared to last. The only species that were down from last year are dogwood and greenbrier.

In addition to the increases in food production this year compared to last, every species except yellow poplar, dogwood, and greenbrier were above their 40-year average. Chestnut oak showed the highest improvement over its long-term average and should supply a stable food source for many critters this fall. Black cherry, hawthorn, apple, and sassafras all showed improvement over their long-term average in the soft mast class.

Most of the species produced well at both high and low elevations; however, most species produced slightly better at higher elevations. With the exception of scarlet oak, the rest of the oak species were slightly better at higher elevations.

Hunters and wildlife should find mast very widespread and available in this region. Many of the wildlife species will not be concentrated around specific food sources and will be spread more evenly over the topography.

### **ECOLOGICAL REGION 4 (CENTRAL)**

This year's mast conditions are much improved compared to the 2009 season. Both the hard (i.e., beech, walnut, hickories, and oaks) and soft mast production (e.g., cherry, grape, dogwood, etc.) increased from last year. Blackberry is the only species that declined in mast from last year (Table 3).

However, compared to the 40 year average, the mast conditions this year did not see as much of a dramatic change in hard mast production. Beech was 46 percent below the long term average while all other hard mast species were above average. Almost all soft mast species are below the long-term average with grape being the only species above the long-term average (Table 4).

Mast conditions at higher elevations improved a slightly more than mast conditions at lower elevations compared to last year (Table 3). The long-term average for low elevation mast production is slightly higher than at higher elevations (Table 4).

### **ECOLOGICAL REGION 5 (WESTERN)**

All oak production in this region improved considerably from the 2009 mast crop and was up by several orders of magnitude. Black/red and scarlet oak were up over

600 percent from the 2009 index. However, we must keep in mind that mast production for this region in 2009 was dismal at best, so while our indices were greatly improved; it is in part a reflection of the poor year in 2009. Oak production in this area was better at higher elevations. White oak was 229 percent higher than last year and 91 percent higher than the 40-year index. Chestnut oaks were 89 percent above the long-term average and 443 percent higher than last year. Black/red and scarlet oaks had an enormous increase from their index last year (713%) and a substantial increase compared to the long-term average (72%). Hickory production was up 37 percent from last year and 15 percent from its 40-year index. Our observers noticed a 24 percent reduction in walnuts and production was down 53 percent from the long-term average. Similar to other hard mast species, beech was up 106 percent from 2009 and only 4 percent above its historical index. Black cherry showed an increase of 81 percent from last year and was 52 percent above its long-term average.

Understory trees and shrubs mast production did not fair as well as the oaks, but did improve from 2009. Greenbrier was only marginally better than for 2009 and was down 10 percent from the 40-year average. Because soft mast production in this region was poor in 2010, soft mast production compared to the 40-year average was marginal at best.

## **ECOLOGICAL REGION 6 (SOUTHWESTERN)**

All hard mast, except walnut, had better production in 2010 than 2009 in the Southwestern Region. Hickory is up over 100 percent, white oak up 271 percent, chestnut oak up 478 percent, black/red oak up 534 percent, and scarlet oak up 482 percent. Squirrels will overwinter well and should bring off healthy litters in 2011. Fall 2011 bushytail populations will be higher for the 2011-2012 season.

Black cherry was up 30 percent, and crabapple (+10%), sassafras (+18%), and apple crops (+46%) were up from last year. Grapes were slightly down (-3%), but thornapple (-22%), dogwood (-50%), and greenbrier (-32%) were well down from 2009.

The 40-year average of most mast species compares favorably with differences between 2009 and 2010. Beech is down slightly (-6%), grape is up 19 percent, hawthorn up 9 percent, and sassafras down 9 percent.

Beech hit better along lower elevations while all other hard mast (hickory and oaks) produced better on the ridges and higher slopes. With the exception of black cherry and the apple crops (hawthorn, crabapple, common apple) most soft mast also hit better at high elevations.

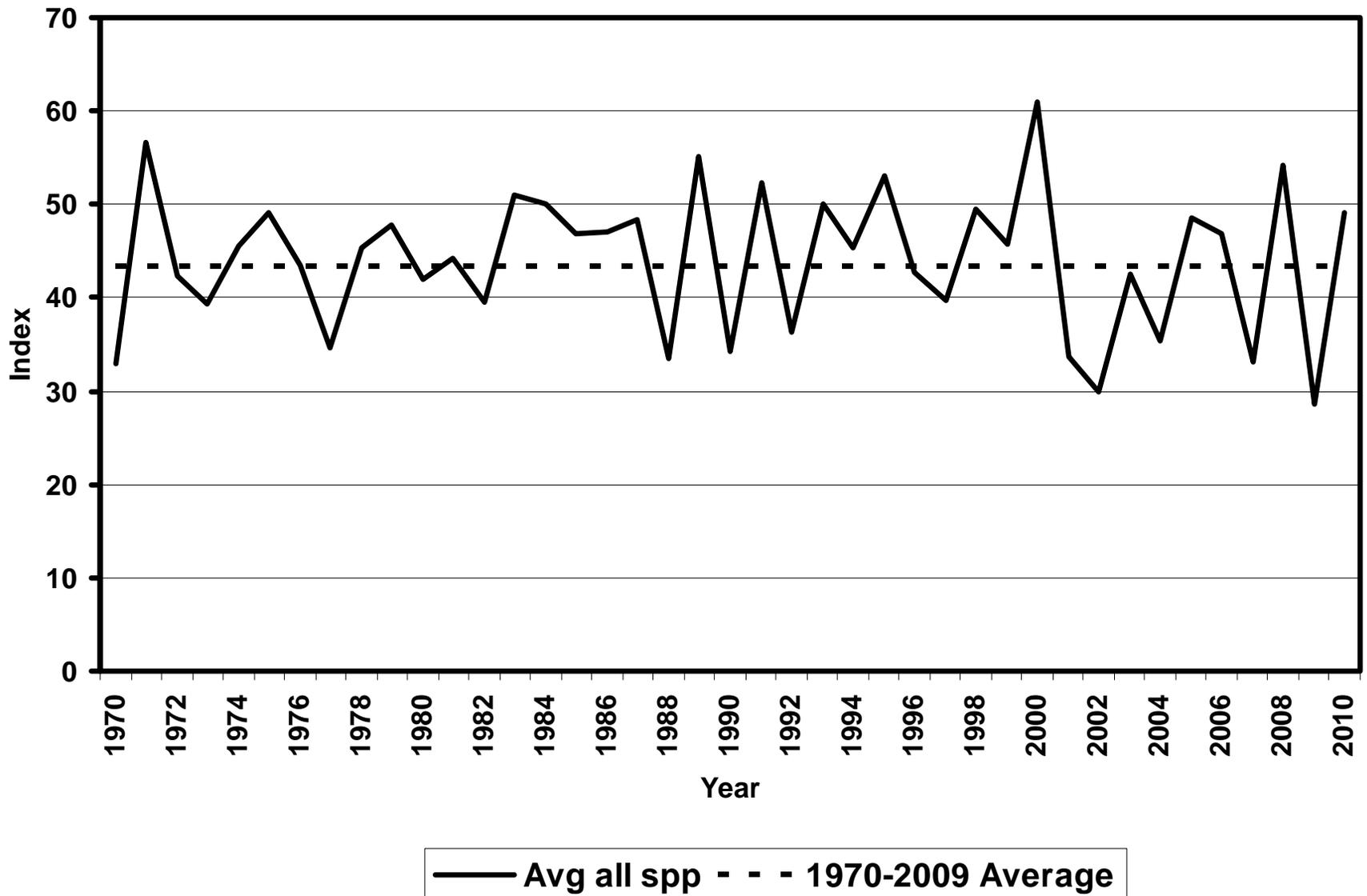


Figure 1. Indices of all mast species combined, 1970-2010.

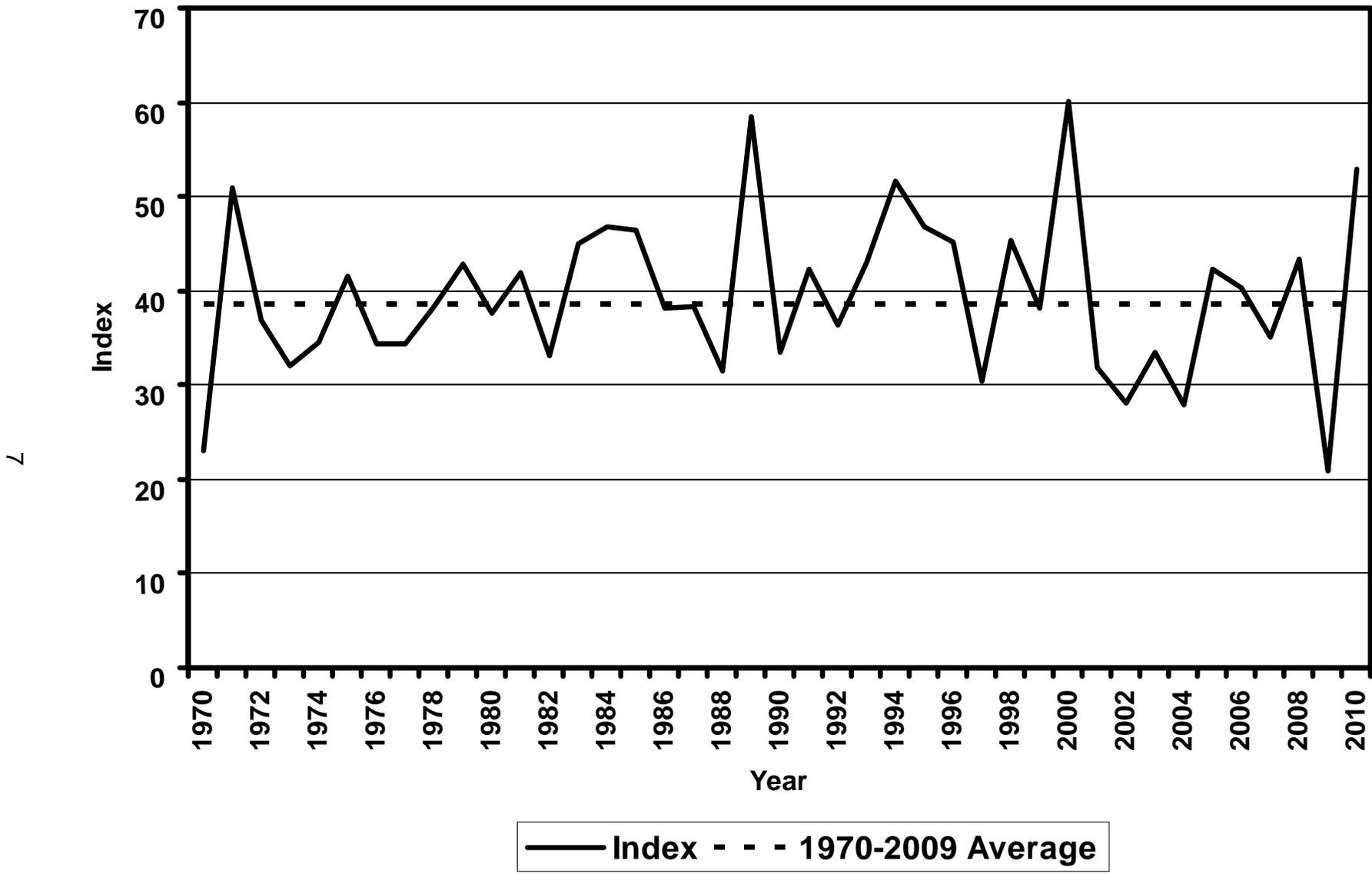


Figure 2. Indices of beech, hickory, oaks, and black cherry, 1970-2010.

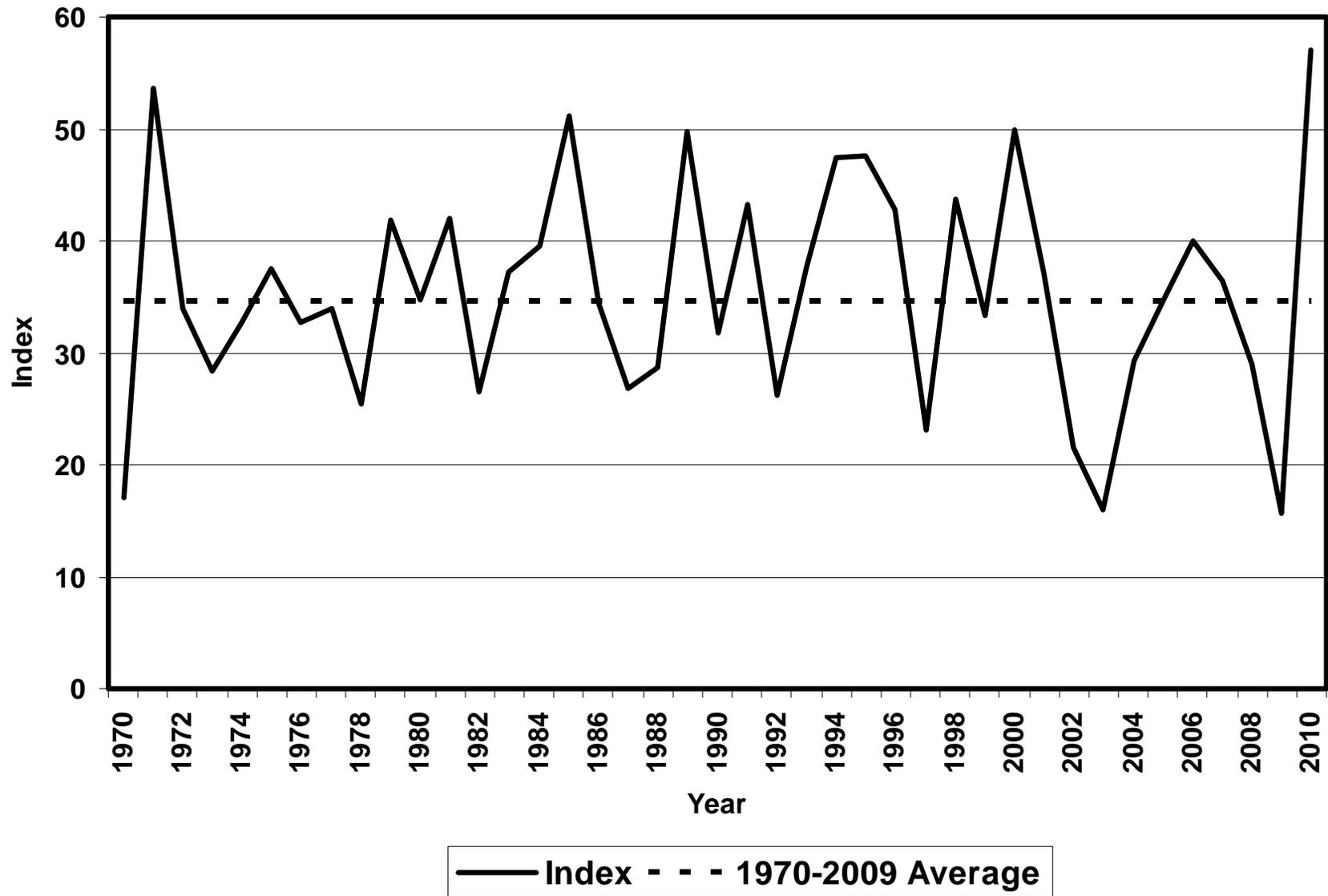


Figure 3. Index of oaks, 1970-2010.



Table 1. 2010 statewide index compared to 2009 mast index.

<b>Species</b>	<b>2009</b>	<b>2010</b>	<b>Percent Difference</b>
Beech	21	29	37
Walnut	29	32	12
Hickory	37	54	48
White Oak	19	66	242
Chestnut Oak	12	68	482
Black/red Oak	25	68	176
Scarlet Oak	22	55	149
Black Cherry	32	72	124
Grape	35	43	23
Scrub Oak	30	43	44
Yellow Poplar	47	45	-4
Hawthorn	32	56	74
Crabapple	33	58	76
Dogwood	48	41	-16
Blackberry	44	48	8
Greenbrier	36	35	-2
Sassafras	25	38	52
Apple	19	59	206
Other	52	71	37

Table 2. 2010 statewide index compared to 40-year average mast index.

<b>Species</b>	<b>Avg Index</b>	<b>2010</b>	<b>Percent Difference</b>
Beech	38	29	-25
Walnut	37	32	-13
Hickory	47	54	16
White Oak	37	66	79
Chestnut Oak	32	68	115
Black/red Oak	42	68	63
Scarlet Oak	32	55	71
Black Cherry	46	72	58
Grape	41	43	6
Scrub Oak	36	43	18
Yellow Poplar	47	45	-5
Hawthorn	47	56	18
Crabapple	53	58	8
Dogwood	48	41	-15
Blackberry	51	48	-7
Greenbrier	41	35	-13
Sassafras	36	38	3
Apple	56	59	5
Other	68	71	4

Table 3. Percent difference in mast index by species between 2009 and 2010 by ecological region.

Species	Ecological Region					
	1	2	3	4	5	6
Beech	-90	-42	211	78	106	86
Walnut	-52	-34	94	100	-24	-20
Hickory	-21	56	110	90	37	103
White Oak	134	303	265	409	229	271
Chestnut Oak	320	1597	282	2097	443	478
Black/red Oak	79	32	294	267	713	534
Scarlet Oak	40	12	145	2738	660	482
Black Cherry	512	566	105	77	81	30
Grape	124	-14	12	11	49	-3
Scrub Oak	8	-20	267	-100	-100	150
Yellow Poplar	11	-36	13	11	-21	-12
Hawthorn	420	133	75	33	58	-22
Crabapple	101	94	48	147	75	10
Dogwood	-47	-23	-17	9	15	-50
Blackberry	6	-27	47	-6	5	15
Greenbrier	-22	14	-12	19	3	-32
Sassafras	70	65	42	66	65	18
Apple	324	1079	98	318	142	46
Other	88	31	21	40	72	-5

Table 4. Percent Change in 2010 mast index by species from average of years (1970-2009) by ecological region.

Species	Ecological Region					
	1	2	3	4	5	6
Beech	-82	-54	4	-46	4	-6
Walnut	-55	-15	27	2	-53	-11
Hickory	5	18	19	22	15	16
White Oak	116	46	93	48	91	76
Chestnut Oak	138	137	139	79	89	80
Black/red Oak	71	48	85	22	72	65
Scarlet Oak	68	33	117	37	75	53
Black Cherry	85	47	78	32	52	61
Grape	13	-24	12	1	21	19
Scrub Oak	8	-46	11	100	-100	54
Yellow Poplar	33	-27	-3	-3	-21	-9
Hawthorn	86	-8	54	-6	23	9
Crabapple	73	-15	17	-6	-7	32
Dogwood	-47	-16	-3	-17	6	-38
Blackberry	-14	-37	16	-24	3	30
Greenbrier	-36	-23	-8	-8	-10	-22
Sassafras	6	-24	32	-9	-4	-9
Apple	46	-28	29	-10	-6	1
Other	9	-10	14	9	9	-3

# 2010 West Virginia Hunting Outlook

Randy Tucker, Michael Peters, William Igo and Christopher Ryan

Predictions of hunting success are based on multiple considerations: current and previous years' mast conditions, nuisance complaints, information from other surveys (Spring Gobbler Survey, Bowhunter Survey, Raccoon Field Trial Survey), adjustments in regulations (such as bag limits, permit allocations, additional counties for antlerless season, and season length) and observations provided by field personnel of the Wildlife Resources and Law Enforcement Sections of the Division of Natural Resources (DNR), foresters from the Division of Forestry, retired DNR wildlife managers and biologists, and a few volunteer cooperators. Mast often dictates overwinter survival and reproductive success of many wildlife species the following year. Observations of field personnel were recorded on Hunter Prospects forms (see Appendix). The returned Hunter Prospects forms were summarized by the authors and used as an evaluation tool to aid in determining the hunting forecast.

Last winter was one of the worst on record regarding snowfall and freezing temperatures. As a result, some species such as grouse, did not receive the hunting pressure normally expected during the year. Further, winter kills of deer and turkey are expected to reduce those populations.

This year, several changes in hunting seasons will influence hunter harvest. Season length and number of counties open to fall turkey and black bear hunting have been expanded. A statewide Youth Small Game Season will be held on October 2, 2010 open to youth age 17 or younger for all small game species. Please refer to the 2010-2011 Hunting and Trapping Regulation Summary for a complete listing of changes.

Table 1 is a quick chart of predicted statewide harvests of major game species for 2010. Harvests of most game species are expected to be either higher or lower than the harvests of 2009. Projected deer kills by season and regions are depicted in Table 2. Fall wild turkey forecasts are shown in Table 3. Hunting prospects on a regional basis are provided in Tables 4 through 8. Mast conditions vary throughout the state, so hunters will need to scout their favorite hunting spots to help ensure success. Hunters are reminded this outlook is designed to forecast general prospects and is not intended to predict hunting conditions at specific locales—preseason scouting will be a wise venture.

## Gray and Fox Squirrels

The mast failure of 2009 resulted in very low squirrel numbers in the Mountain State. Lack of acorns, beechnuts, and hickory nuts caused poor overwinter survival and very sparse litter production in the spring of 2010. With abundant hard mast conditions for this fall, squirrel populations are expected to rebound in 2011.

Most bushytails need not venture far from their den sites under the current “boom” in mast. As one forecaster commented, “There are more nuts than there are critters to eat ‘em.” Surveyors are **forecasting poorer hunting for the 2010-2011 season**. Since there was fair nut production of hickory, red/black oak, and scarlet oak in the Eastern Panhandle and Mountains in 2009, these regions will offer better squirrel hunting than elsewhere in the state.

Field personnel noted squirrels feeding on acorns in July and cutting on hickory nuts throughout August. Since hickory nuts are in good supply, particularly at higher elevations, the secret to a successful hunt will be scouting and locating hickory trees with fresh cuttings underneath.

## **COTTONTAIL RABBITS**

The bunny harvest should be **similar or lower than last year**. In most regions the spring and most of the summer months were favorable for rabbit production and survival. However, the dog days of summer turned very dry and some regions experienced drought conditions. The vegetation needed to protect rabbits dried up making it easier for predators to find them.

## **RACCOONS**

This year (probably the year before) the ‘coon harvest will be **similar to the 2009 season** with some regional differences. Raccoon populations may be similar to last year but be ready to do a lot of walking. Overall improved mast conditions statewide will probably have them dispersed.

## **WHITE-TAILED DEER**

This year’s forecast should be **slightly lower** for 2010. All regions are predicting a lower archery harvest because of the abundant mast conditions. However, archery hunters will still be able to enjoy a healthy white-tailed population but they may have to hunt a little harder to get a deer within effective archery range. Buck hunters should experience a similar harvest in 2010. Some slight overwinter mortality may have localized impacts on populations but will not have a tremendous effect on the overall buck harvest. Buck seasons are less impacted by hard mast conditions compared to other seasons due to the total number of hunters afield during that time. Therefore, the abundant mast crop of 2010 will have less of an overall impact on the harvest. However, hunters should scout and notice the acorn crop prior to hunting. Available mast during the gun season should still have deer feeding on these food sources. Antlerless seasons should be slightly lower in 2010 because some counties have lower bag limits or opportunities. The statewide muzzleloader harvest should be similar to

last year but may be slightly lower in some regions. The better than average mast conditions coupled with the hard winter of 2010 may make it more difficult on muzzleloader hunters. Hunters should refer to the 2009-2010 Hunting and Trapping Regulations Summary for detailed information on season dates and bag limits.

## **BLACK BEAR**

We are predicting a **record** bear harvest in 2010. Seasons have been expanded greatly in 2010 and the abundant mast crop should keep bruins out of the den longer during December. Pending any unnatural snowfall or weather conditions, similar to what we experienced in 2009, West Virginia should have an all time record gun harvest. However, the bow harvest should be dramatically reduced because mast availability will not have bears concentrated around specific food sources.

Nineteen counties or parts thereof will have an early gun hunting season in September where hunters may use dogs. In addition, the statewide bag limit has increased again from 1 to 2 as long as one bear is from Kanawha, Fayette, Raleigh, and Boone counties. Moreover, numerous counties including Logan, McDowell, Wyoming, and eastern Braxton will have an early dog season for the first time in history. This increased opportunity should allow hunters to spread out and have an increased chance of success. Hunters using dogs should not forget about these southern counties in the December season. There is a tremendous bear population in these areas for hunters to pursue.

In addition to the early gun season where dogs will be allowed, hunters will be able to pursue bears without dogs concurrently during the buck gun season in 10 counties. Morgan, Hampshire, Nicholas (private land), Greenbrier (private land), and Mercer were added to this hunting season this year in addition to Kanawha, Boone, Fayette, Raleigh, and Monongalia counties from last year. This season should present hunters a great chance to harvest a bear as long as they have their bear damage stamp in addition to the appropriate license.

Eleven additional counties were opened in the western part of the state to the traditional December gun season without dogs. Although these counties will not contribute much to the harvest, it will enable hunters the opportunity to harvest a bear in December while still allowing the management unit to reach its goal.

## **WILD TURKEY**

Brood surveys are unreliable this year due to the shortage of field personnel and field projects. Widespread and abundant mast supplies, especially black cherry and other soft mast along with bountiful acorn crops, will have birds scattered and utilizing more remote areas if disturbed. Forecasters are predicting similar to lower fall turkey harvests in the 14 traditional counties of the Eastern Panhandle and Mountains regions.

This year is the initiation of a new fall turkey hunting strategy that has resulted in the opening of 13 counties to a one-week fall season and 12 (including Preston) counties to a two-week fall season (please refer to the 2010-2011 Hunting and Trapping Regulations Summary for specific counties and season dates).

The new strategy allows for counties harvesting 0.5 spring bird per square mile to be opened for a one-week season, while non-traditional counties with kills of 0.75 gobblers per square mile or more are eligible for a two-week fall season. Under last year's strategy ("new" counties qualified for a one-week fall season with at least 0.75 spring birds killed per square mile) only 9 "new" counties were fall hunted. With the liberalized strategy allowing 24 non-traditional counties open for 2010 fall season, the **statewide fall turkey harvest should be higher than last year.**

## RUFFED GROUSE

Snowbound! That's what most ruffie hunters experienced last year during the popular hunting months of January and February. Though hunters and their bird dog buddies were predicted to have higher flushing rates and more birds in the bag, many never had the opportunity. Some diehards still ventured forth, their dogs floundering and tuckering out quickly with some hunters playing acrobats on snowshoes or plodding slowly and laboriously through the heavy white stuff. Deep snowfall in many areas lasted through March.

However, these deep snows in many areas have been a boon to spring grouse populations—their snow roosting ability may have increased survival rates. Brood counts for 2010 are currently way down—but this is one year we cannot rely on our brood surveys! Multiple retirements have reduced the number of field personnel, and field projects for remaining employees have been curtailed or limited. Therefore, assuming chick production was normal or even a little higher, and knowing soft mast supplies are good and widespread, we would normally forecast lower flushing rates for the 2010-2011 season. However, assuming we have a normal winter with average snow conditions, **harvests will probably be higher**—mainly because hunters and their four-legged companions will be able to get out of the house!

## WILD BOAR

Wild hog's productivity compares favorably with that of squirrels. Little to no acorns or hickory nuts means little to no litters the following spring for either species. The hard mast bust in 2009 means very low reproduction and a lower wild boar population for 2010. This, combined with the prolific and widespread mast conditions for 2010 that will have hogs widely scattered and able to use remote habitats, will mean a lower wild boar kill for the 2010 season.

Table 1. 2010 quick check chart of predicted statewide wildlife harvests.

<b>Species</b>	<b>Higher</b>	<b>Similar</b>	<b>Lower</b>
Gray and Fox Squirrels			X
Cottontail Rabbits			X
Ruffed Grouse	X		
Raccoon		X	
White-tailed Deer			X
Wild Boar			X
Wild Turkey	X		
Bear	X		

Table 2. 2010 quick check chart of deer harvest forecast by region and season.

<b>Region</b>	<b>Season</b>				
	<b>Bow</b>	<b>Buck</b>	<b>Antlerless</b>	<b>Muzzleloader</b>	<b>Total Kill</b>
1	Lower	Lower	Lower	Lower	Lower
2	Lower	Lower	Lower	Lower	Lower
3	Lower	Similar	Slightly Lower	Similar	Similar
4	Lower	Similar	Slightly Lower	Similar	Similar
5	Lower	Similar	Similar	Similar	Similar
6	Lower	Similar	Slightly Lower	Similar	Similar
Statewide	Lower	Similar	Slightly Lower	Similar	Slightly Lower

Table 3. 2010 quick check chart of fall wild turkey harvest forecast by region.

<b>Region</b>	<b>Higher</b>	<b>Similar</b>	<b>Lower</b>
1			X
2			X
3	X		
4	X		
5	X		
6	X		
Statewide	X		

## ECOLOGICAL REGION 1

Table 4. Hunting prospects in Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, and Pendleton counties.

Game Species	2010 Outlook
Gray and Fox Squirrel	<p>There was some hard mast available in 2009 but overall conditions and hunting should be worse in 2010 than 2009. However, this region and the Mountains did have some mast in 2009; therefore, the hunting will be better than the remaining regions. Scrub oak also supplied squirrels with a good food supply in 2009.</p> <p>Hunters should look for bushytails around chestnut and white oaks. These species have higher than normal indices and should supply good food sources. Overwinter survival and reproduction should be excellent next year.</p>
Rabbits	<p>The severe drought conditions experienced in our eastern panhandle will limit cottontail abundance and hunting opportunities. The lack of precipitation, and thus cover, should cause a significant decline in numbers this fall.</p>
Ruffed Grouse	<p>Our cooperators are predicting that the grouse outlook will be similar in 2010. Although we might not have seen as many broods, the extreme snowfall in 2010 limited hunting opportunities for many hunters. With a normal snowfall in winter 2010-2011 many hunters should be able to enjoy more time afield.</p>
Raccoon	<p>Our cooperators are also expecting similar hunting and masked bandit numbers for raccoon hunters. With adequate available soft and hard mast at lower elevations raccoons should be fairly common along creek and river bottoms.</p>

Table 4. (Continued) Hunting prospects in Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, and Pendleton counties.

Game Species	2010 Outlook
Deer	<p>Many of the counties in this region have a similar hunting season structure compared to last year. However, with the shift in mast abundance it may affect the different harvest distributions. Archery hunters may have a harder time in 2010 compared to 2009, especially because of widespread chestnut and white oak acorns. However, there are plenty of whitetails in this region and hunters should still have no problem harvesting an animal.</p>
Turkey	<p>Our cooperators and brood survey reports are predicting that turkey numbers should be lower in this region in 2010. Coupled with a long, hard winter, the lower than average mast production in 2009 may have affected poult production in 2010. In addition, because of the numerous abundant food sources, hunters may find it more difficult in locating turkeys this fall.</p>
Black Bear	<p>This should be quite an interesting year in this region for bear hunting. There are a number of counties that will be open in late September for the early bear season when dogs are permitted. In addition, for the first time in this district there will be multiple counties that will be open concurrently with the buck gun season. Hunters will need to check the regulations for specifics.</p> <p>Archery hunters will find it more difficult to harvest a bruin this fall; however, the abundant mast conditions should keep bears out of their dens later in the year.</p>

## ECOLOGICAL REGION 2

Table 5. Hunting prospects in Greenbrier, Pocahontas, Randolph, Tucker, and Webster counties.

<b>Game Species</b>	<b>2010 Outlook</b>
Gray and Fox Squirrel	The Mountains Region was spared the mast "bust" of last year, with some production of hickory nuts and acorns from red, black, and scarlet oaks. Therefore overwinter survival and spring litters faired better than in other regions of the state. Hunters should note that two of the most preferred foods, hickory nuts and white oak acorns, "hit" good at high elevations and along ridges. Locating fresh hickory "cuttings" should pay off.
Rabbits	Spring and early summer rains produced lots of lush cover and many bunnies. However, a mid to late summer drought has depleted many covers, reducing cottontail numbers and resulting in a challenge for rabbit hunters and their beagles.
Ruffed Grouse	Deep and prolonged snowfall in January and February last season severely hampered bird dogs and their masters. If a normal winter occurs, hunting (at least harvest) should be better this season. Though winter survival appeared good, flushes will still be low due to very widespread soft mast conditions.
Raccoon	'Coon numbers are down due to the poor food supplies last year and disease outbreaks in some areas. Best possibility for "strikes" with 'ol Blue is along the ridges, where both soft and hard mast are in good supply.

Table 5. (Continued) Hunting prospects in Greenbrier, Pocahontas, Randolph, Tucker, and Webster counties.

Game Species	2010 Outlook
Deer	<p>Poor mast and severe snow conditions in 2009 have reduced whitetail populations in this region. Most cooperators are predicting similar to lower deer harvests. Crabapple and apple crops are abundant in many locales—archers take note! White oak acorns are also in good supply, especially along ridges and upper slopes---gun hunters take note!</p>
Turkey	<p>The harvest should be lower than last year—primarily due to widespread and abundant soft mast and acorn crops. Disturbed flocks will venture into hard-to-reach remote areas where they can remain with plentiful food. Hunters may have better success hunting higher elevations that contain white oaks and scattered grape arbors. In northern hardwood forests, look for scratching in black cherry stands.</p>
Bear	<p>The “boom” in mast will result in a challenge for bowhunters. The good food supplies should keep bruins out of early winter dens, which should result in a much higher gun harvest than 2009. Observers in Greenbrier County have seen bears moving to higher elevations, where abundant crops of acorns, hickory nuts, and various soft mast hit. Some counties in this region will have expanded opportunities in 2010 for both gun hunters with and without dogs which will affect the harvest. Hunters need to check the regulations prior to hunting bruins in this region.</p>

## ECOLOGICAL REGIONS 3 and 6

Table 6. Hunting prospects in Boone, Cabell, Clay, Fayette, Jackson, Kanawha, Lincoln, Logan, Mercer, Mingo, Monroe, McDowell, Nicholas, Putnam, Raleigh, Roane, Summers, Wayne, and Wyoming counties.

Game Species	2010 Outlook
Gray and Fox Squirrels	Squirrel hunting will be much worse in 2010 compared to 2009. The mast failure of 2009 affected by bushytail overwinter survival in 2009-2010 and their reproduction in 2010. Hunters should find fewer squirrels in 2010 and those squirrels will be more spread over the landscape. Hunters will have to hunt longer and harder to kill a limit of squirrels this fall.
Rabbits	Our cooperators are predicting similar cottontail hunting conditions in 2010 compared to 2009. Hunters should be able to find some rabbits in the appropriate habitats.
Grouse	We are also predicting similar grouse hunting conditions in 2010. Good food conditions should have grouse spread out over all available habitat instead of concentrated on one food source.
Raccoon	Raccoon numbers and hunting should also be similar in this region compared to 2009. Although, there was a mast failure in 2009 our cooperators are predicting similar hunting in 2010. The excellent mast crop in 2010 may mean that hunters will have to work a little harder but there will be ringtails available.
Deer	<p>Many of the deer regulations in this region are similar to 2009 but there should be a large difference between the numbers harvested by weapon compared to 2009.</p> <p>Archery hunters will have a much more difficult time in 2010 harvesting a whitetail in this region because of the abundant mast conditions. Deer will not be concentrated around a specific food source and hunters will have to work harder to be successful.</p>

Table 6. (Continued) Hunting prospects in Boone, Cabell, Clay, Fayette, Jackson, Kanawha, Lincoln, Logan, Mercer, Mingo, Monroe, McDowell, Nicholas, Putnam, Raleigh, Roane, Summers, Wayne, and Wyoming counties.

<b>Game Species</b>	<b>2010 Outlook</b>
Turkey	<p>There will be expanded fall turkey hunting opportunities available to hunters in 2010 in this region. In addition, it will be the first time in modern history that some counties will have a fall season. Although the hunting will be tough because of the food conditions, the harvest figures should be up because of the expanded chances to go hunting.</p>
Bear	<p>This should be a very interesting bear season in this region. There will be expanded hunting lengths and bag limits for part of this region in 2010. The abundant food sources should keep bears out of the den later for the December season but make archery hunting more difficult.</p> <p>Hunters using dogs should take advantage of the increased chances in Logan, Mingo, McDowell, and Wyoming counties. Due to the lack of hunting pressure they may have a lot of room to themselves if they choose to hunt.</p>
Boar	<p>The harvest should remain low because of the hunting season structure and the abundant mast conditions.</p>

## ECOLOGICAL REGION 4

Table 7. Hunting prospects in Barbour, Braxton, Harrison, Lewis, Marion, Monongalia, Preston, Taylor, and Upshur counties.

<b>Game Species</b>	<b>2010 Outlook</b>
Gray and Fox Squirrels	Slightly more than half of the cooperators predict this year's squirrel harvest is going to be worse than last year. The others believe it is going to be the same. Poor mast conditions last winter probably resulted in high mortality and low reproduction this spring. Improved mast conditions this year will probably have squirrels dispersed throughout the forest.
Rabbit	Rabbits should be about the same as last year. The late summer dry spell may expose them to more predators, but good conditions earlier in the season should have helped overall rabbit numbers.
Grouse	Birds may be scattered more since soft mast production improved from 2009. Grape thickets may still be the place to check most often since they are the only soft mast producers above the long-term average. Overall harvest should increase from last year if snow accumulations do not keep hunters out of the woods like last season.
Raccoon	Most cooperators believe 'coon numbers are the same or slightly better than last year. Although populations may be the same, be prepared to do more walking, as improved mast conditions will spread thin these masked bandits.

Table 7. (Continued) Hunting prospects in Barbour, Braxton, Harrison, Lewis, Marion, Monongalia, Preston, Taylor, and Upshur counties.

Game Species	2010 Outlook
Deer	Although the winter of 2009-2010 appeared as if it was going to take a heavy toll on deer populations, this never panned out in this region. Harvest is predicted to be the same or slightly lower than last year. Due to good mast condition, deer will be scattered more during the archery season and harvest will probably be down. Preston County's antlerless season bag limit was also reduced from 2 to 1 and will impact total harvest in this region.
Turkey	Turkey harvest should increase in this region with more counties being open to a fall turkey season. Turkeys will probably be in the woods more than fields with the improved mast conditions.
Bear	Good mast conditions will improve hunting opportunities for gun hunters if weather conditions cooperate. Unfortunately for archery hunters, good mast conditions usually mean less bears will be taken during this season. A liberal bear season should result in more bears taken this year. Monongalia County has a concurrent bear and buck gun season. Check this year's regulations for more details.

## ECOLOGICAL REGION 5

Table 8. Hunting prospects in Brooke, Calhoun, Doddridge, Gilmer, Hancock, Marshall, Ohio, Pleasants, Ritchie, Tyler, Wetzel, Wirt, and Wood counties.

<b>Game Species</b>	<b>2010 Outlook</b>
Gray and Fox squirrel	Cooperators are split just about equally between bushytails numbers being worse, the same, or better than last year. With state wide mast conditions being so poor last year this region probably experienced the same high mortality and low reproduction like the other regions. With improved mast conditions, squirrels may be harder to find since they will not be concentrated on a few trees. Improved mast conditions this year will mean more squirrels next fall.
Rabbits	A late summer dry spell may have exposed cottontails to more predators, but they did have good early season conditions. Overall, harvest is predicted to be similar to last year.
Ruffed Grouse	Soft mast conditions improved since last year and more than half of the species are above the 40 year average. Birds may be harder to find (if that is possible) with increased foraging areas.
Raccoon	Prediction for this year's harvest is similar to last year for 'coons in this region. Hard mast conditions were better at lower elevations while soft mast conditions were better at higher elevations. 'Coon chasers may want to hunt the ridges early in the season and the bottoms later in the season. In any case, be prepared to do more walking with improved mast conditions spreading these critters out.

Table 8. (Continued) Hunting prospects in Brooke, Calhoun, Doddridge, Gilmer, Hancock, Marshall, Ohio, Pleasants, Ritchie, Tyler, Wetzel, Wirt, and Wood counties.

Game Species	2010 Outlook
Deer	The deer harvest is predicted to be the same as last year. Due to good mast condition, deer will be scattered more during the archery season and harvest will probably be down. Antlerless season bag limits in Gilmer and Wirt counties were increased from 2 to 4 and may have an impact on the total harvest in this region.
Turkey	Four additional counties (Pleasants, Ritchie, Tyler and Wetzel) in this region are having a fall turkey season this year. This region should have a higher harvest with these additional counties. Hard mast conditions were better at lower elevations so hunters might consider that a good starting point.
Bear	This region should see a least a slight increase in bear harvest with all counties now being open to a gun season (see the current regulations for dates and further details). Archery hunters may notice improved mast conditions by seeing fewer bears while on stand. However, good mast conditions usually allow bears to den later and will improve hunting opportunities for both bow and gun hunters.



## **APPENDIX**



**REPORT OF MAST CONDITIONS  
(SEE OPPOSITE SIDE FOR INSTRUCTIONS)**

**H L U**

LOCATION: \_\_\_\_\_  
 COUNTY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 ELEVATION: \_\_\_\_\_  
 ASPECT: \_\_\_\_\_

SPECIES	AVAILABLE MAST, FRUIT, ETC.			
	Abundant	Common	Scarce	Species Not Seen
BEECH				
WALNUTS				
HICKORIES				
WHITE OAK				
CHESTNUT OAK				
BLACK/RED OAK				
SCARLET OAK				
BLACK CHERRY				
GRAPES				
SCRUB OAK				
YELLOW-POPLAR				
HAWTHORNE				
CRABAPPLE				
DOGWOOD				
BLACKBERRY				
GREENBRIER				
SASSAFRAS				
APPLE				
OTHERS (LIST)				

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NAME OF PERSON REPORTING: \_\_\_\_\_  
 DIVISION: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

**LOCATION:** Give the nearest post office address or some other adequate description. Example: Alpena Post Office, or two miles south of Alpena near head of Roaring Creek. Do not give such descriptions as “on the ridge above George Walker’s Store.”

**COUNTY:** Name the county in which the survey was made.

**DATE:** Give the date on which the survey was made.

**ELEVATION:** Give the approximate elevation. Example: 2,500 feet, 2,620 feet, 800 feet, etc.

**AVAILABLE MAST, FRUIT, ETC:**

Please indicate the relative abundance of the mast, fruit, etc. this season by placing an X under the proper column opposite the species concerned. Do not write in any wording such as poor, very poor, not so good, etc. Mark X under column species not seen if you did not see the tree or shrub species, or if it does not occur in the area you conducted the survey.

Please return the forms by September 1 so that compilations can be made immediately thereafter.

Mail completed forms to:

Mast Survey  
Division of Natural Resources  
P.O Box 67  
Elkins, WV 26241

PLEASE CHECK BELOW WHETHER YOU THINK HUNTING WILL BE THE SAME, BETTER OR POORER THAN 2009 FOR EACH GAME SPECIES LISTED. LIST COUNTY OR COUNTIES YOU ARE RATING. IF YOU DO NOT KNOW, OR THE GAME SPECIES ARE NOT PRESENT IN YOUR WORK AREA, DO NOT CHECK ANYTHING.

COUNTY(IES) RATED: \_\_\_\_\_

GAME SPECIES	(1) BETTER	(2) SAME	(3) POORER
SQUIRRELS			
RABBITS			
GROUSE			
RACCOON			
DEER			
TURKEY			
QUAIL			
BEAR			
OTHERS (LIST)			

REMARKS:

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NAME OF PERSON REPORTING: \_\_\_\_\_

DIVISION: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

## NOTES



# Mast Survey

**Wildlife Resources**  
*West Virginia Division of  
Natural Resources*

324 Fourth Avenue  
South Charleston, WV 25303

(304) 558-2771  
Fax: (304) 558-3147

**Bulletin 10-05**



It is the policy of the Division of Natural Resources to provide its facilities, services, programs, and employment opportunities to all persons without regard to sex, race, age, religion, national origin or ancestry, disability, or other protected group status.

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