

West Virginia Wildlife



Spring 2009

A Publication of the West Virginia Division of Natural Resources

Restoring a Precious Resource

Although water comes cascading down every hollow in West Virginia, the state actually has very little water area as a percentage of its land area. Only six states in the nation have less, and they are all west of the Mississippi River. So, as stewards of the state's fishery resources, the Division of Natural Resources has a long history of intensive management of the waters that we do have.

Anglers have noticed these efforts. West Virginia's lakes and our 2,000 miles of streams and rivers sustain almost seven million days of fishing by 376,000 resident and nonresident anglers. We are sixth in the nation in the percentage of our population that fishes. Recreational fishing contributes more than 250 million dollars and 6,600 jobs annually to the West Virginia economy.

But some of our streams need extra help. Damage by acid rain, acid mine drainage, and changes to their streambeds and habitats have reduced the ability of many streams to support high-quality fisheries. To reverse that damage requires active stream restoration efforts.

Our nationally recognized Acid Stream Restoration Program has restored and maintains water quality and sport fisheries in more than 250 miles of 50 streams and three lakes impacted by acid precipitation. Restoration has been accomplished through annual application of limestone sand to acid-impacted streams and lakes and through the operation of two self-feeding limestone drum stations. Each year, Wildlife Resources Section personnel apply more than 5,000 tons of limestone to waters at 70 different locations. Using state and federal funds from anglers, the total budget for this work is approximately \$350,000 annually. Non-governmental partners include Trout Unlimited, Plum Creek Timber Company and MeadWestvaco Corporation, all of whom provide valuable financial and logistical contributions to the program. Finally, Wildlife Resources personnel coordinate with our colleagues in the Department of Environmental Protection to restore and maintain an additional 130 miles of streams impacted by acid mine drainage.

As an angler, and as DNR Director, I'm proud to be associated with these active conservation efforts that benefit both the resource and the public. It's exactly the kind of work that I had hoped to advance as the agency's director.

Frank Jezioro, Director, West Virginia Division of Natural Resources



West Virginia Wildlife



Cottongrass wetland at Cranberry Glades

Elizabeth Byers

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Photo by Chris O'Bara

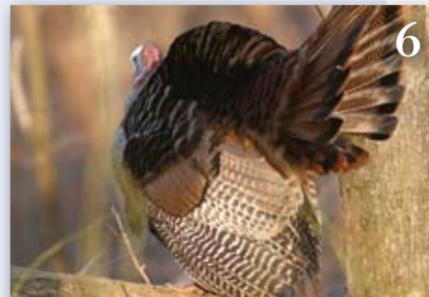


Photo by Mark Shock



Photo by Craig Stihler

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Cream of the Crappie

By Brandon Keplinger



Have you ever wanted to catch a crappie? Or perhaps you're an avid crappie angler, familiar with both species and the popular crappie fisheries offered within the state. If either of these conditions apply, you need to know that these moderate-sized sportfish with an intriguing appearance require some pretty stringent habitat characteristics!

West Virginia offers fishing opportunities for both crappie species -- the black crappie and white crappie. Both species, by the way, make excellent table fare. Both species are quite similar with respect to spawning, feeding and the habitats they select. We'll explore their life histories later. Right now, let's concentrate on species identification.

Taxonomically, crappie fall within the family Centrarchidae, which is the family shared by all of West Virginia's black basses (smallmouth, largemouth, and spotted bass) and other sunfishes such as bluegill and rock bass. These species possess a dorsal fin on their back with a group with a group of spines. This fin holds the key to crappie species identification. The black crappie has a dorsal fin with seven to eight hard spines, whereas the white crappie's dorsal fin begins farther towards the rear of the fish with six dorsal spines. Additionally, the dark pigmentation patterns on the sides of both fish are somewhat different. The black crappie tends to have more dark blotches that form a random pattern, or mottled appearance, whereas the white crappie's dark pigmentation forms a pattern similar to vertical bars.

Both species begin their reproductive effort at approximately the same time, although the white crappie has been noted to begin slightly earlier. The spawn begins as water temperatures near 60 degrees, usually starting in late April or early May and sometimes lasting until June. Nests are built in a circular fashion, similar to other sunfish species. Crappie, however, nest in slightly deeper water than

sunfish. Although substantial physical differences exist between white and black crappie, their similarities in spawning habitat, spawning period, and native and current distribution throughout their range has occasionally resulted in natural hybrids.

Crappies require highly productive lakes and streams. Juvenile crappies strongly depend on an abundance of large zooplankton that exists within the water column of these productive systems. Ample sunlight, nutrients and suitable water quality ensure that plenty of forage is available to support healthy, young year classes of crappie. Calm environments are crucial for crappie population success in large impoundments. Aquatic vegetation near the shoreline is also essential to protect young crappie from other predatory fish. Lake drawdowns and dewatering of backwater areas during crappie spawning can substantially reduce available habitat, expose nests with eggs, and cause further loss of aquatic vegetation. Sediment inputs from streams during heavy rains may cause lake water to become cloudy during critical growth periods. Cloudy water may obscure the vision of many fish species, causing a decrease in feeding efficiency. White crappies seem to be slightly more adapted to feeding in cloudy water than black crappie.

Because crappie, like all other fish, are cold-blooded, water temperature plays a key role. Fluctuations in water temperature may reduce the activity of young crappie, causing a decrease in feeding efficiency. Thus, temperature and rainfall may significantly impact growth rates and survival of young crappie. Furthermore, fluctuations in temperature and rainfall are uncontrollable environmental factors that make long-term management of these species difficult. Not surprisingly, crappie populations are notorious for producing inconsistent yearly numbers of surviving young in larger lakes. A large majority of harvestable-sized crappie in many lakes may consist of only one or two year classes.

Scientific literature suggests that zooplankton (small aquatic animals) comprise a large portion



Chris O'Bara



Chris O'Bara

Black crappie (top) tends to have more dark blotches that form a random pattern, whereas the white crappie's (bottom) dark pigmentation forms a pattern similar to vertical bars.

◀ *Black crappie*

Photo by USFWS/Eric Engbretson

of young adult crappie diets, furthering their dependence on productive systems. Additionally, as crappie age, small forage fish become a much greater part of their diet. The availability of forage fish during this time frame becomes increasingly important. Water bodies with low productivity often lack sufficient quantities of forage fish. High forage fish abundance is often necessary for the production of large quantities of harvestable and trophy-sized crappie. Lake and reservoir managers often use brush, rock piles and standing timber to increase crappie habitat and congregate fish to improve angler success. Smaller impoundments and farm ponds typically don't support large numbers of harvestable crappie. Some of these aquatic systems are actually quite productive, yielding populations that seem to experience adequate reproduction, but the fish in these populations typically exhibit stunted growth. This results in a population composed mainly of small, unharvestable individuals. However, some information suggests that crappie may be controlled "from the top down" in some of these



Stonewall Jackson Lake provides excellent crappie fishing opportunities.

Steve Shaluta



Dave Fattaleh

Proud angler holds a black crappie.

more productive, larger-sized small impoundments. "Top down control" means an overabundance of small, stunted crappie may be consumed by larger, predatory fish stocked to control the population. As a result, more food sources may be available to the remaining crappie, and growth rates may increase. As crappie become larger, they may be able to capitalize on a larger, underused food source. This often results in bigger fish which increases angler satisfaction. Other small impoundments and farm ponds are often unproductive, experiencing populations with both unsatisfactory numbers of harvestable-sized fish and poor reproduction.

West Virginia state waters offering fine crappie fishing opportunities include several large lakes (Bluestone, Burnsville, East Lynn, R.D. Bailey, Sleepy Creek, Stonewall Jackson, Sutton, Summersville and Tygart) and the backwaters of the Ohio River. Small, minnow-imitating lures such as artificial jigs, spoons, crankbaits and sinking stickbaits fish well when presented in and around submerged woody habitat. Those habitats which incorporate standing timber seem to be especially productive at times. Natural baits such as minnows, wax worms and meal worms are also excellent for catching crappie. However, if you collect or purchase minnows or crayfish for live bait fishing, remember that it is unlawful to release unused bait into state waters.

Brandon Keplinger is the assistant district fisheries biologist stationed in Romney.

Field Trip

Short Mountain Wildlife Management Area



Wetlands habitat associated with Meadow Run contrasts with the forested woodland habitat on the surrounding hills.



Art Shomo

Steve Shaluta

Common yellowthroat

Description: Short Mountain WMA encompasses two mountain ridges that form a long horseshoe-shaped basin with little Meadow Run meandering through the wooded valley. The 8,005 woodland acres provide an atmosphere of solitude and beauty. Chestnut oak is the predominant tree on the ridgetops, while red oak, white oak, and pitch and Virginia pine blanket the upper slopes. White, red, and black oak, hickory and a smattering of black walnut and yellow poplar make the coves and lower slopes a squirrel hunter's delight. A total of 61 acres comprised of beaver meadows, abandoned fields and man-made wildlife clearings provide open lands.

Fifteen miles of foot trails and 10 miles of gravel and dirt roads provide good access throughout the area. Campers have access to 74 primitive camping sites (pit toilets). The camping fee is \$10 per night for six people and \$2 for each additional person.

Viewing Information: In spring and summer, bird watchers can observe many neotropical migratory warblers such as the common yellowthroat, Northern parula, and prairie warbler. Other notable songbirds include the Eastern wood peewee, scarlet tanager, yellow-billed and black-billed cuckoos, and Acadian and great-crested flycatchers. Wetland songbirds can be seen in the valley wetlands. White-tailed deer, black bears, foxes, squirrels, wild turkeys and ruffed grouse inhabit the woods. Bobcats and coyotes also live on the area, but are seldom seen. Those interested in reptiles and amphibians may see rattlesnakes, wood turtles, painted turtles, spotted salamanders and Eastern-spotted newts. Visitors in spring can hear the distinctive calls of spring peepers, wood frogs and green frogs. A one-half mile section of the North River crosses the very southern tip of the property. Game fish include rock and smallmouth bass, panfish and trout (stocked February through May). Beaver ponds along a six-mile stretch of Meadow Run provide limited fishing and the best wildlife watching opportunities. Beavers converted this once forested area into an impressive wetlands complex several decades ago.

Directions: Short Mountain WMA is located about 18 miles southeast of Romney. From U.S. Route 50 at Augusta, take state Route 7 south about 8 miles. Turn left at the brown WMA sign. The gravel road passes through private property for about one mile before reaching the entrance to Short Mountain.

NOTE: THIS AREA IS WALK-IN ONLY EXCEPT DURING LEGAL HUNTING SEASONS. There is room for a few cars to park by the gate into the area. This is a natural area with no facilities and is a public hunting area. Please check the state hunting regulations, DNR Web site, or call the DNR Romney office for season dates.

Closest town: Augusta

Ownership: West Virginia Division of Natural Resources (304-822-3551)



Spring Gobblers with Bow & Arrows

By Gene Thorn

Taking a spring gobbler with a bow and arrow may be the ultimate hunting challenge available to West Virginia hunters. Turkeys are not a pushover when a shotgun is used. Their keen eyesight and hearing, plus quick response to danger, has caused many veteran gobbler chasers to say that there are a thousand ways to mess up a set up on a bird. If you are an experienced turkey hunter that has harvested many gobblers, perhaps you are looking for a new and greater challenge. Until recent years it is safe to say that very few, if any, turkeys were taken with the bow in West Virginia for more than 200 years. Delaware, Shawnee, Cherokee and other Native American hunters, during the 1700s and prior history, roamed what is now the Mountain State with their bows. Turkeys commonly fell to their flint-tipped arrows. It is a challenge that is attainable.

Taking turkeys with a bow takes a different set of strategies in some areas. The biggest obstacle to overcome is drawing the bow without spooking the bird when the moment of truth comes. Decoys help distract the bird, and bring them in to closer range. Decoys placed properly can also position the bird for the shot and can serve as a yardage marker. When hunting with a bow, decoys should be set close, about five yards away. If the bird hangs up you still may get a reasonable shot. If he comes all the way in, it is a slam-dunk shot.

A portable blind is a good way to achieve success. A properly blacked-out interior will allow you to draw your bow at any time. Turkeys don't usually pay any attention to a blind set up, even in a wide open forest setting. They will sometimes literally walk within inches of the walls. Choose a blind that does not flap and cause noise in the wind. If you decide to use a blind, make sure you practice shooting from inside as the perspective of looking out from a dark interior can be different. It is impossible to see some sights. A good fiber-optic sight or instinctive shooting style will get the job done.

Another strategy is to use 3-D camo, a Ghillie suit, or good patterned camo from head to toe. Don't move to draw unless the bird's eyes are behind a tree or he is directly faced away from you in full strut with his tail fan blocking you from his eyes. This plan is used effectively by many hunters that use traditional

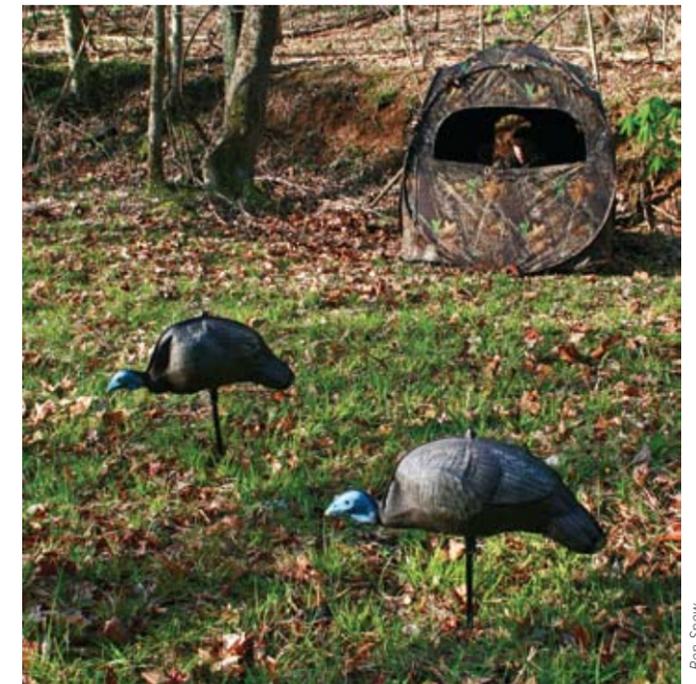
A blind provides concealment, especially when drawing the bow back, but restricts movement when the back panel is closed.

Photo by Ron Snow

◀ Lonnie J. Sneed with his bow-killed gobbler.

recurves and longbows as the shot can be taken faster. Larry Long, a turkey hunter from North Carolina, has taken 26 gobblers with his longbow and has called in over 100 birds that other hunters have killed. Larry uses a snap-shooting technique successfully. The surprised gobblers weren't able to outrun his arrows delivered at short ranges even though he does not wait for their eyes to be averted. His success speaks for itself.

I asked Larry Long what he felt was the most important factor in his phenomenal success. He quickly answered that scouting turkeys and knowing the exact ground they use when they fly down off the roost and start gobbling is the key. Where are their strutting



Taking a turkey with a bow typically requires setting decoys up close to a blind.

zones? What is their morning routine? If you nail that down, you can call the gobbler in and more readily position yourself for the shot. It takes a lot of extra mornings of early rising to put in scouting time but it will pay off. Scouting is a combination of listening in the morning, studying topographical maps, marking the location of gobblers heard, and going in later in the day to walk the ground the gobbler is using. Do not call to birds when scouting. All you do by calling to them is educating them and lessening your chances later. When you go in to hunt the gobbler during the season, have a plan for where you are going to set up on him.

The same bow you use for deer can be used on turkeys, but a lighter-weight bow is optimal. A bow of

moderate poundage is more likely to cast an arrow that will not pass through a gobbler. It is better to have the arrow stay in the bird. Many hunters use a washer or commercial impedance device behind the broadhead to slow penetration for the same reason. Use as large of a broadhead as you can get to fly accurately and make sure the blades are razor sharp. Broadheads designed just for turkey hunting are available. One is an extremely wide cutting four-blade head designed to be shot at the head and neck. The blades project at close to a right angle, and if very sharp will cause an instant kill if they connect.



Box calls continue to remain a favorite among turkey hunters.

Ron Snow

shot of all, if you are using an appropriate broadhead and take close shots. It is safer to keep the shot tucked close to the base of the neck because a turkey is continually moving its head, but the neck at the base stays in the same place. A 3-D turkey target that has the vitals outlined properly is a good investment. Always wait for the best shot angle.

Calling is the easiest part of the puzzle to solve. Larry Long and many other veteran turkey hunters I know agree with me in saying that many hunters call too much. A couple soft yelps and wait is all it takes most of the time. The gobbler knows exactly where the call came

Arrow shafts should be non-shiny or camouflaged and feathers need to be drab if hunting without a blind. Sharp-eyed gobblers will pick them out if they are gaudy. Especially stay away from red, white, or blue fletches because of the safety factor -- these are the colors of a gobbler's head. Some hunters use string trackers attached to their arrows to help retrieve a hit bird that gets out of sight.

Practice shooting with all your gear and make sure you have your facemask, gloves and vest on. Practice while sitting on the ground, or on a stool if your plan is to use one. If any problems arise, that will give you a chance to solve them before they cost you a bird. Your effective range is the distance you can hit inside a tennis ball every time in every possible scenario -- usually under 20 yards.

Turkeys have a small vital area in the body that is the size of a softball or grapefruit. The kill zone sits immediately above where the legs join together, low in the body cavity. The target should be this spot on a directly broadside shot. If you take out the legs and vitals, he is not going anywhere. The preferred target used to be the wing butts but this is a smaller target, it doesn't disable the legs, and the arrow may pass over top of the lungs and heart. The base of the neck on a bird facing you is the best shot to angle the broadhead into the vitals. A gobbler that is strutting faced directly away from you should be shot right in the O beneath the tail to hit the vitals. The head and neck are the best

from; give him time and he will come. If he is with hens, he will come and investigate later in the morning when he separates from them. If you have done your scouting and know where he lives, hang with him.

The seconds after a shot are critical to recovering a hit bird. There is an initial period of shock and confusion by the bird that will usually allow you to jump up, run and pounce on him. Watch out for the spurs, and especially the broadhead-tipped arrow, but get hold of his legs if at all possible. If you allow him time to recover, even on a mortal hit, he may well get out of your sight. That is not a good thing, as turkeys leave notoriously sparse blood trails. If he gets on wing he can put a lot of distance between you and him before he dies. If a hit turkey does get out of sight, follow the blood trail as far as you can, and then conduct a grid search. Go and get some help if you need it.

The challenges and rewards of turkey hunting are many. The sound of a gobble resonating from a hillside crowned with dogwood and redbud, in the early morning of a fine spring day, will renew the spirit of a person who has gobbler hunting blood in his veins. Hope springs forth to the prospect of calling a gobbler in and seeing that gloriously colored head bobbing toward you through the underbrush. The feel of a familiar bow in your hand and a quiver of arrows is all that is needed to set forth on a new adventure.

Gene Thorn is a wildlife biologist stationed at R.D. Bailey Wildlife Management Area.

Wildlife Diversity Notebook: Skipjack Herring



Jim Negus

Common Name: Skipjack, McKinley shad

Scientific name: *Alosa chrysochloris*

West Virginia Status: common in the Ohio and Kanawha rivers.

Description: Skipjack are members of the herring family. They have a deep bluish-silver back, their sides are less bluish and more silvery, and their bellies are silver or milk-white. Their entire body can have a silvery sheen with blue-gold reflections. On some fish, a single row of one to nine very faint spots extends from the upper gill slit backwards along their upper sides. They have a rather large tarpon-like mouth with a protruding lower jaw, and yellow eyes.

Habitat: Skipjack are large river fish that avoid muddy or milky waters as much as possible. They like swift water and generally are not found along the bottom. Large schools of skipjack can be found below our dams on the Ohio and Kanawha rivers, where they attack schools of minnows and young gizzard shad. In these feeding situations, they sometimes "skip" along the water surface. This characteristic is responsible for their common name.

Range: The skipjack herring ranges widely throughout the eastern United States. They occasionally venture into brackish and marine environments along the Gulf Coast. Their distribution extends from Florida to Texas and as far north as Minnesota and Pennsylvania.

Diet: Like most young fish, small skipjack eat zooplankton and switch to insects and small fish when they become larger. Anglers can catch skipjack on small- to medium-sized spinners and spoons, although agitator bobbers with small flies are the tackle of choice for this herring. Remember, skipjack are almost always found near the surface. Although edible, they are not generally valued as food fish. However, cut skipjack fillets are treasured by some flathead catfish anglers who use them for bait.

Life History: Not much is known about West Virginia skipjack herring. Studies elsewhere, however, have shown that skipjack spawn in the spring, and sometimes make long upstream migrations. Female skipjack can produce more than 100,000 eggs annually. Young fish grow to about five or six inches during their first year. They mature after two to three years. Adult skipjacks are usually 12 to 17 inches long. The West Virginia State Record length is 18.9 inches, while the weight record is 2.61 pounds.

Conservation and Potential Threats: No species-specific threats within the Mountain State.

Scott Morrison is the district fisheries biologist stationed in Parkersburg.

Lock and dam tailwaters are good places to fish for skipjack.



David Fattaleri

Bats in Your Belfry?

By Craig Stihler



Little brown bats return to their roost in an old church at dawn.

Merlin D. Tuttle, Bat Conservation International

After the sun sets and as the skies darken, bats emerge from their roosts to patrol the air space for flying insects – taking over the role of diurnal insectivorous birds. All 14 species of bats reported from West Virginia feed solely on insects. A nursing female bat can consume over half her weight in insects each night, and a large colony can have a sizable impact on local insect populations. As beneficial as this bug-control service is, it may not be much appreciated if the roost from which these bug-consumers take off is also your home. If you have an unwanted colony of bats in your attic, eaves or belfry, don't wait until summer to deal with the problem. You can save yourself time, effort and frustration by addressing this problem before the bats return to their summer roost.

Two species of bats found in the West Virginia commonly roost in buildings. These are the little brown bat and the big brown bat. Although these bats probably roosted in hollow trees in the past, buildings



Carl Butchowski

Little brown bats roosting in a building.

are now their most common roosts. The little brown bat, probably the most abundant species in the state, is around 3.5 inches long while the big brown bat may be up to 4.5 inches in length.

Both species are colonial and sometimes form colonies of several hundred individuals. Little brown bats feed on a variety of smaller insects and often feed over water. Big-brown bats feed largely on June bugs and other beetles. Occasionally, one of the state's rarest bats, the Rafinesque's big-eared bat, will take up residence in abandoned buildings in the southern portion of the state. These bats have very long ears (over an inch in length). If you find any Rafinesque's big-eared bats, please notify DNR wildlife biologists at (304) 637-0245.

Although you may hear many theories on how to get bats to leave your house, the simple truth is that physically excluding them is the only method that works for the long-term. This means you need to block all possible entrances and exits at a time when the bats are not present. Unlike rodents, bats do not gnaw their way into structures, but rather use existing cracks and holes. Therefore, if you block their entrances, they will

not chew their way back into your building. The key factors are determining that all bats are out of your house when you seal the openings and making sure you seal all the openings they use. Observing the house at dusk when the bats are emerging is the best way to determine where the bats are gaining access to your home. Staining and guano can often be seen below the exit sites and can be useful when trying to identify openings used by bats when the bats are not present.

To determine the suitable times for excluding bats, you need to know a little about the life history of these creatures. Both little brown bats and big brown bats hibernate during the winter. Caves and mines are often used by hibernating bats, but it is unusual to find bats in buildings during the winter. Attics that provide ideal summer homes for bats usually have unstable temperatures and are too dry for hibernating bats in the winter. Winter and spring are the best times to begin your bat-proofing activities.



Rafinesque's big-eared bats, one of the state's rarest bats, roosting in a building. Sightings of these bats should be reported to the DNR.

Once spring arrives with warm temperatures and abundant insects, the bats emerge from hibernation, become active, and return to their summer roosts. This is usually in April in West Virginia. Females are particularly drawn to buildings because the warm conditions in attics are ideal for rearing their young. Females congregate in such places, and each will give birth to a single young (rarely more than one) called a pup. The pups, born blind and helpless, are nursed on milk and grow rapidly.

Within a month they begin to fly, but may not leave the roost. Even if you wait for all the adults to leave in the evening, young bats may be trapped inside, so you should not attempt bat-proofing during the summer. By mid-August, the young bats are becoming independent, and the colony will start to disperse and move toward their hibernation sites. In late August, it is again safe to continue your bat-proofing efforts. The later into the fall you can wait, the more likely it is that the bats will be gone.

To be sure that all the bats have left your building, you can use a "one-way-door" which allows bats to exit, but not return. If there are multiple openings used by the bats, you may want to seal all but one so you only have one existing entrance to deal with. The general principle employed is to put some sort of covering over the opening the bats are using so that it hangs down about a foot and a half below the opening. You can use plastic netting or hardware cloth. Seal the top and sides and leave the bottom open (duct tape will work).

When the bats depart in the evening they will crawl down and find their way out. However, when they



An inexpensive "one-way-door" made of screen often prevents bats from re-entering the house.

return, they won't be able to figure out how to get back in. Because bats often use their sense of smell to locate the opening to the roost, it is best to use some sort of netting and not solid plastic sheeting to make your one-way door. If plastic is used, the smell would lead them to the bottom of the plastic and allow them to find their way back in the opening. If netting is used, the smell will lead them directly to the hole and they won't be able to get through the netting. After a few days, there should be no bats left inside and it will be safe to proceed with bat-proofing.

A number of materials can be used to seal the openings used by bats: caulk, expanding foam, hardware cloth, netting and window screening, for example. The best material to use will depend on the size and location of the opening. Once all openings



Bat houses offer an alternative roost. Little brown bats have taken up residence in these simply constructed houses.

are sealed, the bats won't be able to get back into your house when they return in the spring. However, the bats are likely to return to your area, and you may wish to provide them an alternate roost. This will keep the bats in your area where they will continue to consume local insects, and it may keep them from moving to your neighbor's attic and keep peace in the neighborhood.

You can buy or build a bat house. Ideally, the bat house should be put up before the bats are excluded so they will have time to find the bat house before needing to find an alternate roost. It is important to use a properly designed bat house. Bat Conservation International (www.batcon.org) has a program which certifies commercially available bat houses which are well designed and constructed. The key to a successful bat house is often in the placement. Remember, these bats are looking for a warm roost, so place the house in an area where it will receive several hours of direct sunlight each day and paint it a dark color so it absorbs as much heat as possible. The bat house should be placed 10 to 20 feet above the ground and should be mounted on the side of a building or on a pole. Bat houses mounted on trees are rarely successful. For those who are extremely ambitious, there are even plans available for building a "bat condo" that will house thousands of bats.

Bats in the wrong place may be a nuisance, but they are beneficial creatures and can be fascinating to watch as they emerge at dusk. Place your bat house where the bats can provide free entertainment. As an added bonus, the droppings they leave under the bat house



Bat condo surrounded by two bat houses. Bat condos can house thousands of insect-eating bats.

can be gathered and used as fertilizer for your garden. If you know you want to exclude a colony of bats this year, it is best to begin to deal with this issue before the bats return in the spring.

Many resources are available on the Web that can assist you in bat-proofing your house or in constructing and installing a bat house. Here are a few:

Removing a bat colony from your house:

- <http://www.batmanagement.com/Ordering/eviction%20package/evictpack.html>
- www.dnr.state.mn.us/livingwith_wildlife/bats/exclusion.html
- www.batcon.org/index.php/education/40-bats-and-the-public/68-exclusion-guidelines.html
- www.batcon.org/index.php/education/40-bats-and-the-public/70-do-it-yourself-2.html
- www.ehow.com/how_2089063_.html

Putting up a bat house:

- www.batcon.org/pdfs/bathouses/bathousecriteria.pdf
- www.nwf.org/backyard/bathouse.cfm
- www.dnr.state.wi.us/org/LAND/er/publications/bat_house/

Removing a single bat from your house:

- www.batmanagement.com/Batcentral/eviction/evict1.html
- www.wikihow.com/Catch-a-Bat-in-Your-House
- www.dnr.state.mn.us/livingwith_wildlife/bats/removal.html

Craig Stihler is a wildlife biologist stationed in Elkins.

Trout Cave Gating Project

Story and photos by Craig Stihler

Why would 50 people spend five days hauling over two tons of steel and equipment up a steep hill to a hole in a cliff? To help protect rare bats, of course!

In September 2008, two cave gates were built at the entrances of Trout Cave in Pendleton County to reduce disturbance to endangered Indiana bats and other bats which hibernate in the cave during the winter. Trout Cave is owned and managed by the National Speleological Society (NSS)(www.caves.org), an organization dedicated to the study and conservation of caves. Based on the historic data available, it appears that Trout Cave once housed the second largest concentration of hibernating Indiana bats in West Virginia. In the 1950s and 1960s populations of Indiana bats declined across their range, and the number in Trout Cave declined to the point that none were observed in 1965. Disturbance by recreational cavers and bat researchers conducting large-scale banding studies were probably major factors in this decline.

Biennial monitoring of the bats hibernating in Trout Cave showed up to 24 Indiana bats hibernating in the cave between 1983 and 2003. The number of Indiana bats showed a significant increase in 2005, and this increase continued with 158 Indiana bats observed during the 2007 winter count. However, most of the bats were in a side passage, not in the main passage where historic accounts indicate most of these bats hibernated in the past. If disturbances were eliminated, perhaps the bats would return to their traditional (and presumably more suitable) roost sites within the cave.

Construction of angle-iron gates has been very successful in protecting Indiana bats at other sites. They provide a good deal of security while using a design that is bat-friendly. After months of planning, the cave gating project was implemented last fall. Major funding was provided by a grant from the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program, with additional funding and support provided



by the National Speleological Society, Bat Conservation International, West Virginia Division of Natural Resources, Trout Unlimited, the Environmental Sciences Program at Davis and Elkins College, and volunteers from local caver grottos associated with the NSS. Chris Sanders from Sanders Environmental, Inc. designed the gates and oversaw the construction.

Editor's Note: Because bats affected by White-nose syndrome were observed in Trout Cave in January 2009, the cave is closed year-round to minimize the potential of spreading WNS to other caves. See news story in Almanac section of this issue.

Craig Stihler is a wildlife biologist stationed in Elkins.



Building a gate at Trout Cave was labor intensive. The long cross bars were welded together at the bottom of the hill (upper left) and then hauled more than 200 feet uphill using pulleys (lower left). When completed, the gate (lower right) will allow access by bats but will prevent human disturbance.



Wetland Metaphors

Many of the major attributes of wetlands can be explored through the use of metaphors. To use a metaphor is to apply a word or phrase to an object or concept that it does not literally denote in order to suggest a comparison between the two. "A tree is a home" and "Books are windows of thought" are two examples. In this activity, a variety of everyday objects are used to represent the natural functions of wetlands.

The major purpose of this activity is for children to develop an appreciation and understanding of wetlands through the power of metaphor, linking the natural functions of wetlands to the familiar realm of everyday life.

Objectives

Children will: 1) describe the functions of wetlands and 2) evaluate the importance of wetlands to wildlife and humans.

Method

Children are presented with a selection of objects for investigation as metaphors for the natural functions of wetlands.

Materials

A pillowcase, opaque bag or box

Object	Metaphoric Function
Sponge	absorbs excess water caused by runoff; retains moisture for dry periods
Pillow	a resting place for migratory birds
Mixer or whisk	mixes nutrients and oxygen into the water
Cradle	provides a nursery that shelters and feeds young wildlife
Strainer	strains silt, debris, from water
Filter	filters smaller impurities from water
Antacid	neutralizes toxic substances
Cereal	provides nutrient-rich foods
Soap	helps cleanse the environment



A sponge-like peatland with dwarfed red spruce and cinnamon ferns growing on hummocks in the Laurel Fork Wilderness.

What To Do

1. Place the selected objects into a "Mystery Metaphor Container" (pillowcase, opaque bag) and put aside for later use.
2. Provide the youth with background information provided to serve as an overview of the basic ecological functions of wetlands. You may also have them read the article on wetlands in this issue of the magazine for background information.
3. Discuss the variety of wetlands found in your local area or state. You may ask anyone who has been to a wetland to describe their experience – what they saw, smelled, heard.
4. Bring out the "Container." Tell the children that everything in the container has something to do with a wetland. Have the children, either independently or with a buddy, grab an object from the container. Ask them to figure out how the object could represent what a wetland does. You may assist by strengthening their connections.
5. After a short time, ask each child or group to show its object and explain how it relates to a function of wetlands.
6. Following discussion and review of the functions represented by each metaphor, ask the students to summarize the major roles that wetlands perform in contributing to habitat for wildlife. List the ways wetlands are important to humans. Besides ecological values, wetlands are places of recreation and esthetic beauty (beautiful flowers and wildlife.) Ask them if their own attitudes about wetlands have changed. If yes, how? If not, why not?

This activity is adapted with permission from Project WILD © 2006, Council for Environmental Education.



Narrowleaf gentian is a perennial flower of our high elevation peatlands. Look for it on Dolly Sods in August or September.

Background

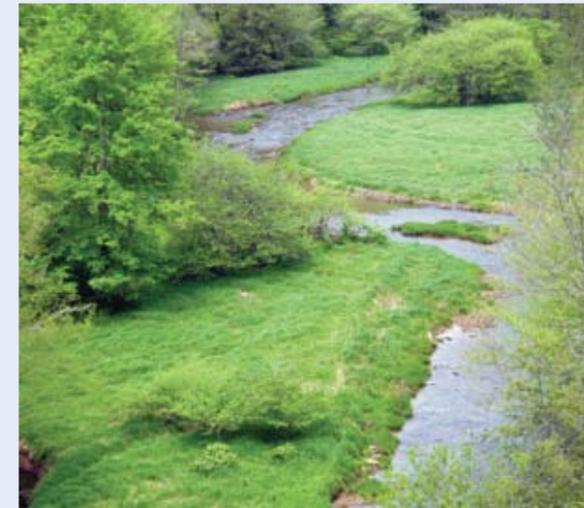
Wetlands mean different things to different people. Some people don't give much thought to wetlands while others work to protect wetlands because of their importance. Wetlands include such areas as freshwater and saltwater marshes, bogs, swamps, wet meadows and bottomland forests. All wetlands, whether coastal or inland, provide special habitats that serve areas far beyond their boundaries. Wetlands are among the most productive ecosystems in the world.

Marshes provide breeding, resting and wintering habitats for thousands of migratory birds, including ducks, geese, cranes and shore birds. Many species of fish that are important for commercial and personal use by humans reproduce and spend part, or all, of their life cycles in fertile wetlands adjacent to larger, more open bodies of water.

A wide variety of reptiles, amphibians, insects and crustaceans also breed and live in wetlands. Many mammals, from beavers to muskrats to white-tailed deer, also depend on wetland areas.

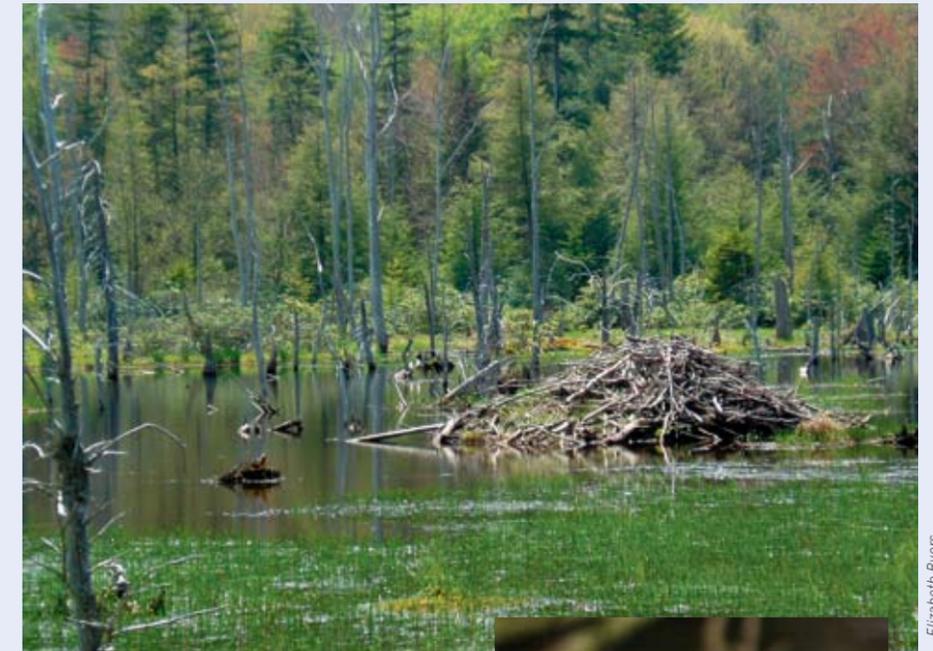
Wetlands are often referred to as nurseries because they provide critical breeding and rearing habitats for countless numbers and kinds of wildlife.

Wetlands also have the unique ability to purify the environment. They act as natural filtering systems and have been shown to be extremely effective. For



Frequent flooding prevents woody vegetation from growing in these sedge meadows along the West Fork of the Greenbrier River. The dense vegetation stabilizes the riverbank, filters the sediment from flood flows, and helps keep the water clean for aquatic life.

Photo by Elizabeth Byers



Three-way sedge (green vegetation in foreground) pioneers a new plant community next to a beaver lodge.

example, they can trap and neutralize sewage waste, allow silt to settle, and promote the decomposition of many toxic substances.

The importance of vegetation associated with wetlands cannot be overlooked. Plants absorb nutrients and help cycle them through food webs. Plants also help keep nutrient concentrations from reaching toxic levels. Plants slow down water flow, causing silt to settle out. Through photosynthesis, plants add oxygen to

the system and provide food to other life forms. Of great importance to humans are the flood-control characteristics of wetlands. When runoff from rains and spring



Beavers are nature's best wetland builders.

thaws is high, wetlands absorb excess water until it gradually drains away down streams and rivers and through the soil. In dryer periods, wetlands hold precious moisture after open bodies of water have disappeared.

As remarkable and resilient as wetlands are, these unique areas have limits. Their destruction and/or abuse can have devastating effects on wildlife, humans and overall environmental quality. Wetland habitats are being converted to other uses such as agriculture, roadways, and housing developments or are otherwise being altered (drained for mosquito control or polluted) at the rate of about a half million acres per year. And although many wetlands are protected by federal and state laws, there still appears to be a significant need to create a greater understanding of the importance of wetlands as ecosystems and as wildlife habitat.

WETLANDS!

A 30-Year Reflection

By Roger Anderson



When West Virginians think of the DNR Wildlife Resources Section, they envision trout stocking, hunting, regulations and, perhaps, nongame wildlife education programs. But there is a whole other side to the agency that functions to conserve and protect wildlife habitats to ensure that hunted and non-hunted species alike have a place to live and grow. Wetlands are one of these important and unique habitats.

In 1977 Congress passed a law that was signed by President Carter to protect our nation's waters, which include wetlands. Section 404 of the Act, known as the Clean Water Act, specifically regulates the dredging, filling and draining of wetlands.

I was fortunate enough to start my career with the then Wildlife Resources Division of the Department of Natural Resources in 1978, one year after passage of

the Clean Water Act. At that time I had no idea that I would make a career of helping to conserve and manage one of our state's most limited resources – wetlands.

First of all, what is a wetland? Wetlands are areas having three characteristics: they have vegetation that grows best in wet conditions; they have specific soil types that are formed under continuous or at least regular soakings with water; and they must have water at or near the surface for at least part of the growing season. These criteria define the areas as a wetland in both legal and ecological terms. Wetlands in West Virginia range in size from areas as small as a wet spot in a field to expanses as large as Canaan Valley, our state's largest contiguous wetland.

In the 1600s the continental United States had approximately 221 million acres of wetlands. By the mid-1980s that number had decreased significantly to

◀ *Cranesville Swamp in Preston County is a diverse mosaic of forested and open peatlands which contains plant species commonly found in Canada.*

Photo by Steve Shaluta

103 million acres. Our latest estimate in 1997 is 100 million acres.

How extensive are wetlands in West Virginia? Our steep topography and lack of glaciation are not favorable for wetland formation. Recent surveys indicate we have between 57,000 and 102,000 acres of wetlands, or less than one percent of the state's total area. I realize that this is almost a 50 percent difference between the high and low acreage, but the lower number is actual inventoried wetlands interpreted from aerial photos in 1996 and the upper number was a projection made from sampled wetlands in the 1980s. Any loss of wetlands in West Virginia is significant because of how few we have. Their scarcity and many functions and values make our wetlands worthy of protection.

Even if you're not an avid conservationist, you will have to admit that wetlands have a place in the overall scheme of things. Not convinced yet? Let's discuss their value for a moment. First, wetlands trap and slow the flow of water. This reduces the overall chances for flooding and the severity of floods when they do occur. It's better that the low-lying wetland floods instead of your house. Also, wetlands hold water long enough to allow it to percolate into the soil, allowing recharge of increasingly important groundwater reserves. What isn't trapped in the groundwater is released slowly to maintain water levels in our rivers, lakes and water wells. A third beneficial function of wetlands is that, like kidneys in your body, wetlands filter our water to keep it clean and healthy. We have found that wetland vegetation removes harmful acids and minerals from water before it poisons aquatic life.

The West Virginia coal industry is aggressively using man-made wetlands to help purify mine drainage.

Wetlands are very productive parts of our environment; more productive of vegetation, in fact, than some agricultural soils. "So what?" you might ask. "We don't eat alders and sedges." True, but this vegetation does serve other important purposes. It shelters and feeds many wildlife species that cannot survive elsewhere. Almost 35 percent of all rare and



Elizabeth Byers

In autumn, this fen on Canaan Mountain offers a colorful display of scarlet peatmoss and evergreens, dotted with white cottongrass fruits. This fen provides a home to the four-toed salamander.

endangered species depend, in some way, on wetlands. More common wetland species provide enjoyment to many by serving educational, research and recreational needs. Waterfowl and many furbearers such as beaver, mink and muskrat provide both consumptive and non-consumptive recreation and are dependent on wetlands.

Fish, of course, have to live in water; but just how important are these little wetlands to the average angler? More important than most would guess. Many fringe wetlands provide the food that young fish need to survive. By slowing the flow of water, wetlands help keep banks from eroding and they trap and settle suspended silt before it smothers fish eggs and covers the insects and other animals that fish eat.

Lastly, wetlands add visual diversity to our lives. Take a trip to Canaan Valley State Park or the Canaan Valley National Wildlife Refuge and walk on one of the many trails that skirt or cross the wetlands located

there. Look at the different plants and see some of the wildlife species that live there. I think you will find it relaxing, rewarding and different than a normal walk in the woods.

Recognizing the importance and value of wetlands to everyone, we have taken action to protect them. The 1977 Clean Water Act gives the U.S. Army Corps of Engineers the responsibility to protect the nation's wetlands and waterways by issuing permits to place fill and remove a wetland when development is necessary.



Steve Shaluta

Cattails are aggressive colonizers of disturbed wetlands and may crowd out native vegetation.



Steve Shaluta

The boardwalk at Cranberry Glades offers visitors a close-up look at unique plants including insectivorous (insect-eating) sundew and pitcher plants.

West Virginia's authority to protect wetlands comes from the Constitution of West Virginia, state laws, and state's rights provisions of the Clean Water Act. Basically, our goals are to move construction and development out of wetlands whenever possible, limit wetland losses by suggesting less damaging designs or adjusting project site when relocation is impossible, and accept negotiated mitigation (replacement) for unavoidable damage to wetlands.

The issues are clear. Wetlands are important to the quality of human life and these areas must be conserved and managed. Protection of all the country's wetlands is imposed by federal agencies. But state agencies in West Virginia implement regulations specific to our state's needs and companion federal requirements.

I hope after reading this article that you understand the importance of our state's wetland resources and why we believe their conservation is so important. As a biologist/manager, I have seen many changes in the past 30 years to wetland regulations; some progressive and some regressive. Most of these changes have come about as a result of our court system. These changes have resulted in attempts to redefine streams, change the definition of fill and its placement, and define when areas are and are not wetlands. Significant changes have been solely based on legal challenges to the interpretation of the Clean Water Act, not biology.

To date, one thing remains consistent and moving forward – wetland science. Science has and continues to be the foundation for wetland conservation and management. We know with a significant level of surety what a wetland is, where it is, and why it exists through good evaluation methods that are based on

tested science. We know they must have certain physical, biological and chemical parameters to be wetlands. We know that wetlands occur in places that we would not normally expect them, such as on the sides and tops of mountains. We continue to make great strides in building wetlands for mitigation that actually function. Most importantly, we have learned from research and our mistakes about where not to attempt to construct wetlands.

Over the past year we have heard the word “change” used as a slogan for a new president and I concur that positive, directed change is good.

Yes, in the next 30 years wetland science will continue changing and continue to react to changes in regulations. These changes will require scientists to learn more about wetlands to meet the challenges of the court cases that will be litigated. I only hope that the nation doesn't lose sight of the value of these habitats to our clean water and wildlife and let those who would attempt to degrade and eliminate these resources under the guise of legal interpretation and progress prevail.

Roger Anderson is a wildlife biologist stationed in Elkins.



Keith Krantz

Beaver dams create a diversity of wildlife habitat within a wetland.

Value of Wetlands

Wetlands are beneficial for many reasons. They:

- Reduce flooding by holding and absorbing flood waters
- Filter silt and debris and neutralize some pollutants from water
- Provide fish and wildlife habitat, particularly breeding and spawning areas
- Provide recreational opportunities – wildlife watching, hunting, fishing, nature photography
- Recharge groundwater reserves

Bottomland Pin Oak Forests

When we think of bottomland forests most of us picture areas dominated by sycamores, box elders, elms or maybe silver maples. In some areas of West Virginia, however, we have moist bottomland oak forests. These wetland broad-leaf forests, or “swamps,” are dominated by a particular type of oak -- the pin oak. Pin oak swamps occur on floodplains at low to middle elevations across the state.

The pin oak belongs to the red oak group, which is distinguished by having bristle-tipped leaf lobes. Pin oak leaves look very similar to those of red oak and scarlet oak, but the tree's characteristic shape and habitat provide clues for identification. The first thing one notices are the lower branches which hang down towards the ground like the arms on your body. Many of these branches are dead but are still attached to the trunk. Pin oaks hold onto their old branches and create a dense clutter of boughs.

The next thing you may notice is how flat the land is where the oaks are growing. It will probably be obvious that at least through part of the year, water will pool on the ground in this area. Water stains may be visible on the lower parts of the tree trunks. The ground can be very wet, and only certain species, including the pin oaks, are adapted to these conditions.



Paul Wray, Iowa State University, Bugwood.org

The bristle-tipped leaf lobes are a key characteristic of pin oak.



Jim Vanderhorst

Bottomland pin oak forest at Johnson T. Janes city park in Parkersburg.

One task of the DNR Wildlife Resources Section is describing unique communities or groups of plants that are consistently found together. West Virginia's pin oak forests can be divided into different types of plant communities based on where they occur and the characteristic plants which grow in each. At the relatively high elevations of the Meadow River wetlands in Greenbrier County, pin oak often grows with black ash (a state rare tree) and bromelike sedge (a state rare plant). In contrast, the swamps at lower elevations along the Ohio River lack these rare plants, and are more similar to widespread forests further west. Some species, like poison ivy and spicebush, are abundant in both communities. The differences between these two communities may be related to climate, as affected by elevation, and soils.

Pin oak swamps are wet because of where they occur on the landscape and the characteristics of their soils. They usually occur in the floodplains of rivers and streams on fine textured soils (silt and clay). During high water, the streams flood over their

banks and water pools in flat areas. As the water retreats, these pools are often trapped behind higher levees which line the stream edge. The fine textured soils are slow to drain and water may be held for long periods.

Pin oak forests can be explored in the Meadow River (Greenbrier County), Greenbottom Wildlife Management Area (Cabell County), Sleepy Creek Wildlife Management Area (Morgan County), and in the Johnson T. Janes city park in Parkersburg (Wood County). The largest and most unique of these swamps are along the Meadow River.

These are public lands and belong to all of us. Whether you are a hiker, birdwatcher, hunter, or all three, take the opportunity to visit some of West Virginia's more unusual plant communities. Be prepared to get wet feet (or wear rubber boots) and be careful not to touch the poison ivy.

Reprint of article written for West Virginia Nongame Wildlife & Natural Heritage News by Dean Walton. Revised by Jim Vanderhorst, Wildlife Resources Section ecologist stationed in Elkins.

Bagging Memories

By Jama L. Jarrett

I have always admired those strong, confident outdoors women who are as equally at home with bagging a turkey in the field as with picking one up from the local grocer. Admittedly, I'm not one, yet. But inspired by my husband's desire to introduce our son to the sport of turkey hunting, and his constant push to get me out of the shopping mall, I found myself donning camouflage and taking to the woods to learn what it takes to be a skilled hunter.

Hunting in West Virginia is usually a family tradition that goes back generations. Folks hunt to put food on the table, which in the process also controls wildlife populations and stimulates the economy. More importantly, however, people hunt so they can spend time with their families. The strong bonds that are formed while spending the day on a hunt can last a lifetime.

West Virginia is blessed with an abundance of wildlife that keeps families in the woods almost year round. Young hunters can take advantage of four youth hunting days that allow younger members of the family to safely spend a day in the woods without the mass of other hunters. Special one-day seasons are held in the spring for turkey hunting and in the fall for squirrel, antlerless deer and waterfowl hunting.

Youth hunting day in April marks the beginning of spring gobbler season in West Virginia. In 2008, approximately 3,000 kids between the ages of eight and 14 ventured out into the state's mountains and forests to try their luck at finding a wild turkey. Imagine it! No television, no video games – just the harmonious sounds of nature and the conversation among family members. And thanks to the uninvited bugs that continued flying in my face and up my nose, it gave my husband and son an excuse to form an alliance against me and strengthen their own bond. Apparently there is great joy to be found in my misery.



Photo by Ron Snow

My son pointing out an ant hill.

My husband has hunted since he was a young boy. His uncle and grandfather would take him to the family farm in Greenbrier County and teach him about the principles of hunting, gun safety, and the value of conservation and spending time with family. Now it is his turn to pass along all that he has learned and this tradition to his own children, and to the wife who may one day actually sit still long enough to enjoy the pastime.

My eight-year-old son became interested in hunting a couple years ago when he received his first shotgun. Like me, he gets bored after a period of time. Apparently a short attention span runs in the family. Unlike me, he embraces the bugs and finds entertainment in their desire to aggravate me. Nevertheless, he does make an effort to enjoy the hunt and listens intently as my husband explains how to use a turkey call, something I doubted would bring in an animal. But what do I know?



Mark Stock

The one that got away . . .

Once we double checked our gear and made sure everyone was properly and safely dressed, we set out on our journey for that prized turkey. After a very long hike, my husband sat us down in an area that he said looked "promising." To me, the spot looked the same as every other location we trekked past on our two-mile-long walk from the car. Ignoring my whining, my husband assured me that if we were quiet and remained still he was confident we would call in a gobbler. Considering we had walked all over the bug-infested terrain and didn't once see or hear a turkey, I had my doubts. But who was I to argue with the "king of the woods?"

My husband's first calls sounded to me like an asthmatic struggling for air. But after several, subsequent calls he did start to sound like a turkey. After many attempts, and much to my amazement, he was finally able to get a response from an interested gobbler. My son, who at this point was preoccupied with an ant hill, perked up and told me to sit still and listen. This matter-of-fact demand caught me off guard and I remained motionless, not able to find the words to tell him I was the one who gave orders, not him.

Obedying my son's order to sit still and listen.

Eager to bring the bird closer, my husband called again; eager to find his soul mate, the bird answered. As this manner of communication went on for what seemed like hours, the gobbler did appear to get closer with each call. With my husband's guidance, my son prepared his gun for his first shot at a turkey. And then it happened – dead silence. No more gobbles. My husband continued to call, but there was no response. There we sat, amazed and confused by the events that led us to this disappointing moment. That old turkey had outsmarted us.

We left the woods that day without a turkey. But we also left with something much more important, a great time and life-long memories. My son was excited about almost bagging a turkey. He was even more excited however about sharing our adventure with family and friends and blaming me for the lost opportunity. That's okay though; all that matters is that he had a good time with his family. I'll take the blame for that any day.

I look forward to spending time in the woods again with these two entertaining hunters. Hopefully, by the time the next opportunity arrives, I will have learned the value of patience and the humor in being attacked by bugs. Until then, I will reluctantly fight the crowds while "hunting" for my turkey at the local grocery store.

Jama Jarrett is a Public Information Specialist with the Department of Commerce Marketing and Communications.



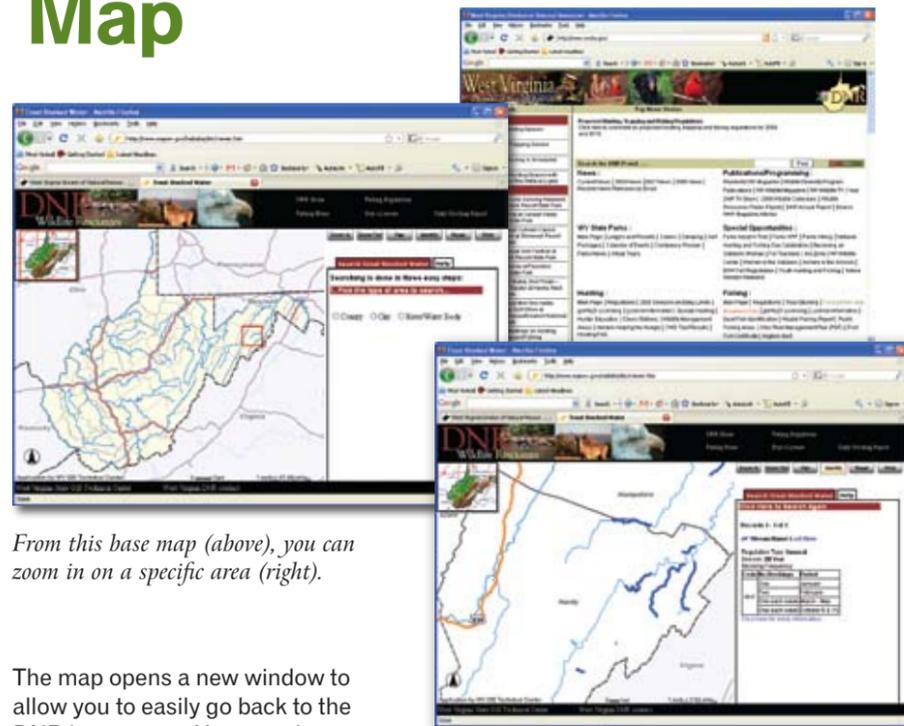
Ron Snow

DNR Announces New Online, Interactive Trout Stream Map

Trout anglers now have a new interactive tool at their fingertips to help them locate a stream stocked with trout, according to West Virginia Division of Natural Resources Director Frank Jezioro. An avid trout angler himself, Jezioro says this program provides all the information needed to plan a fishing trip.

The information can be found by going to the DNR home page at www.wvdnr.gov, then looking under the "Fishing" heading and clicking on "Trout Stream Map." A high-speed Internet connection is required to access the map.

Once on the Web site, you can search the state by specific stream or lake, by county, or by city. You can narrow down the search if you just want to find catch-and-release or fly-fishing-only areas. Once you locate the stream you will find information on stocking frequency, description of the stocked section of stream, and driving directions from major highways. Using the state map on the Web site, you can zoom in or out to access a more detailed map which uses aerial photography. You can also move easily from one section to adjacent areas using the panning tool. In addition, the map identifies public fishing access sites.



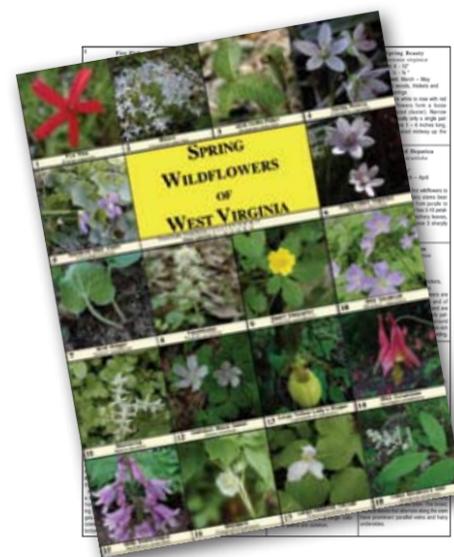
From this base map (above), you can zoom in on a specific area (right).

The map opens a new window to allow you to easily go back to the DNR home page. You can also use the links at the top of the map page to quickly access the daily trout stocking report, fishing regulations, or buy a fishing license.

"This online map demonstrates the capabilities of our staff," Jezioro said. "We have very talented folks who work hard to provide the public with useful

information that allows them to take advantage of the abundant natural resources our state has to offer."

This Web mapping application was developed and maintained in cooperation with the West Virginia State GIS Technical Center wvgis.wvu.edu.



Plant and Wildlife Identification Guides Available Online

Folks interested in identifying common plants and trees in West Virginia can find help in the form of printable, letter-sized posters on the DNR Web site at www.wvdnr.gov. The subjects include spring and fall wildflowers, mushrooms, trees, invasive roadside plants and slime molds. One page shows close-up images of 18 plants, while a second page provides a brief description of the plants and the type of habitat in which you can find each one.

If you have access to a laminating machine, you can encase the guides back-to-back in a waterproof plastic cover which make them handy for long-term outdoor use. These guides are found on the DNR home page under the Wildlife Diversity heading.

Also available on the DNR Web site are printable color booklets of snakes and salamanders as well as brochures of eagles and mushrooms. These publications can be found under the Publications/Programming heading on the DNR home page.

Lab Results Confirm White-nose Syndrome in West Virginia Bats

Since the last report in the Fall 2008 issue of this magazine, the U.S. Geological Survey National Wildlife Health Laboratory in Madison, Wisconsin, has confirmed that bats from two Pendleton County caves have the condition known as White-nose Syndrome (WNS). This condition has killed thousands of cave bats in the Northeast, and the affected sites in West Virginia are currently the southernmost sites where WNS has been observed.

White-nose Syndrome is named for the white fungus which is often observed on the muzzles, wings and ears of affected bats. Although there may be several factors contributing to the condition known as White-nose Syndrome, the invasion of skin cells by a specific fungus is a consistent observation in all cases. The fungus, a member of the genus *Geomyces*, was cultured from the West Virginia bats. Genetic data indicate the fungus is identical to that cultured for other WNS-positive bats. Microscopic examination of the bats' skin provided evidence that the fungi had invaded the cells of the skin in all three species submitted: little brown bats, eastern pipistrelles, and northern long-eared bats.



Hibernating Indiana bats in New York infected with White-nose Syndrome.

Nancy Heaslip, New York Department of Environmental Conservation

"This winter, DNR wildlife biologists have conducted bat surveys in Grant, Hardy, Randolph and Tucker counties as well as Pendleton County," said Wildlife Resources Section biologist Craig Stihler. "To date, WNS has only been observed in Pendleton County. However, only a small number of caves have been visited in each county."

"Scientists at several laboratories across the country are looking for ways to fight WNS. This research will take time," Stihler said. "Our best conservation strategy is to do whatever we can to slow the spread of WNS until a better solution is found." A list of caves closed to cavers is available at www.VAR-caves.us.

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Calendar of Events

JUNE

- 5-7 **3rd Annual Southern Boreal Bird Festival**
Canaan Valley State Park
Participate in daily walks, workshops, and seminars about birds usually found further north in North America. Call 304-866-4121 ext. 2677 for more information.
- 6 **Kids Fishing Derby**
Little Beaver State Park
Begins at 9 am. Kids receive lunch, t-shirts, and prizes. Call 304-763-2494 for more information.
- 13 **Kids fishing Derby**
Bowden Fish Hatchery
Free fishing for kids; casting contest; catch-and-release pond and catch-and-keep pond. Call 304-637-0245 or 304-636-3960 for more information.
- 13-14 **Free Fishing Days**
Statewide
Fish without a license!
aCall 304-558-2771 for more information.
- 13 **Youth Fishing Derby**
Tygart Lake State Park
Begins at 7 am. All participants receive a certificate. Details posted online. Call 304-265-6144 for more information.

JULY

- 25 **NWTF Women in the Outdoors Field Day**
Kanawha State Forest
Women ages 14 and older can learn and practice outdoor skills. For more information, contact Billie Shearer at 304-558-2771.

West Virginia
Wildlife

