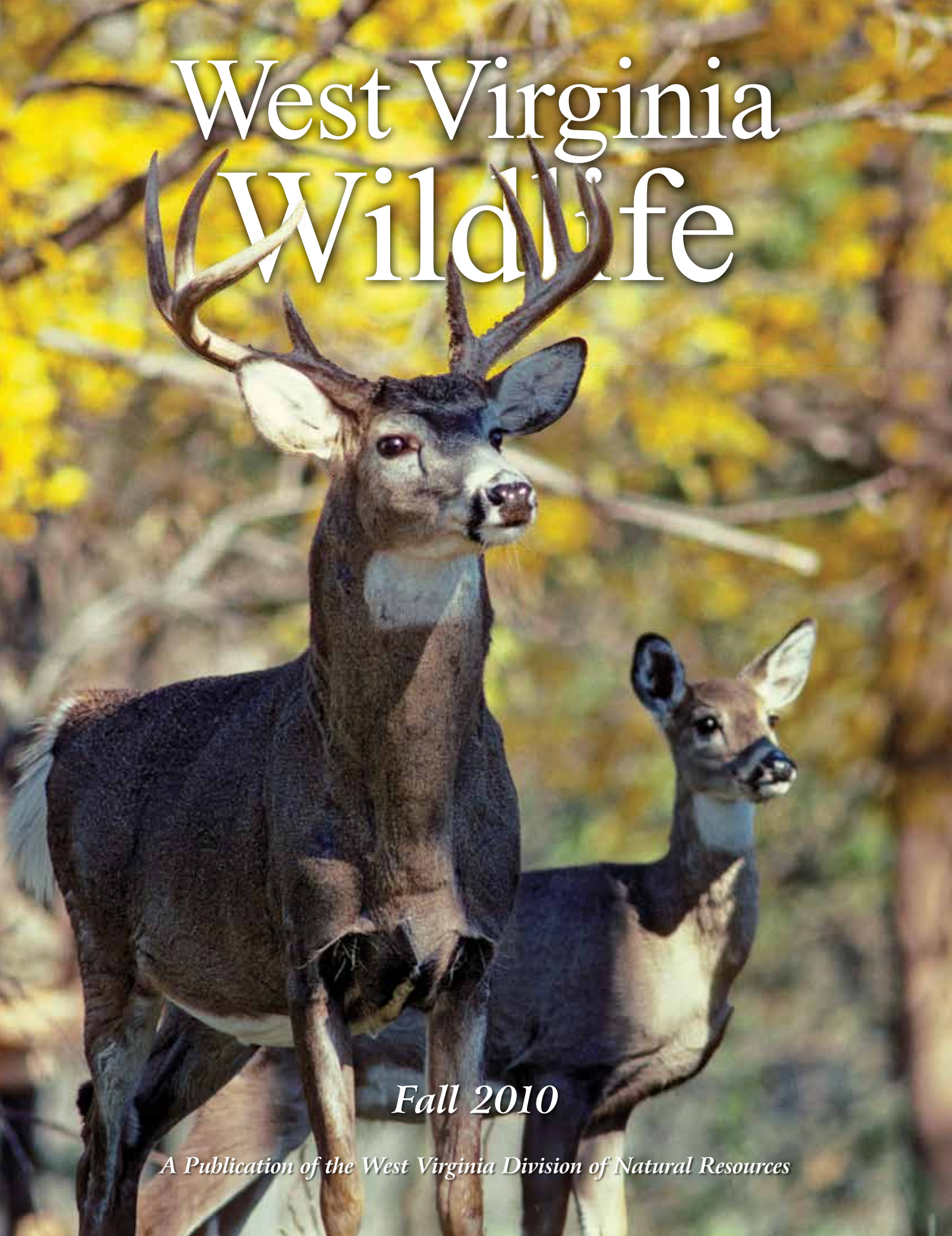

West Virginia Wildlife

Fall 2010

A Publication of the West Virginia Division of Natural Resources

Wild Perspective

Weather Plays a Role in Wildlife Management Today

One hundred years ago, wildlife populations in West Virginia, as well as in the United States, had been depleted due to massive habitat destruction and unregulated hunting. State and federal laws were passed that set hunting seasons and bag limits. Game refuges were established and certain wildlife species, such as deer and beaver, were stocked to rebuild populations. The situation had improved by the mid-1900s, but populations of some species were still low. The last half of the 20th century saw passage of laws protecting the various components of habitat — land, air and water — and widespread use of wildlife and habitat management techniques based on science. These efforts were aided by an increase in public education about the environment and the need to wisely use our natural resources. As a result, populations of turkeys, bear and deer, among others, rose to levels unknown since pioneer times. Biologists in the first decade of the 21st century have worked to stabilize and, in some cases, decrease populations of some species.

Today, most wildlife populations are dependent on weather and how that affects their food supply, and in cases of game animals, how that affects hunter participation in the seasons used to control populations. Each year in late summer, DNR and Division of Forestry personnel along with other individuals comb the state's forests surveying the abundance of nuts and berries that wild animals eat. The results of the survey help biologists predict game harvests and help hunters plan their fall forays.

The mast crop from this year not only determines where wildlife species will be found this fall, but also determines the health of females going into the winter and ultimately the reproductive success for the following year. Last year witnessed one of the worst seasons for mast in 40 years, followed by one of the harshest weather conditions in recent history. This year produced a bumper crop from many mast-producing trees and shrubs. Wildlife should enter this winter in prime condition. Barring another harsh winter, or big spring floods, the woods should be filled next spring and summer with wildlife that our state's citizens can observe and hunt.

Frank Jezioro

Frank Jezioro, *Director, Division of Natural Resources*

West Virginia Wildlife

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Hen of the Woods is one of our largest wild mushrooms. **12**

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Steve Shaluta / WV Dept. of Commerce

The West Virginia BLACK BEAR Project

By Chris Ryan

Our largest mammal and our state animal, the black bear (*Ursus americanus*), has fascinated residents, been a staple for hunting recreation and West Virginia's economy, and been an important part of our ecosystems since settlers first set foot in the great chestnut-rich forests of our state. Although the chestnut is long gone from our forests because of the blight, black bear populations have rebounded from an all-time low of fewer than 500 animals in the late 1960s to a healthy population of greater than 10,000 in 2010. This incredible turnaround in West Virginia can be attributed to two major factors: research and protection.

The West Virginia Division of Natural Resources Law Enforcement Section is charged with enforcing state laws with a special emphasis on our wildlife resources. The Natural Resources Police ensure that the laws and regulations established through sound wildlife management and science are followed by everyone in West Virginia. How are these laws and regulations established? The vast majority of natural resources laws have a deep-seated history in wildlife research or monitoring, and the black bear is no exception.

In the early 1970s, the DNR Wildlife Resources Section, led by project leader Joe Rieffenberger, began trapping, collaring and following black bears in West Virginia. Biologists wanted to determine how hunting seasons were affecting the population, identify when bears went to den,

Black bears have one of the lowest reproductive rates of any land mammal in North America, so understanding the delicate balance of their population dynamics is crucial to the proper management of the species.

From left to right, a DNR wildlife biologist prepares the drugs used to tranquilize black bears; a biologist fills a tranquilizer dart; a team of DNR personnel tranquilize a mother black bear; the team weighs the mother bear; cubs are gently returned to the den. Photos by Steve Rotsch

and determine home range sizes of our Mountain State bruins. The early data revealed that black bears go to den in a predictable order, and that by adjusting hunting seasons wildlife biologists could allow the population to grow, but still permit hunters to enjoy the sport that they love.

Since those early days the black bear monitoring and research program has been a staple of DNR's image, but this changed with time to include many different aspects of biology, human dimensions, hunter demographics and success, economic impact analysis, and the retention of telazol (the drug used to tranquilize black bears). While most West Virginians may associate the black bear project with the cute pictures of fuzzy black bear cubs at dens, the other aspects of the project are just as important as monitoring the population.

Black bears are one of the most unique animals in West Virginia because biologists attempt to manage the animals at a cultural carrying capacity. This is the population level that residents desire. Many other wildlife species are managed at a biological carrying capacity, which is essentially what the land can support, or from a compensatory/additive mortality theory, which is basically the number of animals that would have naturally died without hunting. However, because black bears have so few natural predators and do not exhibit a biological carrying capacity in the eastern United States, it is necessary to control the population through the manipulation of hunting seasons. But how and at what level should biologists set management goals?

Determining what residents thought about the black bear population, different hunting methods, and the black bear management program presented a unique and complex human dimensions project for wildlife biologists. To accomplish such a huge task, the DNR contracted Responsive Management, a survey company specializing in natural resources science, to conduct a statewide survey of residents. This included making the phone calls and analyzing the data.

Hunters play an integral role in bear management, helping to control the population and providing valuable statistical data for analysis.
WV DNR photo

Below, a female black bear in her den.
Mark Shock / WV DNR

We found that the majority of West Virginians thought the black bear population was about right in their particular region, but large differences in opinion showed up among regions of the state. More residents in the central mountains region wanted the population reduced as compared to other regions. In addition, while residents had a high approval of black bear hunting with a gun (77 percent), they showed a much lower approval rating for particular methods, such as baiting with a bow (which is illegal) or using dogs to hunt black bears.

Understanding opinions and areas of the state where certain hunting methods may or may not be applicable is crucial to the successful management of our natural resources, but represents only a small piece of the puzzle. Therefore, the Wildlife Resources Section set out to determine who was a typical bear hunter in West Virginia, and how effective they were at controlling the population. The results were eye opening to even some of our veteran biologists.

Nearly 50 percent of hunters who purchased a black bear stamp did so to primarily hunt bruins with archery equipment. Approximately 25 percent of hunters buying the stamp did so to pursue black bears using dogs while the remaining quarter primarily hunted with a gun without the use of dogs. As someone might imagine, hunters using dogs had the highest success rates. They also passed up the most opportunities to harvest black bears. Biologists also discovered that many hunters using dogs participated in the early hunting seasons held in Kanawha, Boone, Fayette and Raleigh counties and would travel great distances to enjoy the sport that they loved. These important data provided evidence for biologists to propose significant changes to not only our hunting season structure but also the bag limits. The fact that one type of hunter may be more effective than another hunter in different situations provided the DNR with many tools to control the bear population.

Black bears have one of the lowest reproductive rates of any land mammal in North America, so understanding the delicate balance of their population dynamics is crucial to the proper management of the species. The DNR black bear project had been tracking reproduction through numerous methods – population reconstruction (back dating or modeling the population), dissecting reproductive tracts from hunter-harvested or road-killed animals, and counting cubs at dens. As part of the long-term analysis of these data we looked to see if there were any differences between the methods and study areas. What we found was very interesting and will end up saving hunters and the DNR valuable time and resources in the future.

We were able to demonstrate that the number of black bear cubs surviving to year one was statistically equal to

The author weighs a black bear cub. Steve Rotsch

what biologists and managers observed in the den. Therefore, if we are able to collect enough teeth from hunter-harvested bears, we can tell how many cubs survived until age one — the crucial factor — without visiting dens. We will continue to collect reproductive tracts in the future so that we can determine the percent of each age class that successfully reproduces; however, this important piece of information will save the DNR money and time. In addition to discovering these important facts, we learned that females in the southern part of the state have cubs one year earlier on average than bears in the mountains. These important facts help wildlife biologists control the population growth rates of black bears. But because it is extremely difficult for the DNR to manipulate reproductive rates, we examined additional parameters that may control black bear populations.

Survival is the one major parameter that the DNR may control using the length and timing of hunting seasons, hunting methods used, and bag limits. During the recently completed study, we used all available data to determine the parameters that would have the largest impact on the population, and how best to track these parameters on a statewide and management unit level. We compared survival data from radio-collared animals, tagged animals that were not radio-collared, survival rates calculated using cohort reconstruction method, and survival rates from a Downing reconstruction model.

Survival data from the radio-collars and tags were higher than both of the reconstruction methods. This relates to the fact that we don't get an adequate sample of teeth because West Virginia does not require mandatory tooth submission. Many other states require hunters to give a small premolar tooth for aging. Their agencies may use these data to save money and propose hunting seasons. One of the best ways a hunter can contribute is to supply that valuable tooth data. Each hunter who supplies a tooth is sent a postcard the following year with the bear's age.

When all of the reproductive and survival analysis was completed, it was time to model the population to determine the population growth rates for our different study areas. The differing survival and reproductive parameters made it necessary to model the populations separately. The northern study area in Randolph, Tucker and eastern Barbour counties had a growth rate of approximately nine percent during the study period. The southern study area, composed of Kanawha, Boone, Fayette and Raleigh counties, also had a growth rate of approximately nine percent before early hunting seasons were initiated. The higher reproduction in the south was basically balanced by a higher female survival in the mountains. However, after the DNR started an early gun hunting season in 2002 on the southern study area, the population stabilized. It was a very interesting finding because some people believed that the population was still increasing while others thought the population had crashed.

What we learned was that the adult female black bears living on actively protected mine company property were rarely harvested, which allowed for a positive population growth. On the other hand, bears living outside of those protected areas had a much lower survival rate and showed a decreasing population trend. However, when you combined

Steve Rotsch

The author determines the cub's sex, as well as estimating its age by measuring hair and ear length.

the two and looked at the larger picture, we demonstrated that the young were likely dispersing out of those protected areas and were keeping the overall population stable. It was a very unique finding of privately owned "refugia" that enable the DNR to have some of the longest hunting seasons in the country.

In addition to modeling the population growth rates, we were interested in determining exactly how the changes in survival may or may not affect the population. We modeled numerous different scenarios and determined that while adult female survival was the crucial parameter controlling the population, it was likely a combination of female survival rates that help to bring our black bear population back in line with management objectives. Our findings demonstrated that by adjusting the season dates, which would impact the female survival rates across different age classes, the DNR may effectively manage the population. However, it is crucial to the biologists and our resources to have the teeth from all hunter harvested bears to model these changes.

Managing the black bear resource for all West Virginia residents has come a long way since that first radio collar was placed on a bear in 1972, but none of it could have been done without the dedication and efforts of so many individuals along the way. From legendary bear biologist Joe Rieffenberger, to the wildlife managers that worked countless hours trapping and tracking bears, to the natural resources police officers on patrol, to the hunters that supplied the funding and data, it has been a total team effort that should make all West Virginians proud. The Black Bear Research and Monitoring Project will face many new challenges in the years to come as it focuses on managing the population and dealing with bears in urban/suburban environments, but it is a challenge that the DNR is looking forward to and will tackle with gusto.

Chris Ryan, Supervisor of Game Management Services, received his Doctoral degree from WVU in 2009. He served as the DNR's black bear project leader from 2003–2009. His dissertation with all of the specific numbers and facts is available on the DNR's website www.wvdnr.gov.

Field Trip

Elk River WMA

Mark Clarke / WV DNR

Eastern hog-nose snake. Mark Clarke / WV DNR

Elk River Wildlife Management Area is the oldest wildlife management area in West Virginia, purchased by the Conservation Commission as a game refuge in 1938. Elk River WMA surrounds Sutton Lake, and is divided into the Holly River section, and the Elk River section. The Holly River section is north and east of Sutton Lake, and is leased by the state of West Virginia from the U.S. Army Corps of Engineers. The Elk River Section is mostly state owned, and lies south and west of Sutton Lake. The WMA is composed of 17,184 acres in addition to the 1,440-acre lake. The Elk River section includes steep hills, ridges and benches, while the Holly River section consists of forested hills and open farmlands. Remote coves in the Elk section contain old-growth forests, with trees 40-60 inches in diameter.

Viewing information: The U.S. Army Corps of Engineers controls the lake level. The winter level is 27 feet lower than the summer level. White-tailed deer and black bear are year-round residents of Elk River WMA. In spring and summer, nesting songbirds are seen and heard. Eastern bluebirds, scarlet tanagers and blue jays add color to the summer forests. The state bird of West Virginia, the northern cardinal, lives here all year. Bald eagles and ospreys frequent Sutton Lake. Wild turkeys forage regularly in the open woods and clearings, and waterfowl are common on the lake and river. The Eastern hog-nose snake lives on the area. In 1990, the DNR Wildlife Resources Section released eight male and 10 female river otters here and nearby in Kanawha County. Otter watching is most successful between dawn and mid-morning.

Directions: Both sections are easily found from the Flatwoods exit off Interstate 79 traveling south on State Route 4. To go to the Holly River section, after 1.1 miles turn left onto Route 15 and proceed to the Holly River section of the wildlife management area. To reach the Elk River section, continue on state Route 4 to Sutton, turning right at the town square, and crossing the bridge onto county Route 19/40. Travel about four miles, then turn left on county Route 17 (Centralia Road). After three miles, enter the WMA along Wolf Creek. The geographic center of West Virginia is located behind the Wildlife Manager's residence. The residence is located on Stony Creek Road, which is a left turn off of county Route 17, seven miles from the intersection of Route 17 and Route 19/40.

Camping: The U.S. Army Corps of Engineers maintains campgrounds on both sides of Sutton Lake, adjacent to the WMA. Camping is not permitted on the WMA.

Ownership: U.S. Army Corps of Engineers, 304-765-2816 or 304-765-2705; West Virginia Division of Natural Resources 304-924-6211.

Older-Aged Buck

by David T. McClung

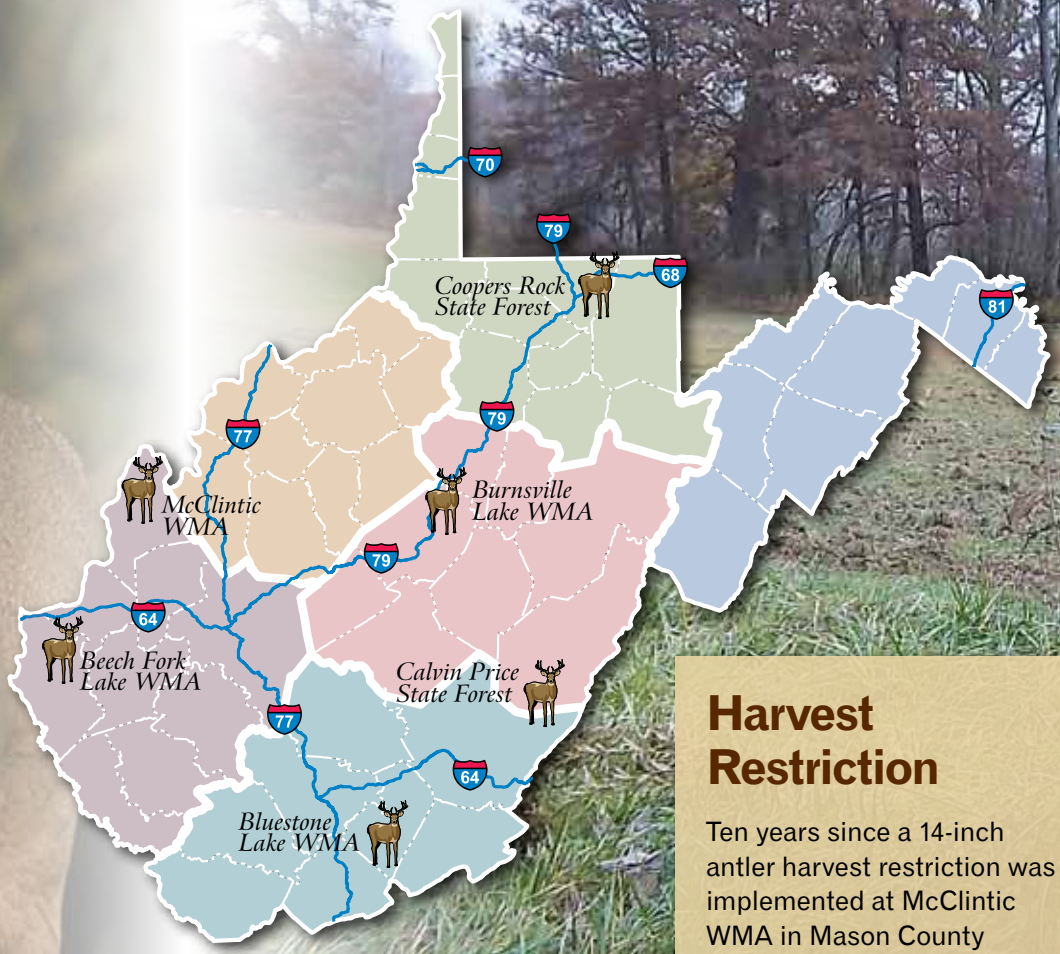
The meteorologist's prediction of temperatures in the upper 30s and clear skies was a great forecast for the first three days of buck gun season. As promised, I walked to my tree stand with frost under foot and a star-filled sky overhead on opening day. I was hunting our 150-acre family farm with my dad, uncle and brother. Each of us has our favorite stand sites on this beautiful piece of West Virginia landscape.

As the sun began to rise I could hear deer moving in the hollow below me. As they crossed the ridge I saw it was a young four-point buck and two does. After they trotted away, my thoughts turned to one of the large bucks that I had seen on our farm. During the rut, big bucks are not shy about leaving sign, and my tree stand overlooked several huge rubs and large fresh scrapes. At 11 a.m. a shot rang out from the direction of my uncle's stand. We had planned to meet for lunch so I moved slowly in his direction. As I approached his stand, I could see him kneeling over a large-bodied deer. As I moved closer, large antlers began to rise above the grass. "Ten points," my uncle said with a large smile.

My uncle was the lucky one that took this beautiful 4½-year-old buck, but everyone who hunted the farm could take some credit. This was the fifth year of our older-aged buck management plan. Our hunters, along with two neighboring landowners, had agreed to a self-imposed rule: all bucks shot must have an outside antler spread at least ear-tip wide. Our hunting parties were like many West Virginia deer hunters, we have

Right: Len Rue, Jr. Far right: WV DNR photo

Management



Harvest Restriction

Ten years since a 14-inch antler harvest restriction was implemented at McClintic WMA in Mason County *(shown here)*, the regulation has gained popularity and yielded larger bucks. Besides McClintic—Beech Fork Lake, Bluestone Lake, and Burnsville Lake WMAs, and Coopers Rock and Calvin Price state forests all have older-aged buck management regulations.

had great success killing 1½- and 2½-year-old bucks. However, we realized that if we were ever going to harvest older, large-racked bucks, we would have to let the young ones walk.

Opportunity to hunt property managed for large bucks is not limited to West Virginia landowners. The West Virginia Division of Natural Resources began older-aged buck management on McClintic Wildlife Management Area, located in Mason County, in 2000. McClintic WMA was picked because of its diverse habitat, fertile soils, and thick escape cover. Upon recommendation of wildlife biologists, the DNR Commission passed a regulation that required all bucks harvested on McClintic to have at least a 14-inch outside antler spread. Using antler measurements collected at game check stations in Mason County, this harvest restriction would protect 95 percent of the 1½-year-old bucks and 60 percent of all 2½-year-old bucks on the WMA.

This type of buck harvest restriction had been used for several years in other states on public and private lands. But it was new for West Virginia, and some hunters didn't want to accept the proposed change. However, results from hunter surveys used at the DNR public meetings held around the state each spring showed that a majority of hunters wanted this change. Now, 10 years later, this 14-inch antler harvest restriction has gained popularity. McClintic, Beech Fork Lake, Bluestone Lake, and Burnsville Lake WMAs, and Coopers Rock and Calvin Price State forests all have older-aged buck management regulations.

The commitment to practice older-aged management requires an attitude change in the way most hunters approach deer hunting in West Virginia. The state's liberal bag limits and high deer densities have allowed hunters to have great success. Many of these successful hunters now have different goals and desires in regard to their hunting experience. Today,

Ron Snow/WV Dept. of Commerce

deer hunters have a wealth of information available to educate themselves on topics relating to deer hunting and deer management activities. Some of these topics include habitat improvement, herd age structure, sex ratios, genetics and harvest goals. Hunters can also become hands-on managers of their hunting grounds. Lime and fertilizer application, food plot development, and timber management are only a few habitat improvements hunters can make on their properties.

For many hunters, deer season will always be a three or four-day event, with the hope of harvesting any legal deer. But for a growing number, the pursuit of big bucks and older-aged management practices now provide enjoyment all year. It can begin in late winter hunting for shed antlers, preparing food plots in spring, glassing for bucks during late summer evenings, scouting and hanging a tree stand in the fall.

Practicing older age management doesn't guarantee you will take a wall hanger each year. But, if you let the young bucks walk, they may mature into the trophy deer of your dreams.

David T. McClung is the Wildlife Manager at McClintic WMA near Point Pleasant.

Wildlife Diversity Notebook: Whip-poor-will

By Karen McClure

Common Name: Whip-poor-will, also known as one of the nightjars or goatsuckers, the common family name. Nightjar refers to the bird's ability to "jar" or startle one with their loud songs at night. Goatsucker refers to an old legend that these birds fed by milking goats at night.

Scientific name: *Caprimulgus vociferous* (cap-rih-MUL-gus voh-SIFF-er-us), which loosely translates to "goatsucker" and "loud outcry."

Description: When you think whip-poor-will, think camouflage. These birds are mostly gray, black and brown with black throats. The adult male does have white tips on his largest tail feathers. The adult female has narrow buffy tips on the same feathers. Both birds have relatively large heads with tiny bills, tiny feet, and rounded tails. Whip-poor-wills are about 10 inches tall, about the size of a blue jay. These birds weigh in at 1-½ to 2 ounces. Whip-poor-wills are named for their loud, rhythmic song — *whip-poor-will* — which they sing repeatedly at nighttime. Whip-poor-will songs are commonly used as sound effects in television and movies.

Whip-poor-wills might be confused with the common nighthawk, which is not a hawk at all, but another member of the goatsucker family. Nighthawks are more urban, and can be spotted flying around lights at baseball parks, eating insects that are attracted to the bright lights. Nighthawks have wings that go back past their forked tails at rest, while the whip-poor-will's wings are shorter. The other nightjar that could be confusing is the much larger Chuck-will's- widow, which is quite rare in the Mountain State. Chuck-will's widow has a brown throat. All three are easily identified by song. The nighthawk makes a nasal "peet," not unlike a woodcock. Chuck-will's widow sings its name, with a very soft "chuck." Whip-poor-wills sing their song about once per second, and it is not rare to hear a set of 50-100 repetitions at a single concert.

Steve and Dave Maslowski

Whip-poor-wills do not build a nest. The female lays two eggs, light colored with dark marks, on the leaf-covered ground.

Habitat: Whip-poor-wills breed in dry forests of deciduous trees or mixed woods with little understory. In winter, whip-poor-wills live in mixed forests that are near clearings.

Range: Whip-poor-wills breed in the summer in southeastern Canada through the east-central United States. They migrate through the southeastern United States and winter in Mexico and Central America. In West Virginia, whip-poor-wills are most common in wooded rural areas in the western part of the state.

Diet: Whip-poor-wills are insectivorous, specializing in moths and beetles. These birds catch their prey while flying silently at night with their tiny bills open to reveal giant mouths. Whip-poor-wills are not above catching ground-bound prey, like caterpillars.

Life history: Whip-poor-wills do not build a nest. The female lays two eggs, light colored with dark marks, on the leaf-covered ground. The egg laying is timed so that the eggs often hatch 10 days before the next full moon, so the birds have extra light for hunting when the hatchlings are hungry. The male protects the nest by hovering with his body held vertically, and his tail feathers spread, showing off the broad white tips when intruders approach. As far as we know, the female does all the incubation for around 20 days. The downy precocial hatchlings can move around soon after hatching. The parents encourage them to move apart, possibly to avoid predation. Young whip-poor-wills can fly when they are 20 days old. Whip-poor-wills are truly nocturnal, sleeping on the ground during the day, blending in with the leaf cover. When they do perch, whip-poor-wills sit lengthwise on a tree branch to blend in with the limb. Whip-poor-wills take frequent dust baths, and the evidence can be found in dirt roads by careful observers. The oldest whip-poor-will recorded was almost 4 years old, but most likely they can live longer.

Field notes: Whip-poor-wills have been heard in recent years in Beech Fork State Park and the Upper Mud River Wildlife Management Area on summer evenings. Go to the Bluebird Trail near the campground at Beech Fork, or the dam parking area or recreation area at Upper Mud.

Conservation and potential threats: Ground nesting birds, like whip-poor-wills are especially vulnerable to terrestrial predators. Domestic cats are exotic carnivores against which our native animals have little defense. Keeping cats indoors has been proven to greatly decrease the unnecessary mortality of birds like whip-poor-wills.

Karen McClure is a Public Information Specialist stationed in Nitro.

Hen of the Woods

By Bill Roody

Hundreds of varieties of wild mushrooms occur in West Virginia, including many that are very good to eat for those willing to learn about them. In fall, the Hen of the Woods (*Grifola frondosa*) stands head and shoulders above the others because of its excellent flavor, ease of identification, and abundance. Hen of the Woods, so named for its fanciful resemblance to the feathers of a sitting hen, is also known as Sheep's Head, which, according to some who have a vivid imagination, it also resembles. This widely distributed mushroom is much appreciated in various parts of the world where it grows. In Japan it is called Maitake, meaning "Dancing Mushroom," because those who find it are said to dance with joy in celebration. While few West Virginia mushroom hunters are likely to break out in a spirited jig on locating a cluster of "Hens," they are at least genuinely exhilarated.

Hen of the Woods is one of our largest wild mushrooms, averaging the size of a soccer ball, but sometimes growing much larger. It is composed of a central stalk-like core that branches into multiple, overlapping, petal-like lobes. The scientific genus name Grifola means curved or hooked, in reference to the shape of the individual lobes, which have incurved margins. Frondosa means "leaf-like."

Hen of the Woods belongs to a large family of wood-decaying fungi called polypores, meaning "many pores." Members of this group have a layer of small pores on the undersurface of the cap in which microscopic spores are produced. Spores are to fungi what seeds are to green plants. When mature, the spores are released and carried away by air currents. If a spore comes to rest in a suitable location it will germinate and develop into a mass of fungal tissue known as mycelium. Although normally hidden from view, the mycelium is actually the main body of a fungus. The mycelium of Hen of the Woods is somewhat parasitic on the roots of oaks, or infrequently on other broad-leaved trees. It may live on a host tree for many years, periodically producing the fruiting bodies that we know as mushrooms.

Hen of the Woods or Maitake mushroom. Right, the uncommon Umbrella Polypore is also edible. Far right, a Black-staining Polypore. Photos by Bill Roody / WV DNR

Look for Hen of the Woods anytime from late August into November (September is normally the best month). Since host trees are not killed by the mushroom, once you locate a "Hen tree," you can return to it year after year to harvest the fruiting bodies. It is not unusual to find several "Hens" clustered near the base of a single living tree, providing the lucky mushroom hunter with a bonanza of choice edible mushrooms. When a host tree eventually dies, the mycelium may continue to live as a saprobe on the decomposing wood, which is why "Hens" sometimes appear near dead trees and decaying stumps.

From a culinary point of view Hen of the Woods tastes best when young and the leaf-like lobes are small and tightly packed. At this stage the entire fruiting body is tender and delicious. As the mushroom ages, the flesh becomes tough and fibrous, and then only the more tender lobes are good to eat fresh. The remaining fibrous parts can be added to soup

stock, or dried and simmered to make a healthful tea-like beverage. At its tender best, this mushroom can simply be cooked in butter or oil and enjoyed as is. However, unlike many mushrooms, the flavor and texture are robust and will hold its own in more highly spiced dishes. It is especially popular in tomato-based sauces.

If fortunate enough to find a "mother lode" of "Hens," you will have enough for several meals. Any surplus can be preserved by canning, or better yet, sliced into bite-sized pieces, cooked in butter or oil, and then frozen. It can also be finely chopped, fried with garlic or other seasonings until most of the moisture has dissipated, then packed into ice cube trays and frozen. These concentrated mushroom-flavored cubes are convenient for adding to soups and sauces.

Hen of the Woods is easy to recognize. The grayish brown to dark umber-brown compound caps with white pores on the undersurface is distinctive. The Black-staining Polypore *(Meripilus sumstinei)* is similar in appearance and growth form, but unlike Hen of the Woods, its flesh stains dark brown and eventually black when cut or bruised. It typically grows around decaying stumps in late spring and summer. Although harmless, some find the Black-staining Polypore to be indigestible. Generally it is regarded as edible when young and fresh, though much inferior to the Hen of the Woods and rarely gathered for food.

One other possible confusion is with the Umbrella Polypore *(Polyporus umbellatus)*. This uncommon mushroom also resembles Hen of the Woods in overall form and color, but the fruiting body is made up of numerous roundish caps with short stalks that branch off from a central core. Each cap is about an inch in diameter and distinctly depressed in the center. The Umbrella Polypore appears earlier in the season than Hen of the Woods and although seldom encountered, it is also an excellent edible.

In recent times, the Hen of the Woods has received a lot of attention for its potential to bolster the immune system. It is also reputed to help lower blood pressure and to have anti-cancer properties. The Chinese and Japanese have been using Hen of the Woods as medicine for centuries. Modern clinical research seems to support this ancient wisdom. It's nice to think that something that tastes so good may also be contributing to good health.

As with most wild mushrooms, the Hen of the Woods is an important element in the food chain. Many insects and other invertebrates feed on, or shelter within its fruiting body, so be sure to clean specimens carefully to remove any insects or other critters that may be lurking there. Do not collect old or moldy specimens for eating, and since some individuals may have a food allergy to certain mushrooms, only consume a small amount when trying Hen of the Woods for the first time. Happy Hen hunting and bon appétit!

Bill Roody is an employee with the Wildlife Resources Section in Elkins and is the author of Mushrooms of West Virginia and the Central Appalachians.

ediblearia.com

Dancing Mushroom Shiromiso

- Whole, dried organic Maitake (*Grifola frondosa*)
- Fresh scallions, sliced
- White miso paste
- Organic spinach powder
- Homemade chicken bone broth, vegetable stock or filtered water
- Low-sodium tamari
- Dried organic celery root
- Dried hijiki

Soak dried Maitake in filtered hot (not boiling) water for 20 minutes. Set re-hydrated mushroom aside to drain. Reserve soaking liquid.

Drizzle mushroom with clarified butter, sprinkle with pepper and spinach powder and roast in a 350° oven until golden brown (about 25 minutes). The mushroom should be slightly crispy on the edges.

Meanwhile, bring reserved soaking liquid and chicken stock to a rapid boil and cook until reduced in volume by 1/3.

Reduce heat and add tamari (be sure to use traditionally-fermented tamari that doesn't contain hydrolyzed protein) celery root, scallions and hijiki (a wild brown sea vegetable). Simmer for 5 minutes.

Remove broth from heat and stir in white miso paste.

Ladle broth into bowl or deep plate then place roasted Maitake on top.

— recipe from ediblearia.com

Hunters &

By Scott Warner

Hunting remains a time-honored tradition in West Virginia. Many of our families have at least one member who hunts on a regular basis. Every year, more than 380,000 hunters take to West Virginia's woods, enjoying some of the best hunting in the eastern United States and contributing significantly to the state's economy. In 2006, expenditures from hunting in West Virginia brought in nearly $300 million to the state's economy from the sale of food, lodging, transportation and hunting equipment. During the current times of economic lows, hunting is especially valuable, considering the amount of revenue generated in some of our state's most rural areas. So hunters definitely help the state's economy, but what role do hunters play in conservation?

Since its formation in the late 1800s, the West Virginia Division of Natural Resources has been responsible for the management, conservation and protection of the state's wildlife resources. Throughout this endeavor, the DNR Wildlife Resources Section has responded to both a changing public and the needs of the state's fish and wildlife resources. The DNR is staffed by highly trained and dedicated professionals committed to the state's wildlife resources. These professionals design wildlife programs for the responsible management of all wildlife, not just the few species that are lawfully hunted. Hundreds of non-game species, such as songbirds and small animals that make the outdoors experience more enjoyable for us are under this stewardship. Who pays the majority of the bills for these wildlife programs? Hunters and anglers do.

The DNR Wildlife Resources Section derives its operating revenue largely from the sale of hunting

Conservation

John Dziza

and fishing licenses, which amounts to $16 million annually. According to state and federal law, these funds can only be spent on activities related to fish and wildlife programs. The financial contribution of hunters, however, goes way beyond licensing fees. At the urging of hunters and conservationists, Congress passed the Federal Aid in Wildlife Restoration Act (commonly known as the Pittman-Robertson Act) in 1937. Under this act a manufacturer's excise tax was placed on hunting equipment, including firearms, ammunition, bows, arrows and accessories. The revenue generated from this excise tax is apportioned among state wildlife agencies through the U.S. Fish and Wildlife Service's Federal Aid Program based on the number of hunting license holders and the state's surface area. The significance of this program was tremendous — state wildlife agencies finally had a secure funding source, allowing the implementation of activities such as habit management, land acquisitions and research. This work was previously thought impossible, but has ultimately led to today's wildlife management success stories.

The federal aid program reimburses states for wildlife restoration projects totaling approximately $335 million annually nationwide. In West Virginia, annual apportionments average slightly more than $4 million. Since the program was initiated in 1939, hunters have contributed nearly $100 million to many of West Virginia's successful wildlife programs. The wild turkey restoration program, black bear studies,

white-tailed deer management, management of 1.6 million acres of public land, and hunter education, represent a few of the programs supported by federal aid. A critical stipulation of the Federal Aid in Wildlife Restoration Act is that proceeds may not go to a state wildlife agency which turns over ANY of its sportsmen revenue (license revenue or federal aid money) to other state programs. This has prevented a number of state legislatures over the years from diverting hunting and fishing money into a state's general revenue funds.

During the 1988 legislative session, West Virginia hunters and anglers prevailed upon their state delegates and senators to pass the Conservation Stamp Program. Through this legislation, everyone purchasing a hunting or fishing license is required to buy a Conservation Stamp. Revenue from the stamp enables the DNR to purchase additional land for public use and improve access for hunting, fishing and other wildlife recreational opportunities. This program is necessary because of the continued degradation of wildlife habitats and the decline in public access to private lands. Since the DNR implemented the Conservation Stamp 20 years ago, tens of thousand of acres have been purchased, creating 35 new wildlife management areas and expanding existing areas. Although the purchase and management of these wildlife management areas is totally funded by hunters and anglers, their preservation and management benefit all wildlife species and are enjoyed by other wildlife enthusiasts. Additional protection of the state's funding sources for fish and wildlife management was enacted in 1997. Using language similar to the Federal Aid in Wildlife Restoration Act, an amendment to the state constitution was proposed. It stated that license fee money and federal aid funds could only be spent "for the conservation, restoration, management, educational benefit, recreational use and scientific study of the state's fish and wildlife …."

From an ecological point of view, how does hunting benefit wildlife? A given parcel of habitat can support only a limited number of wildlife. These limits depend on the quantity and quality of habitat. This habitat limit, called the biological carrying capacity, is the number of individuals that a habitat can support in good physical condition over an extended period. When wildlife populations exceed this limit, habitat quality decreases, physical conditions of the animals decline, and mortality occurs because of starvation, disease or parasitism.

Steve Shaluta / WV Dept. of Commerce

In addition, the importance of compatibility between land-use practices and wildlife populations in urban areas justifies considerations of another aspect of carrying capacity. "Cultural carrying capacity" is the maximum population size of a wildlife species that can coexist compatibly with local human populations. This limit is dependent on local land-use practices, local wildlife densities, and the attitudes and priorities of local human populations. Excessive wildlife/vehicle collisions, agricultural damage, and animal nuisance complaints indicate problems with high population levels. As development continues in certain areas of West Virginia, the importance of cultural carrying capacity as a management consideration will increase.

Left, Beury Mountain WMA was purchased through a combination of funds, including Conservation Stamp revenues, hunting license fees and a donation from the National Wild Turkey Federation.

Right, the revenue generated from the excise tax on firearms and other hunting equipment is used for such activities as habitat management, land acquisitions and research.

Ron Snow / WV Dept. of Commerce

Wildlife biologists use hunting as a management tool to keep wildlife populations in balance. Wildlife management plans are developed to ensure that each year's harvest does not exceed a population's long-term capacity to recover. This is the biological concept of sustainable yield — a guiding principle for setting hunting seasons and bag limits. Regulated hunting in the United States has not caused any wildlife species to become extinct, endangered or threatened. In fact, many species of wildlife that are hunted are not only secure today, but are far more numerous than they were before the turn of the century.

As previously mentioned, hunting in West Virginia provides substantial benefits to both the state's environment and economy. One of the most important benefits from hunting, however, is the immediate human contact with natural resources. Hunting helps create active conservationists. The contact hunters experience with the outdoors fosters a caring attitude toward the environment, leading to a better understanding of ecology, and strengthening a personal commitment toward conservation. Youngsters who are exposed to hunting and its traditions tend to be more knowledgeable and appreciative of wildlife, and more passionate about protecting wildlife habitats than youngsters lacking those experiences. This interest extends beyond huntable wildlife. In fact, hunters often spend as much time and money on nonconsumptive wildlife activities as they spend on hunting. They are often involved in organizations that work for the improvement of all natural resources. The National Wildlife Federation, for example, is the largest non-governmental conservation organization in the world, Membership includes many hunters and anglers, but also includes birdwatchers, wildlife photographers, campers, and others concerned about the environment.

Whatever attracts you to nature, your interests are shared by many hunters. It's through their contributions that wildlife agencies are able to wisely manage our wildlife resources. With the continued degradation of our natural resources, conservationists, whether having an interest in hunting or not, must recognize the contributions made by hunters. It's through this understanding and cooperation that wildlife will prosper for the enjoyment of future generations.

Scott Warner is the Federal Aid Coordinator for the Wildlife Resources Section stationed in South Charleston.

Tree Identification Cards

Background

Winter is a time of drought for trees. Reduced precipitation, coupled with freezing temperatures means less water is available for trees to use. Photosynthesis requires water, so deciduous trees drop their leaves in autumn, and rest from making sugar. Evergreen trees have a waxy coating on their leaves to retain water in their leaves, so they can make sugar year 'round. Winter is a great time to explore evergreen trees, since they are so easy to find in the woods. This activity focuses on conifers, or cone-bearing trees. The medicinal and edible use of plants provided in this article is intended for entertainment value only and should not be used for self-treatment of illness. Many plants contain toxic compounds, and most medicines are toxic in large quantities.

Objective

Children learn some of the common evergreen trees in their area, and what to look at when trying to tell them apart.

Method

Kids find a tree from the cards provided, and then show it to their family or friends, telling them about the tree.

Materials

Copy of the tree cards, wooded area that includes some evergreens, pen or pencil, journal (optional).

What to do

1. If time allows, scout out the backyard, neighboring woods, wildlife management area or park where you want to take the youngsters. Identify some or all of the trees on the cards. This way, when you want to do the activity, you'll be able to quickly find the trees.
2. Hand out the cards to the children. Depending on their ages and abilities, and the number of kids, you can hand each child or each group a single card.
3. Tell the kids you are going on a tree hike. Their assignment is to find the tree on the card. Ask them to let you know when they find their tree.
4. Walk along at a leisurely pace, so the children have time to find their tree.
5. As each child or group finds their tree, check to make sure they have correctly identified it, then ask them to read the card aloud for the others, helping if necessary.
6. Take some time to look for signs of wildlife in, on, or near each tree. Note these in a journal, if you want. Later, you can compare and contrast which animals were noted with each tree.

More info

For more information on tree identification, including fact sheets and more images, go online to: http://plants.usda.gov/index.html.

Information compiled by Karen McClure

Eastern White Pine

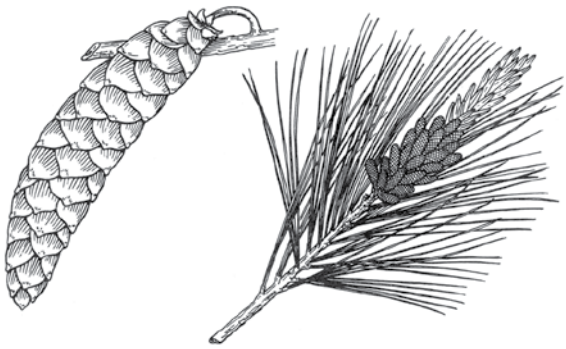
Height: Up to 100 feet

Diameter: Up to four feet

Needles: Two to five inches long, five in a bundle.

Bark: Thick, gray, smooth to rough with deep cracks and scaly ridges.

Cone: Four to eight inches long, skinny, with long stalks.



White pines grow in dry, sandy areas. They are the largest conifer in the Northeastern United States. White pine is used for lumber and paper. Pines can be used to make candy, flour, a cooked vegetable, and tea. Long ago, pitch was used on boils, arthritis, broken bones, cuts and bruises. Teas made from bark and pine needles have been used to treat coughs, colds, headaches, and backaches.

Illustrations courtesy of NJ DEP – Division of Parks and Forestry/ NJ Forest Service – Forest Resource Education Center.

Eastern Red Cedar

The word cedar is used for several unrelated trees.

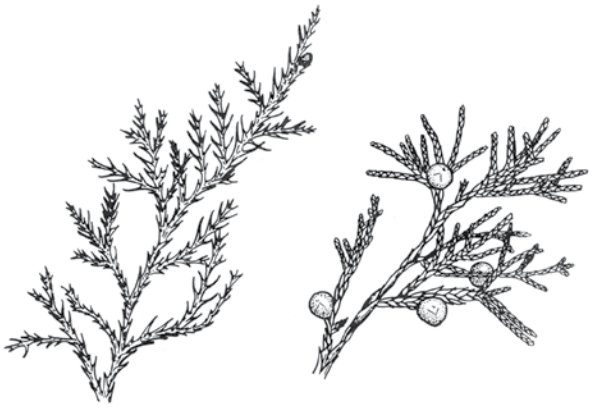
Height: Up to 75 feet

Diameter: Up to two feet

Needles: ¼ to ½ inch long, opposite in arrangement.

Bark: Thin, reddish brown, peeling off in long strips.

Cone: Light blue “berries,” ¼ inch in diameter.



Red cedars grow on dry hillsides. The cones are an important food for cedar waxwings. Red cedar wood is used for chests, fence posts, and carvings. Cedar oil is used in medicine and perfume. Long ago, cedar cone tea treated colds, worms and arthritis. Leaf smoke or steam was inhaled for colds and arthritis. Warning: red cedar is toxic.

Virginia Pine

(also known as Scrub Pine)

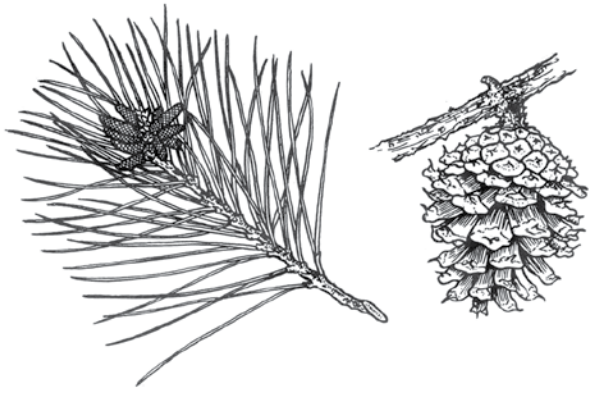
Height: Up to 60 feet

Diameter: Up to 1½ feet

Needles: 1½ to three inches long, two in a bundle.

Bark: Thin, brownish-gray with narrow scaly ridges, shaggy.

Cone: 1½ to 2¾ inches long, egg-shaped, clusters of three to four, short stalks.



Virginia pine grows in dry areas. It is used for lumber and paper. Pines can be used to make candy, flour, a cooked vegetable and tea.

Shortleaf Pine

(also known as Yellow Pine)

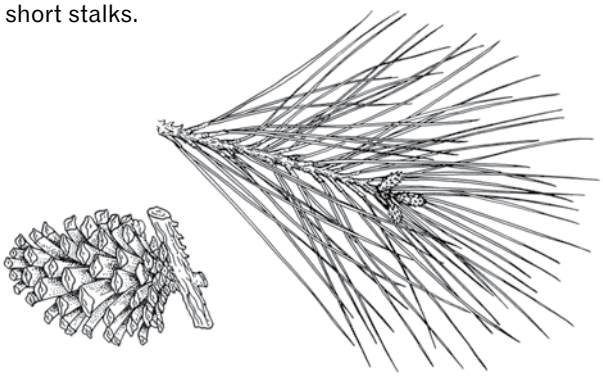
Height: Up to 100 feet

Diameter: Up to three feet

Needles: Three to four inches long, two, sometimes three in a bundle.

Bark: Reddish brown with large scaly plates.

Cone: 1½ to 2½ inches long, cone or egg-shaped, with short stalks.



Shortleaf pines grow anywhere from dry ridges to river bottoms. Shortleaf pine is used for lumber and paper. Pines can be used to make candy, flour, a cooked vegetable, and tea. Long ago, Native Americans made a bark tea to make people vomit. Tea made from pine buds was used to treat worms. Pitch (sap) tea treated kidney problems, tuberculosis and constipation.

Eastern Red Cedar

Juniperus virginiana

Karan A. Rawlins, University of Georgia, Bugwood.org

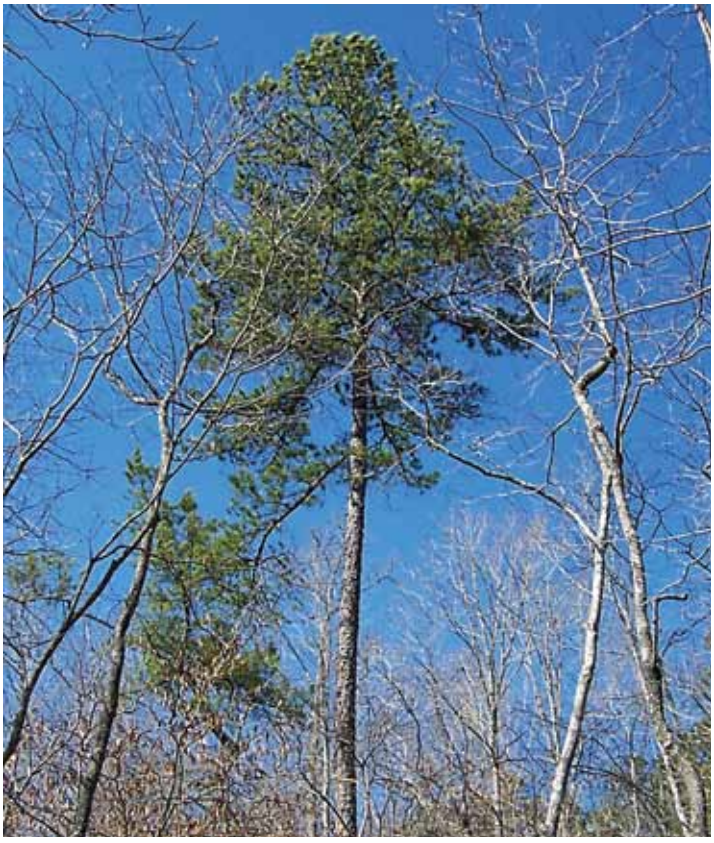
Eastern White Pine

Pinus strobus

Joseph O'Brien, USDA Forest Service, Bugwood.org

Shortleaf Pine

Pinus echinata



David Stephens, Bugwood.org

Virginia Pine

Pinus virginiana

David Stephens, Bugwood.org

WV DNR Photo

One of the state's newest shooting ranges at Chief Logan Wildlife Management Area.

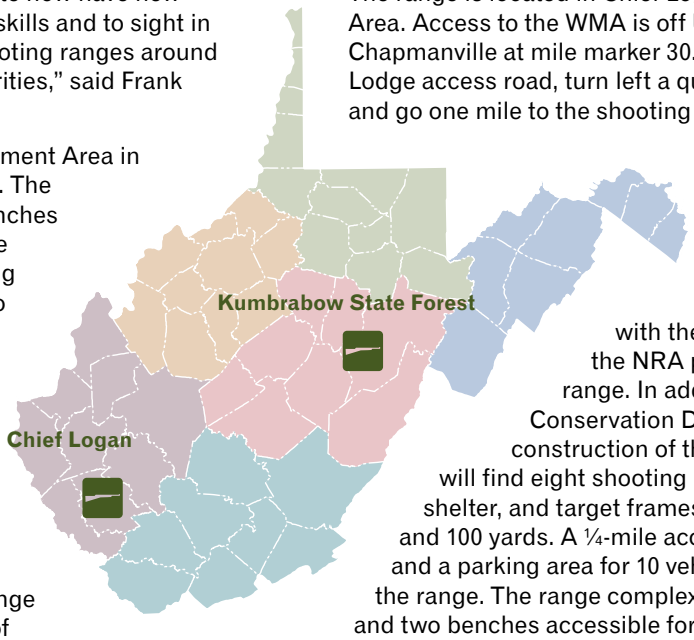
Two Shooting Ranges Dedicated

Hunters in two different areas of the state now have new shooting ranges to hone their shooting skills and to sight in their firearms. "The development of shooting ranges around the state is one of our agency's top priorities," said Frank Jezioro, DNR Director.

A range at Chief Logan Wildlife Management Area in Logan County was dedicated on Sept. 8. The completed range has eight shooting benches with a covered shelter. Target frames are located at 25, 50 and 100 yards. A parking area for 10 vehicles was built adjacent to the range.

The range complex has a parking space and bench accessible for physically challenged shooters. The total cost for construction of the shooting range complex was approximately $70.000.

The National Rifle Association of America provided a $25,000 grant for range construction. The Logan Area Chapter of the National Wild Turkey Federation provided additional funding. Donation of equipment and services were provided by Mine Lifeline LLC, Jaunt Inc., Logan County Mine Service, and West Virginia Paving.



The range is located in Chief Logan Wildlife Management Area. Access to the WMA is off U.S. Route 119 south of Chapmanville at mile marker 30.5. Once on the State Park Lodge access road, turn left a quarter mile off of Route 119 and go one mile to the shooting range.

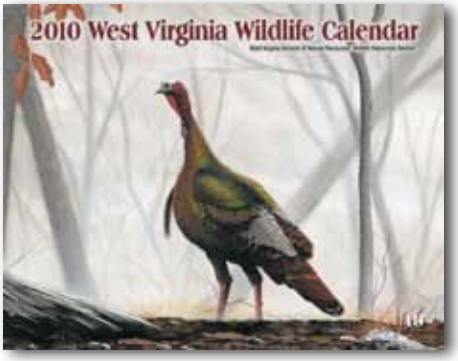
Construction of a new range at Kumbrabow State Forest in Randolph County was completed in early October. As with the Chief Logan range, the NRA provided $25,000 for the range. In addition, the Tygart Valley Conservation District assisted in the construction of the range. Range users will find eight shooting benches with a covered shelter, and target frames and backstops at 25, 50 and 100 yards. A ¼-mile access road was upgraded and a parking area for 10 vehicles was built next to the range. The range complex also has a parking space and two benches accessible for physically challenged shooters and a site for archers to shoot their bows.

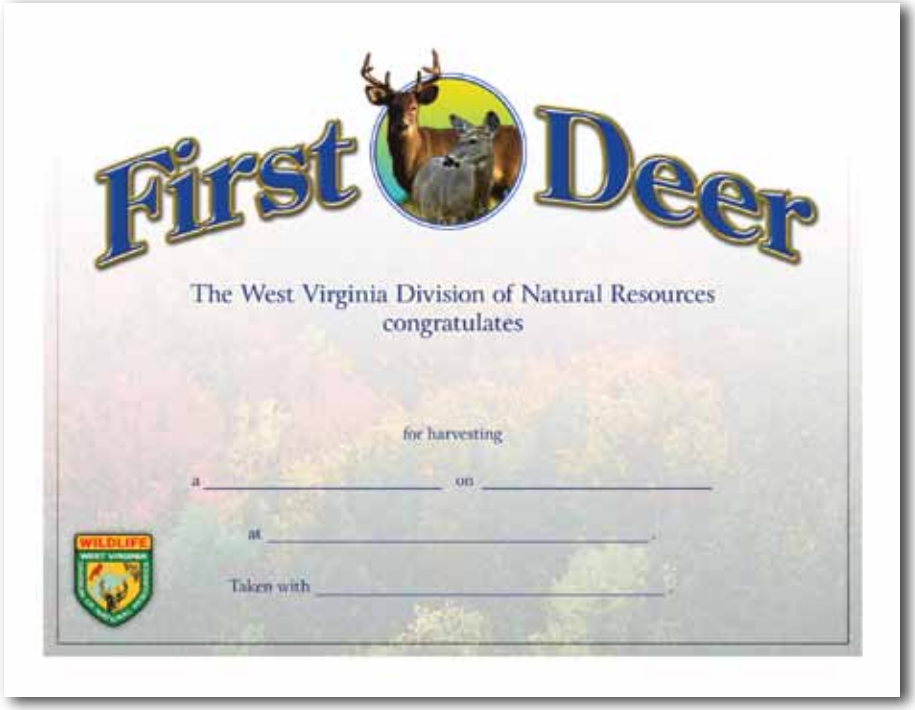
The new shooting and archery range is located in Kumbrabow State Forest off county Route 45 (Turkey Bone Road) on the Rich Mountain Trail.

DNR Wildlife Calendar Wins Award

The 2010 West Virginia Wildlife Calendar has been recognized for excellence by receiving the 2010 Silver Award in a national calendar contest. The contest, sponsored by the Calendar Marketing Association, featured hundreds of calendars from all over the country competing in a variety of categories. Awards were based on the superiority of the artwork, readability and information quality and originality. The DNR calendar received a Silver Award in the "most informative wall calendar — retail division."

The annual wildlife calendar, which features original paintings of animals found in West Virginia, has been published since 1985. It can be purchased at DNR district offices and various stores throughout the state. An order form and a sample of paintings can be seen on the inside back cover of this magazine.





First Deer Certificate Available Online

To commemorate a hunter's accomplishment in harvesting his or her first deer, the Division of Natural Resources has created an online First Deer Certificate to memorialize the special occasion, according to Curtis I. Taylor, Chief of the Wildlife Resources Section of DNR.

The colorful certificate, which is suitable for framing, is a great way to mark this special deer hunting experience and provide the successful hunter with a permanent reminder of the memorable day. The certificate is easy to complete and is designed to include the hunter's name and other important information. Hunters can even include a photo of themselves with their first deer. Because it's online, the certificate can be printed free at home. The First Deer Certificate can be found online on the DNR's website at www.wvdnr.gov.

"West Virginia is very fortunate to have a strong hunting heritage and the DNR is working hard to maintain this interest by providing parents with opportunities to take kids afield," said Taylor. "We're hoping parents take advantage of the special antlerless deer seasons and introduce their kids to the joys of hunting. Although the certificate was developed primarily for our youth hunters, we also recognize that individuals can be introduced to hunting at any age. I would like to encourage anyone who takes his or her first deer this fall to print a certificate as a way to remember this special occasion."

www.wvdnr.gov

Fregonara Named to IWLA Honor Roll

The Izaak Walton League of America, a national leader in community based conservation, has presented DNR Wildlife Biologist Jim Fregonara of the Elkins Operation Center with its prestigious Honor Roll Award. Fregonara received the award at the league's July annual convention in recognition of his outstanding contributions to public education and the conservation of America's natural and renewable resources.

Fregonara has spent countless hours working directly with youth groups to engage children in outdoor education. He regularly volunteers for activities at the IWLA's Mountaineer Chapter, including the fifth grade science class field day, as well as many other local and state youth-oriented outdoor learning activities.

"Mr. Fregonara exemplifies the commitment to conservation and youth education that the Izaak Walton League is all about," said Jim Madsen, the IWLA's national president.

Calendar of Events

DECEMBER

18 **39th Annual Audubon Christmas Bird Count**
Pipestem Resort State Park
Contact Jim Phillips, Park Naturalist, 304-466-1800.

JANUARY

8 **Sixth Annual Eagle Survey**
Pipestem Resort State Park
Contact Jim Phillips, Park Naturalist, 304-466-1800.

22 **Winter Walk**
Kanawha State Forest
Explore the forest during the winter on a guided hike. Minimal fee charged. Contact Kanawha State Forest, 304-558-3500.

21-23 **West Virginia Hunting and Fishing Show**
Charleston Civic Center
For more information, log on to www.wvtrophyhunters.com.

FEBRUARY

18-20 **Great Backyard Bird Count**
Pipestem Resort State Park
Contact Jim Phillips, Park Naturalist, 304-466-1800.

18-20 **Great Backyard Bird Count**
Cacapon Resort State Park
Contact Kelly Smith, Park Naturalist, 304-258-1022 X5209.

www.wvdnr.gov

WV DNR Photo

James Brooks of Hinton shows off his record striped bass.

State Record Striped Bass Caught at Bluestone Lake

James Brooks, of Hinton, West Virginia, now has a big fish story to tell; but it's not about the one that got away. He and his wife were fishing on Bluestone Lake on Sept. 3 when he caught a striped bass that smashed the previous state length and weight records.

Using a spinner bait, Brooks caught the striper after a 40-minute battle on 8-pound test line. The fish weighed 45.7 pounds and measured 47.16 inches in length. This surpassed the existing length record by more than six inches and the existing weight record by more than 16 pounds. Both of these fish also had been caught in Bluestone Lake, a 2,040-acre lake in southern West Virginia.

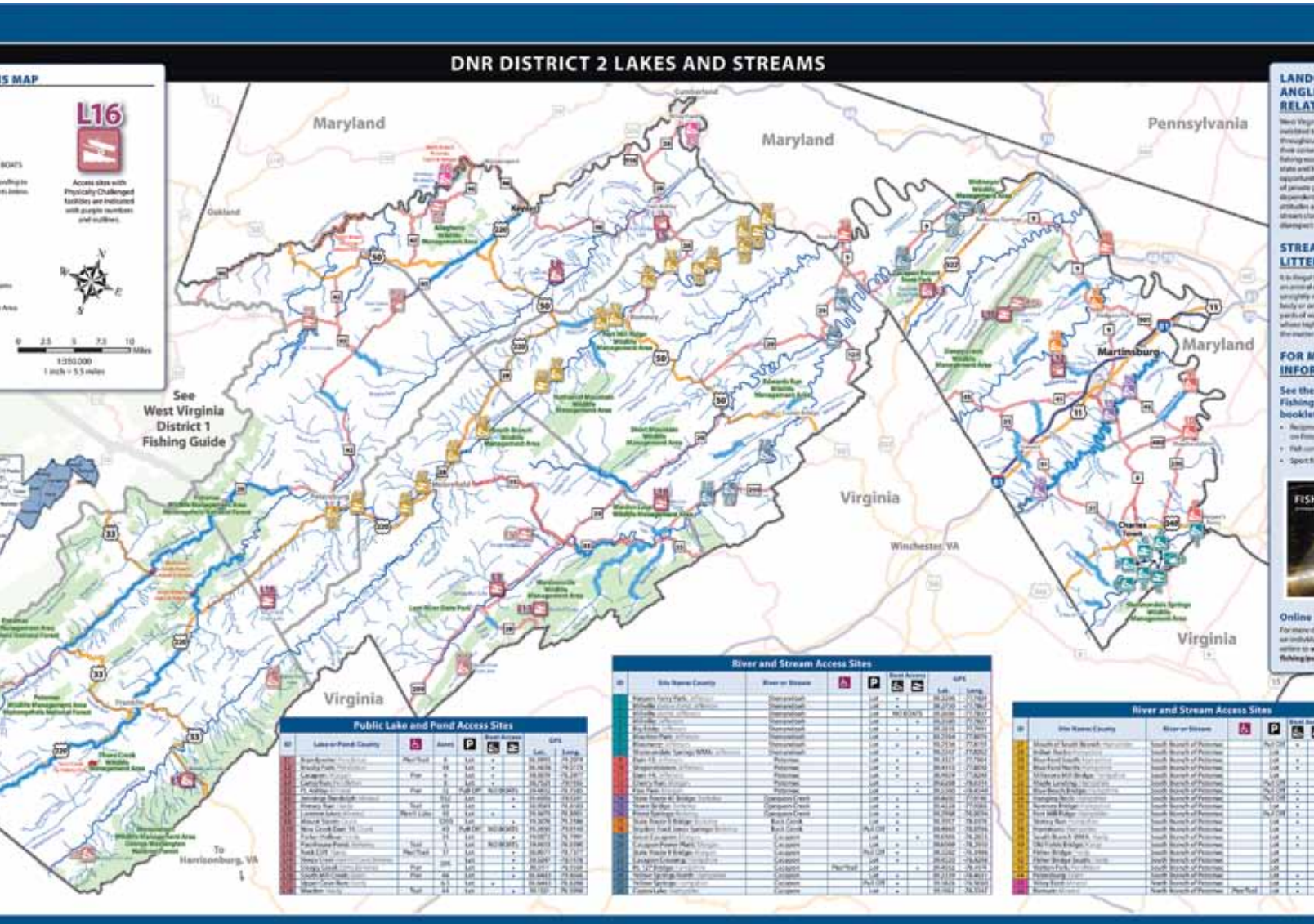
DNR personnel have stocked striped bass in Bluestone Lake in the past, but most of the stripers inhabiting the lake have migrated down the New River from Virginia.

New Eastern Panhandle Fishing Guide Available

Anglers wishing to fish the streams of the state's Eastern Panhandle now have a valuable guide to help them plan their trip. The free guide to public fishing and boating access sites and trout-stocked waters was produced by the DNR Wildlife Resources Section.

The large, color brochure features a map showing fishing and boating access sites on public lakes, rivers and streams. An icon at each site identifies whether the site has a boat ramp, carry-down boat access, or is just a fishing access site. Sections of streams stocked with trout are highlighted. Tables provide valuable information on each access site, including GPS coordinates, type of access and parking area, and handicapped accessibility. Lists of float trips on the Cacapon and South Branch rivers are included, and trout stocking information is detailed.

The District 1 and District 3 guides are on the drawing board now with a planned completion date of spring 2011. The District 2 Fishing Guide is free and available at DNR district offices, the DNR Elkins office, and the DNR main office in South Charleston. Stop by and pick one up or call and have one sent to your house. To find your nearest district office, check the Hunting or Fishing Regulations brochure, or go to www.wvdnr.gov.



West Virginia
Wildlife Resources

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- Seasonal tips for enjoying West Virginia's great outdoors
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- Proceeds assist West Virginia Division of Natural Resources Wildlife Diversity Program

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