

West Virginia Wildlife



Fall 2007

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Gratitude is Always in Season

Many of you have supported the DNR's efforts financially in what I'll call nontraditional ways for many years. For various reasons, we can't contact each of you directly and express our gratitude, so I want to take this opportunity to extend my appreciation on behalf of the DNR to those who have faithfully given their money in support of West Virginia's wildlife.

License buyers provide the majority of our revenue, but the funds that some folks provide through their purchases allow us to manage the diversity of wildlife which inhabit our wild and wonderful state. For those animals for which we do not hunt or fish, it means conducting surveys to determine population levels, conducting research to better understand their habitat needs, and protecting or enhancing the habitat these animals require.

The wildlife license plates have been offered to vehicle owners since 1998. Each year the DNR receives approximately \$390,000 from those who donate \$15 annually and receive no privileges in return. Because of privacy laws, we are unable to access the license plate holders and thank them personally. It would also cost us a good bit to send out thank you letters, dollars I'm sure these generous contributors would much rather be spent on managing wildlife, so please accept my heartfelt thanks for your contribution. In addition to the financial aspect of the plates, their presence on vehicles around the state raises awareness of our abundant wildlife resources.

People who buy the beautiful, informative Wildlife Calendar provide approximately \$100,000 each year to the Wildlife Resources Section. These funds are used specifically to conserve wildlife for which we don't hunt, trap or fish.

I know of folks who, although because of their age or some other exemption aren't required to buy a hunting or fishing license, still shell out the bucks for a basic license. I commend these folks for their continued support of the programs we use to wisely manage game animals and fish. And as I've said before, protecting habitat for game animals also helps other wildlife.

I'm sure I've missed other nontraditional ways folks support the DNR financially without receiving a personal thanks, so I want to close with a big thank you to all those who give of their time, energy and money to conserve our state's wildlife heritage.

Frank Jezioro

Frank Jezioro,
Director, WVDNR

West Virginia Wildlife



Wood turtle from Sleepy Creek.

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Fall, 2007
Volume 7, No. 2

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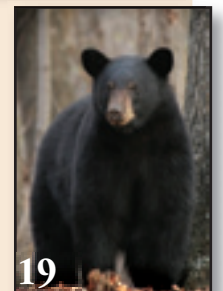
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Hunting with Daughters

By: Keith Krantz

Being a hardcore, gun- and bow-carrying outdoorsman, initially inexperienced with children, I was rather shocked when all three of my kids turned out to be GIRLS! Don't get me wrong, there's nothing wrong with girls, but I was unsure if I could get my "doll toters" interested in the outdoors or hunting. So at the tender age of three, I began taking them squirrel hunting. I quickly found out why, as a youngster, my Dad took me rabbit hunting with beagles. A three- or four-year-old can make as much noise as a whole pack of dogs!

While there are numerous ways to introduce daughters to hunting or other outdoor activities, the most important thing to remember is to make it FUN. This requires you

to focus on your daughter first and the activity second. I have always enjoyed walking in the woods, and that is a perfect way to start cultivating young hunters.

These early expeditions can be taken when the weather is nice and the kids can make noise without consequence. While learning how to climb over obstacles, and up and down slopes, you can begin training them to identify the things you see and hear, including animal signs and sounds. These adventures will also help your daughters become comfortable and competent outdoors, so when the time is right to take them hunting, they'll be ready and you'll know what to expect from them.

Because my two older daughters

had explored the woods for a number of years together and wanted to go hunting with Daddy, I chose to take both of them squirrel hunting. We mostly had a great time, but saw no squirrels. We did encounter countless other things and made so much noise in the process that I had an empty rifle before reaching the ridge line.

The "mostly" fun part occurred because I initially attempted to keep them quiet because I was hunting; they were spending time with Daddy. By the looks on their faces, I realized I was violating the fun rule. Keep in mind that my goal is to raise pro-hunters, if not hunters themselves -- not to fill my bag limit. Since then I've found that if I want them to experience a suc-



David Fataleah

My daughters and I have gone on numerous hunts since. One of the more memorable had my oldest, who was eight then, retrieving a gray squirrel I had shot. She asked to carry it and I agreed. While I continued scanning the trees for squirrels, I heard her singing softly. Turning around I found her sitting in the leaves, sun beams glinting off her beautiful blond hair and “dancing” the dead squirrel down a log. Clearly, girls are different!

I began teaching them how to shoot with an adult-sized .22 caliber, single-shot rifle when they were six or seven. But, due to their small stature, they had limited success. Recognizing this limitation, I purchased a small bolt-action, youth model .22 caliber, which has proven surprisingly accurate. Initially, all three daughters learned how to shoot (unsupported and supported) with the peep sites on. After they were comfortable using iron sites, I replaced them with a 3 x 9 power scope. To make target shooting more enjoyable, we began with water-filled pop cans and progressed to fruit and other small “reactive” targets. My buddy swears by charcoal briquettes. Throughout the numerous shooting sessions, I stressed muzzle control and gun safety. It has been fun watching them progress to be fairly accurate shooters.

successful hunt in terms of harvesting a squirrel, I only take one child at a time. While I still enjoy some solo squirrel hunts, I find myself going more often now because I try to take them individually at least a few times each season.

After my first family-sized, armed-hike experience, I took only my middle daughter (kindergarten age at the time) on the next squirrel hunt. She did exceptionally well. With her assistance, I shot two gray squirrels before her feet got soaked and we had to call it a morning.

Daughters may be different, but they also want to spend time with their Daddy. Take them for walks, share your knowledge and teach them to hunt; they'll love you for it.

Last year the older girls (aged 12 and 13 at the time) and I took and passed the Division of Natural Resources Hunter Safety Education class. While they weren't too excited about attending, they recognized that it would be helpful, and eventually a requirement. They benefited from the excellent

(Continued to next page)



The author with his daughter, Kelsie, then aged 4, who helped spot these squirrels.



Mary Jo Krantz with her first squirrel.



Kirsten Long, age 9, after her first youth gobbler hunt.



Ashley Thompson with her dad, Rich Thompson.



Keith Krantz

Target shooting is a good way to teach young people the importance of practicing.

instruction they received. It is always helpful to have the lessons you taught them repeated by others in authority, especially when they wear a badge!

With the successful completion of the Hunter Safety Education class and the years of walking, exploring and hunting with me, we took advantage of the early Youth Squirrel Season last fall. The great thing about these seasons is that the youth must do the hunting. It forces the adult to focus their attention on the child and her experience. My middle daughter shot and missed a squirrel in the morning,

and the oldest shot her first bushy-tail in the afternoon on this hunt. The experience was excellent and I was proud of both of them. They are learning that hunting and target practice is not the same thing. They are also learning gun handling safety and muzzle control in an actual hunting situation, which is different than on the range or in the classroom.

Growing up in agricultural Ohio, we had plenty of rabbits, quail and pheasants to pursue as youngsters. In West Virginia, forest wildlife (squirrels, turkeys and deer) are more plentiful. Unfortunately, I

see quite a few fathers training their kids to hunt deer to the exclusion of small game. This is a missed opportunity to learn and perfect woodsmanship, hunting, and marksmanship skills. It also means a chance to spend quality time with your kids. Additionally, there is a different pressure to succeed in small game hunting versus deer hunting. Small game hunting is more relaxed and allows the young hunter more opportunities to succeed. Many of our better hunters cut their teeth learning the oak/hickory woods and stalking squirrels with a rifle long before they pursued deer.

I am a firm believer in training children in the rapidly declining art of woodsmanship through hunting small game and eventually deer. Woodsmanship skills include learning to identify hard and soft mast trees that squirrels and other game use for food, identifying animal signs and activity, finding and stalking prey, and negotiating a path through the forest. These skills are not developed hunting over a bait pile of corn!

Daughters may be different, but they also want to spend time with their Daddy. Take them for walks, share your knowledge, and teach them to hunt. They'll love you for it.

Keith Krantz is a wildlife biologist stationed in Elkins.

Top Five Ways to Cultivate Young Hunters

1. **Start young.** Take your children on walks or "expeditions" in the woods.
2. **Have FUN!** Tired, cold and miserable is not a fun condition for children. Practice shooting inanimate objects that pop or burst.
3. **Take a hunters education course.** Firearm safety is essential.
4. **Take advantage of Youth Seasons.** Yes, it *is* all about your kids.
5. **Don't forget small game.** They were good enough for you and your ancestors — your children will enjoy hunting them as well.



David Fattaleh

Go on hikes, share outdoor lessons and have fun!

Field Trip Conaway Run Lake Wildlife Management Area



Mark Shock

Description: This WMA in Tyler County totals approximately 630 acres and includes 30-acre Conaway Run Lake. The area is predominately bottomland and rolling hills with low ridges. Habitat types include oak-hickory woodlands, brushlands and some open land.

Viewing Information: White-tailed deer and ruffed grouse are visible year-round. Many species of small mammals are present including squirrel, rabbit, red and gray fox, raccoon, mink, muskrat and an occasional beaver. Planting of conifers and fruit-producing shrubs several years ago created food and cover for small mammals.

Conaway Run Lake provides 30 acres of trout fishing in the spring, and warmwater fishing throughout

the year. Catchable-sized trout are stocked once a month from February through May and fingerling channel catfish are stocked annually in the fall. Self-sustaining populations of largemouth bass and blue-



The red fox can sometimes be observed at Conaway along with squirrel, muskrat and mink.

Steve Shaluta, Jr.

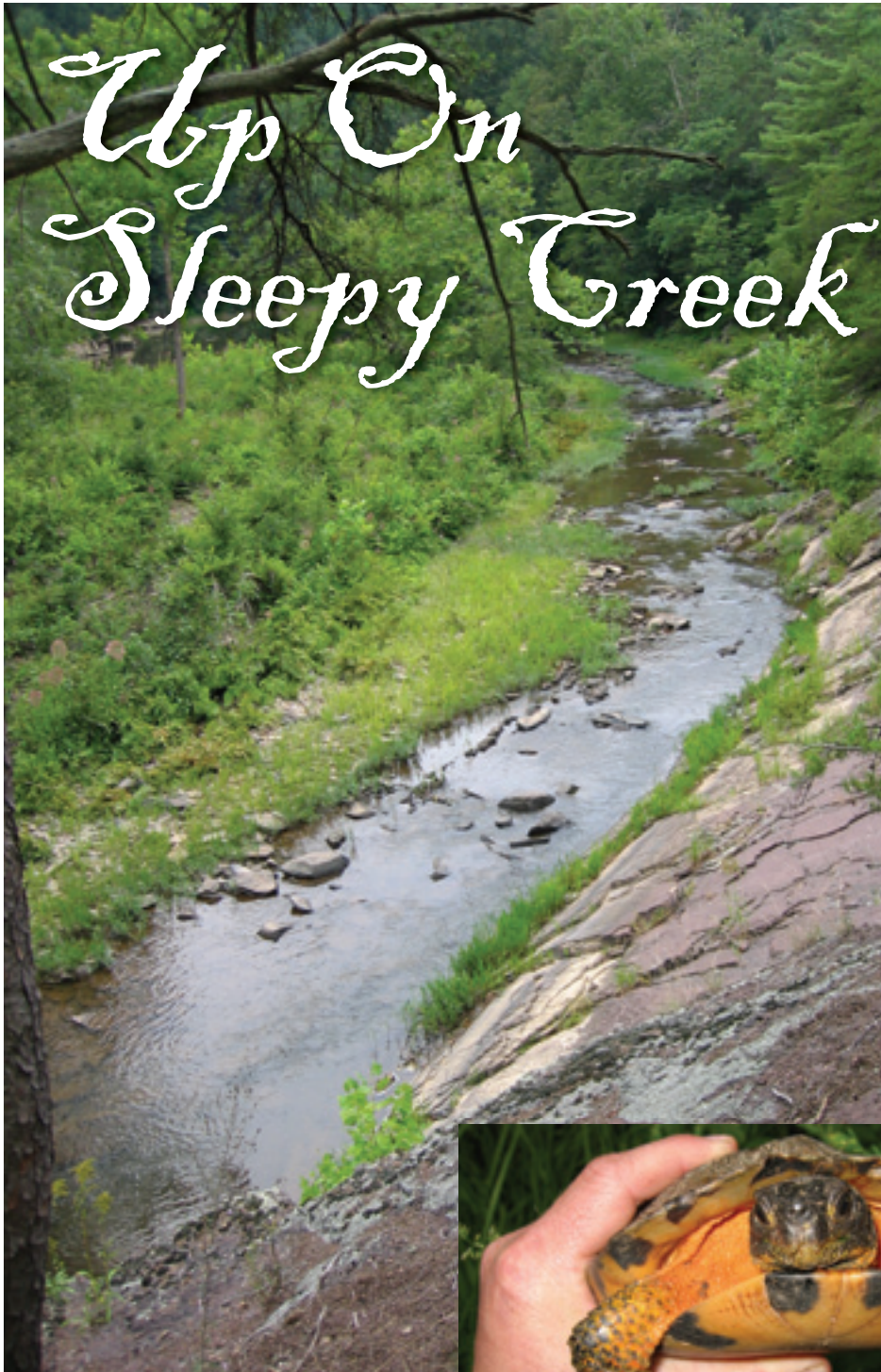
gill provide opportunities for the year-round angler.

A foot trail surrounds the lake

which offers easy access for bank fishing and wildlife viewing. Migratory game birds such as woodcock, several species of duck including wood duck, and Canada geese provide viewing and hunting opportunities. Overnight, primitive camping facilities are available, as well as a 150-yard rifle range and a small-boat ramp. Please note that only electric motors are permitted on the lake and the use of all-terrain vehicles is prohibited.

Directions: Conaway Run Lake Wildlife Management Area is located in Tyler County, approximately eight miles south of Middlebourne off state Route 18.

Ownership: West Virginia DNR (304) 420-4550.



is a slow-moving warmwater stream. Chain pickerel, smallmouth bass and sunfish thrive in these waters along with beaver and mink. The complex nature of this watercourse, however, caters to other species as well.

Sleepy Creek has a healthy population of wood turtles. These Eastern panhandle natives find winter refuge in the creek's deep pools. In the springtime, "woodies" venture from the water to lay their eggs and spend the growing season foraging in adjacent fields, meadows, forests and even front yards. Wood turtles generally spend most of their lives within a few hundred yards of their parent stream. Despite their omnivorous nature, they depend on an intact riparian zone and excellent water quality for food, shelter, and sites for hibernating and breeding.

Clean water is also essential for harperella, another Eastern panhandle native. This diminutive semi-aquatic plant grows in the upturned cracks of exposed bedrock and on sheltered gravel bars. It tolerates short periods of inundation and actually requires seasonal high water to scour away competing vegetation.

When the stream contains excessive silt or algae (from nutrients), these pollutants are deposited on the harperella plants during high water. As the water recedes, the plants are encased in dried mud (or algae), photosynthesis is restricted, and many plants die.

Harperella is only found on 13 streams in the United States. Three of those streams are in West Virginia — Back Creek, Cacapon River and Sleepy Creek. In 1988, the U.S. Fish and Wildlife Service



Sleepy Creek is great place to find wood turtles.

Sleepy Creek in Morgan County has much to protect.

By Kieran O'Malley

Sleepy Creek. The name itself brings to mind an image of what it really is: a small, picturesque stream that meanders 42 miles through Morgan County to its confluence with the Potomac River. This scenic waterway carves its way through rolling farmland and riparian forest, and around steep shale ridges. Its sinuous nature

provides constantly changing scenery and supports a diverse array of animal and plant communities.

The idyllic scenery hits you first. Razorback ridges, sandstone and shale rock outcrops, and long pools shaded with silver maple, sycamore, river birch and yellow poplar. This

listed this plant as an endangered species. Currently Sleepy Creek has the largest harperella population in the country!

Like harperella, mussel distribution on Sleepy Creek is dictated by the geology and stream topography. In 2004, Division of Natural Resources biologists identified eight species of freshwater mussels occupying the isolated beds of fine gravel. One species, the eastern lamp mussel, represented the first record of that species in West Virginia. The gravel beds are interspersed with less suitable (for mussels) substrates including large sandstone "plates," shale bedrock and deep silty pools.

Mussels require extremely clean, well-oxygenated water for respiration and serve as a barometer for the health of the stream.

Reductions in dissolved oxygen levels or increases in pollutants or silt can kill off entire mussel beds. They also require a healthy fish population to serve as hosts for their young.

Recognizing the need to keep Sleepy Creek healthy, a group of concerned residents formed the Sleepy Creek Watershed Association (SCWA) in the 1990s. The group realized that, because the Sleepy Creek watershed is located in the fourth fastest-growing county in the state and comprises 60 percent of the county's land mass, increased development could impact water quality and degrade the natural features that make it special. The Association is dedicated to protecting and preserving the watershed while engaging and educating the public.

The Association's member-

ship has been extraordinarily active. In 2006, the West Virginia Department of Environmental Protection named SCWA as the Watershed Association of the Year. They conduct numerous and varied projects aimed at accomplishing their six goals which are listed on the group's web site listed at the end of this article.

One major project involved working with Shepherd University and Canaan Valley Institute to produce a complete watershed assessment. They participate in hands-on projects including annual stream cleanups and stabilizing stream banks. They have conducted a workshop to demonstrate best management practices to construction companies and

recognize those contractors that meet those standards. Outreach projects include teaching stream monitoring techniques to schools and publishing brochures on topics related to watershed management and natural history.

The SCWA is successful because they are concerned residents that



Harperella, one of the state's federally listed endangered plants, needs streams such as Sleepy Creek to survive.

Kieran O'Malley



A rare Eastern lamp mussel was recently found in Sleepy Creek.

M. Windsor/ NC State Park System

take advantage of funding opportunities available for learning more about their stream and how to protect it. They consult with natural resource agencies, such as the DNR Wildlife Resources Section, on identifying threats, developing public education programs, and initiating restoration projects. Association members are also neighbors in a community. Their success is attributed to initiative, public education, positive reinforcement, and collaboration with government agencies, local organizations, and their neighbors.

For more information on the Sleepy Creek Watershed Association, go online to: <http://www.sleepycreekwatershedassociation.org>.

Kieran O'Malley is a wildlife biologist stationed in Romney.



Volunteers with the Sleepy Creek Watershed Association work on a stream bank restoration project.

Photo courtesy SCWA



The Secret World of Trees

By Paul J. Harmon

This fall, surround yourself with some glorious maples or oaks and imagine what it would be like to live for a year as a tree. It has to survive changing temperatures, drought, rain, snow and ice. Fortunately, our native trees have a number of adaptations that enable them to survive the dry cold of winter, then grow and reproduce in the warmth of summer.

A tree, like any green plant, has the ability to absorb water and mineral nutrients from the soil and collect carbon dioxide and solar energy with its leaves -- all for the purpose of making a variety of sugars through *photosynthesis*. Think of these sugars as tiny packets of energy that can change into substances which the plant needs now or which can be stored for the future.

To help this occur, there are “pipelines” of vascular tissue through which water, minerals and sugars travel among leaves, trunk, branches and roots. If you look at the cut-away illustration of a tree’s trunk (at right), you can find the heartwood and sapwood. Most people don’t realize the heartwood of an older tree is actually dead and filled with waste products, but it serves as the strength for the tree. The sapwood (or xylem) is the system for the movement of water and dissolved minerals from the soil all the way out to the leaves. If you place a stethoscope to the trunk of a smooth barked tree, you can hear the spring sap gurgling as it rises.

Next, notice the thin cylinder of actively dividing cells called the *vascular cambium*. Each year, the vascular cambium peels off a new layer of sapwood cells toward the inside edge and a layer of inner bark to the

outside, thus producing the familiar annual growth rings in the wood. The inner bark is another kind of fluid-conducting tissue that permits the movement of sugar-laden water from the leaves to the growing buds, the sapwood, and finally to storage cells in the trunk and roots.

The process by which water moves through the tree is called *transpiration*. In plants, more than 90 percent of the water taken in by the roots is given off into the air as water vapor. In the process, not only does that water carry minerals to the leaves, it also carries summer heat from the roots and trunk. This is lost as the water vapor evaporates, cooling the leaves, branches and eventually the trunk—like an internal air conditioner.

Throughout the summer growing season, as long as there is sufficient water, the right combination of daylight, appropriate day and nighttime temperatures, and adequate mineral nutrients, transpiration and photosynthesis continue. This permits the tree to elongate at growing points such as the ends of twigs and at flowers. It can also expand in girth at the cambium cylinder.

With the coming of fall, shorter daylight hours gradually reduce the amount of light available to our trees. Cool nights become common, signaling the trees to make preparations for the long, cold winter. Freezing temperatures could kill sensitive growing tissues in buds or leaves were it not for the fascinating adaptations trees have for surviving those wintry blasts of ice and air.

Older trees are protected by a layer of dead cork cells in the outer bark which serves both as an insulator and as a barrier to water loss, like a warm winter coat. Deciduous trees drop their leaves in the fall by

forming a layer of corky tissue that cuts the leaf from the twig and seals the leaf scar from the dry winter air, greatly reducing the amount of water the tree would otherwise lose during the winter.

Most deciduous trees have terminal buds on the end of each twig where next year's young shoots are already formed. Most buds are protected from cold and water loss by modified leaves called *bud scales*. Scales may be paper thin or heavy and waxy, and are often covered with fine hairs that add further protection from the cold, just like mittens.

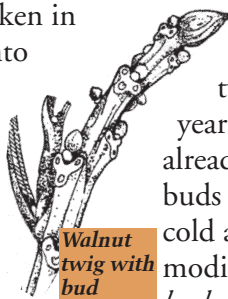
Coniferous trees have skinny, needle-like leaves whose surface area to volume ratio is much smaller

from their pliable branches.

Deciduous trees require a rest period during which active growth and flowering cease called dormancy. Once buds become fully dormant, this state cannot be broken without the proper cues, such as the correct amount of chilling temperatures followed by warmth and increased light.

Last spring early warm temperatures caused many trees to leaf out and bud too early in much of West Virginia. Then, after several days of unseasonable freezing temperatures, those trees lost their leaves and fruit buds and appeared almost dead. But after another round of chilling temperatures, and the return of warmth and adequate water, leaf buds began to show. The cycle had begun again and most trees began to awaken.

It's not easy being a tree!
Paul J. Harmon is the Wildlife Resources Section botanist stationed in Elkins.



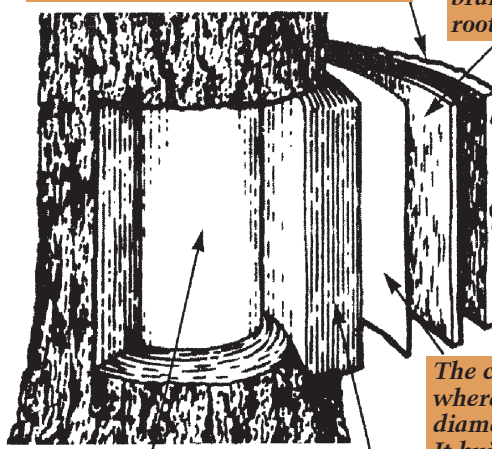
Walnut twig with bud



Elizabeth Byers

Most people don't think of conifers having leaves, but that's exactly what the narrow, waxy needles are.

The outer bark protects the tree.



The inner bark carries food made in leaves down the branches, trunk and roots.

The cambium is where growth in diameter occurs. It builds tissues—wood inside and bark outside.

Heartwood is inactive, but provides the strength.

Sapwood has conductive vessels that carry water and minerals absorbed by the roots to leaves.

than on broad-leaved trees. Their leaf surfaces are thick and waxy and their needles don't fall at once. Thus, conifers keep their leaves, continuing photosynthesis, yet they reduce water loss and tend to drop snow

Partnerships: Providing for a Better To



Little Indian Creek Wildlife Management Area will provide more acres of hunting and other recreational opportunities in Monongalia County.

By Gary M. Foster

Across the country, increased demands continue to be placed upon our nation's wildlife and natural resources. In addition, accessibility to private lands for the purposes of enjoying outdoor recreational activities such as hunting, trapping and fishing has continued to decrease, presenting a significant concern for fish and wildlife agencies throughout the country. Commercial develop-

ment, primary and secondary home construction, mineral extraction activities, land leasing programs, and the increased posting of lands across West Virginia threaten wildlife habitat quality and/or the ability of outdoor recreationists to access private lands.

To help combat these growing trends, the Division of Natural Resources Wildlife Resources Section implemented a Wildlife

Management Area (WMA) program years ago. It was designed to conserve and manage habitat for a variety of wildlife species and to increase public access to these resources.

Legislation passed in 1988 requires that all licensed anglers and hunters buy a "conservation stamp." Those funds are designated for land acquisition and capital improvement projects such as boat

tomorrow



Gary Foster

launching ramps and public shooting ranges. The conservation stamp fund has resulted in the purchase of significant tracts of property for West Virginia's WMA system. In addition to land purchases and various lease arrangements with governmental agencies and industry, other creative partnerships, funding sources and legal avenues have been implemented to help meet the DNR's objectives and the needs of



Steven Wayne Rotsch

Dedication of Little Indian Creek WMA included, from left, Dennis Fredericks from Consol Energy, Ron Fretts of the WV Chapter of the National Wild Turkey Federation, Gov. Joe Manchin and DNR Director Frank Jezioro.

our state's anglers and hunters.

Collaboration with conservation organizations such as the National Wild Turkey Federation (NWTF) has resulted in benefits for outdoor enthusiasts across north-central West Virginia. The DNR bought and created Little Indian Creek Wildlife Management Area, a 1,036-acre tract located in south-central Monongalia County, in the fall of 2006. The West Virginia State Chapter of the National Wild Turkey Federation contributed \$194,250 toward the purchase of the new WMA, which accounted for 50 percent of the acquisition cost. The donation was made possible as a result of the dedication and hard work of local chapter members of the NWTF through their fund-raising efforts such as their "Superfund" banquets throughout the state.

Currently, 27 local NWTF chapters in West Virginia work for the betterment of our state's wildlife resources and to insure that our state's residents have places to enjoy outdoor recreational sports. In addition to donations for land purchases, the NWTF in West Virginia has made significant contributions toward habitat enhancement projects and wild turkey research. They

also help educate our state's youth by sponsoring J.A.K.E.S events and providing educational materials to schools. The NWTF continues to have a strong partnership with the Division of Natural Resources, and are appreciated for their continuing efforts in the conservation of our wildlife resources.

The Pedlar WMA located in northcentral Monongalia County is an example of how cooperation between industry and state fish and game agencies can provide outdoor recreational opportunities for future generations to enjoy. This area, which encompasses 766 acres and contains two lakes, was previously owned by Consol Energy, Inc. The large, coal-based energy company piped mine water from existing underground mines into the impoundments to treat and improve water quality.

When Consol Energy's operational plans changed and there was no further need for the two impoundments, the lakes and surrounding acreage were reclaimed and "gift deeded" to the DNR at no cost to the state. Over the past two years, a significant investment of capital improvement dollars on the WMA has resulted in a new shoot-

(Continued on next page)



Sue O'Coit

One of the nature trails at the Lantz Farm and Nature Preserve.

and Nature Preserve consists of 555 acres of mature forests and rolling meadows. The property, previously owned by descendents of Alexander Lantz, has a rich history dating back to 1826. It was the desire of the family to preserve the farm and surrounding forest land and to make it available for the public's use and enjoyment.

After numerous discussions between representatives of Wheeling Jesuit University (WJU), the DNR and members of the Lantz family, the property was "gift deeded" to WJU to insure the preservation of the old farm

ing range, and a boat ramp and courtesy dock. In addition, personnel developed angler access trails around the lakes' shorelines. Consol Energy, Inc. is to be commended for their gracious gift to the state which provides a model for how partnerships involving industry can result in a win-win scenario for West Virginia citizens.

Another management tool which can be used to conserve wildlife habitat is the use of deeds of conservation easements. Conservation easements are commonly used to protect land against commercial or housing development, to conserve unique habitats and to insure public access to properties for future generations.

The Lantz Farm and Nature Preserve is a prime example of how deeds of conservation easements can be used to meet these objectives. Nestled in southeastern Wetzel County, the Lantz Farm

house and surrounding buildings. As a condition to the gift deed, the University agreed to enter into a deed of conservation easement with the state of West Virginia to provide for the perpetual use of the area for the public's enjoyment and benefit. In addition, the DNR Wildlife

Resources Section entered into a cooperative agreement with WJU to co-manage the property for its wildlife resources and to maximize public outdoor recreational opportunities including hunting, fishing, and hiking on the interpretive nature trails.

The wildlife management areas mentioned above illustrate ways in which conservation organizations, industry and private citizens can make a difference in conserving valuable wildlife habitat and assuring that future generations of hunters, anglers and other outdoor enthusiasts will have a place to enjoy these activities. Through partnerships and collaborative agreements we can continue to expand opportunities and provide for a better tomorrow for future generations.

For additional information on the Pedlar WMA, Little Indian Creek WMA or the Lantz Farm and Nature Preserve please contact the DNR District I Office at (304) 825-6787. Contact any DNR district office, the Elkins office, or Charleston office if you are interested in pursuing a conservation easement or gift deed of land.

Gary M. Foster is the district wildlife biologist based in Farmington.



Gary Foster

New fishing area at the Pedlar WMA features new courtesy dock and boat ramp.

WILDLIFE DIVERSITY NOTEBOOK: The Belted Kingfisher



DNR Photo Archives

Scientific Name: *Ceryle alcyon*

Status: Populations may be declining in many areas.

WV Status: Breeding Bird Survey data indicate that populations may be declining, but the trend is not clear. It is absent from some state waterways where it previously bred, apparently because of pollution.

Description: The belted kingfisher is a medium-sized bird (about 11-14 inches) with a large head and shaggy crest. Its plumage is dark blue with a white collar and chest. The female has a red chest band and flanks, making it one of the few species in which the female is more colorful than the male. It has a loud, rattling call.

Habitat: Kingfishers defend linear territories along streams, rivers and lakes that include approximately 800-1,000 linear feet of shallow riffles (six inches deep); they prefer to fish these riffles areas because of higher fish densities. Winter territories are smaller.

Kingfishers require fishing perches, especially near riffle areas, and the water needs to be

clear for fishing.

Nesting Requirements:

Availability and suitability of nest sites is a limiting factor for kingfishers. They excavate nesting burrows in vertical streambanks over six feet high with a substrate of at least 75 percent sand and with 7 percent or less of clay. The bank above the nest is often free of trees and is vegetated with herbaceous plants.

Kingfishers have nested in artificial banks (sawdust piles, sandpiles, road cuts), but these are the exception.

Diet: Fish, generally no more than 4 inches long; species taken are typically the most abundant or easily caught fish in the stream. Occasionally crayfish, amphibians, reptiles, insects, young birds and mice are also caught.

Kingfishers feed by diving headfirst into the water from a perch or from a hovering position, catching prey underwater. They fly to a perch to kill and eat the prey.

Life History: The clutch size for the kingfisher is 5-8 eggs.

Range: Kingfishers are considered resident/short-distance

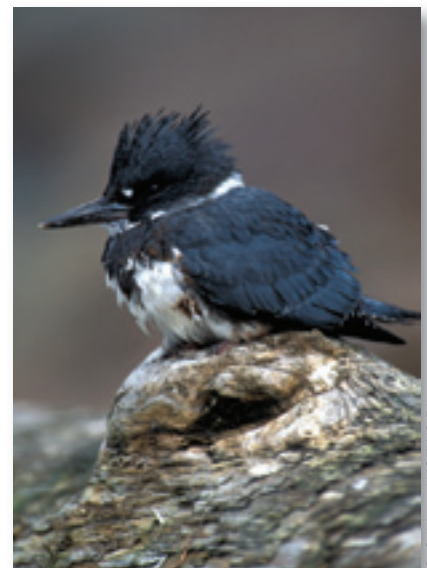
migrants. Breeds throughout the U.S. and central Canada and Alaska. Wintering range restricted to areas with open water (central/southern U.S. to southern South America). It nests throughout West Virginia along rivers and larger streams but is less abundant in the Allegheny Mountains than in other areas of the state.

Threats and Prospects:

Kingfishers appear to be less susceptible to environmental contaminants than other fish-eating birds, possibly because the small fish they eat have lower toxic levels. Acid mine drainage, and its subsequent degradation of stream life, may be an important factor in apparent declines of kingfishers in West Virginia.

Another factor may be stream channelization or any other activity (dredging, diking, etc.) that severely alters bank, stream flow or streambed characteristics. Kingfishers are sensitive to human disturbance and may abandon territories if harassed, especially during breeding.

Information compiled by Susan Olcott, a wildlife biologist stationed in Farmington.



C. Schlawe/USFWS Photo

From Generation To Generation

By Scott Warner

What are some of my most memorable experiences in life? Let's just say that the majority of this list would have something to do with my dad taking me hunting or fishing. At the time I didn't realize how important they were. But looking back, trout fishing on the South Branch in a pair of my dad's old waders that were two sizes too big, or rummaging through



Sarah Warner



Sarah Warner

The author with son Sam after successfully reeling in a bluegill.

our hunting clothes the night before opening day quarreling over whose gloves were whose, where's the other one and who wore them last, are only a couple of endless memories I shared with my father.

The times shared with my dad always had something to do with hunting and fishing, and was a bond that would keep us close until his death a few years ago. Since my father's death, every once in awhile something as simple as the smell of fall in the air or seeing a child catch their first fish reminds me of a time when we were heading out to the woods or a stream.

Three years ago, my wife and I shared in the wonderful experience of becoming parents for the first time to a healthy baby boy named Samuel (after his granddad). So to say our lives haven't changed would be an understatement. Diapers, mid-night feedings, day care, adjusting our work schedules, colds -- we've been there. My wife would say that she's been there a little more than I have, and she would be right. But I appreciate every minute that we have with the little man.

Because of my obsession with hunting and fishing, my coworkers/friends from the Division of Natural Resources pitched in and bought us the perfect baby shower gift -- an Infant Lifetime Hunting and Fishing License -- which our son received at the ripe old age of 6 weeks. Kind of sounds like a Jeff Foxworthy joke -- if your kid gets a lifetime hunting and fishing license as a baby shower gift, you might be a Yes, you guessed it -- a father who's going to be spending a lot of time with his son.

In his first three years, my wife and I have shared the experience of taking Samuel on camping trips to several of the State Parks around the



Sarah Warner

Author enjoying a day of fishing with his son on the family farm in Pendleton County.

state and even on a few trips fishing. These usually turned into a piggyback ride or a rock-throwing spree.

“The times shared with my dad always had something to do with hunting and fishing, and was a bond that would keep us close until his death a few years ago.”

I realize that it may be sometime before he actually learns how to fish, but we have already started to enjoy doing things together as a family

and getting him involved in the outdoors.

Will Sam and I share the same type of experience as my father and I did hunting and fishing? I hope so, but a lot of this will be up to him. There is no way of knowing what his interests may be when he gets older. I can assure you, however, that we (my wife and I, along with everyone else in the family) will provide him with plenty of opportunities to hunt and fish. That's what we do. In fact, my father-

(Continued on next page)



Author with father proudly displaying his first turkey.



Author holding fox squirrels after a day's shoot with his dad.

in-law has already started buying camouflage clothing and makes it a point to let us know he'll have to teach the little man the right way to hunt and fish -- since the rest of us are still learning how!

Today we live in a society where the time we have available to spend with our children is becoming scarcer, and some of the activities they get involved in are limited in allowing everyone in the family to participate. Working with the DNR I have had the opportunity to work with kids on all levels, from teaching them how to shoot a bow to learning how to cast a line. I constantly see kids interested in learning how to fish or hunt, but if the parent doesn't share a similar interest it won't be too long until the child will find something else to do.

This disconnect is not something new. In fact when I was younger, there were times that I would rather hang out with my friends or do my own thing than to

hang out with my dad. That's normal. But no matter what I was into, hunting and fishing were always something that kept my dad and me close. One thing that we have noticed since becoming parents is that children are constantly involved in some type of sporting activity. When a season is beginning to wind down, something else begins. Don't get me wrong, I commend the parents who have devoted any free time

"I constantly see kids interested in learning how to fish or hunt, but if the parent doesn't share a similar interest it won't be too long until the child will find something else to do."

they have to participate in these programs to be with their kids, and I understand the importance of belonging to a team. In fact, I don't want to be casting any stones since we'll be doing the same thing in a few years. My point is that many of these activities do not allow the parents and children to participate

as a family, and in a noncompetitive atmosphere.

If you're not into hunting or fishing, it's difficult to explain this bond, but I have personally experienced it with driving back from college in the middle of the night just to get a little trout fishing in because I needed a fix, or having a relative who lives out of state use all their vacation time to enjoy the family tradition of deer hunting over the Thanksgiving holiday.

I can't remember ever picking up a baseball glove with my dad after high school. But I'll never forget how persistent he was and how much I looked forward to taking off a week to bow hunt with him in 1998. I am very glad that I listened because unexpectedly he passed away only a few months later. Reflecting back on these memories makes me realize how fortunate I am. I'll always remember how special these trips were and hope to share similar experiences with my son (and possibly with the daughter we're expecting in a few months).

Scott Warner is a wildlife biologist stationed in Charleston.

Truth and Consequences

Artificial feeding of wildlife can have some unintended consequences.



Jeff Vanuga/NRCS Photo



By Patrick McCurdy

It is evident from the millions of dollars spent annually by wildlife watchers and hunters that feeding wildlife is a common practice. A 2001 study conducted by the U.S. Fish and Wildlife Service found that 605,000 West Virginia residents and visitors participate in wildlife viewing as a hobby and spend \$15,041,000 annually on equipment and wildlife feeding. These figures do not include hunters that feed to attract wildlife into their hunting areas. What may seem like an innocent practice sometimes has a negative effect on wildlife communities.

I learned one of the negative realities of wildlife feeding in a harsh way early in my career with the DNR. I was employed as the park naturalist at Twin Falls Resort State Park in Wyoming County and spent my time during the summer months conducting interpretive programming for park guests. Despite my

efforts to teach the negative effects of feeding wildlife, a few people insisted on regularly feeding white-tailed deer in the park campground. The fact that this practice was illegal in state parks still didn't deter the feeders. Feeding reached a peak during the summer of 1992. Although no one would feed the deer in the

Years of artificial feeding had made the deer less able to find food on their own and to survive the harsh conditions that winter often brings.

presence of park officials and violators were difficult to catch, it was obvious that feeding was a common practice because the deer would run to the road side at the sound of a familiar vehicle or toot of the horn. It was also difficult for a child to walk across the campground with

a bag of chips or other snack without being accosted by deer that were programmed to recognize a possible handout.

Illegal feeding continued through fall into winter until abruptly halted by a blizzard in January 1993 that dumped 30 inches of snow on the park. Access to the park campground on Bower Ridge was blocked for several days. When the snow finally melted, the harsh reality of the previous fall's feeding activity was evidenced by the countless number of deer lying dead along the campground road. Years of feeding had created an artificially high deer population, which had depleted the habitat. Feeding had also resulted in deer that had become accustomed to being fed and less aggressive in searching for food. These factors combined to create an

(Continued on next page)



DNR Photos



Examples of deer feeding in West Virginia include, clockwise from left: an apple pile in Pendleton County; a bait feeder; and a corn pile in Hardy County.

tal food that they cannot digest, resulting in a deer dying with a full stomach, a condition referred to as an impacted rumen.

Reproduction rates may also be affected when wildlife feeding occurs. In the wild, the number of offspring produced is often directly related to the amount of food available. Survival also depends on the amount of food available. This is nature's way of keeping populations within the carrying capacity of the habitat. When feeding occurs, animals may produce more young, and soon the population will exceed what the habitat can support. If the artificial food source becomes unavailable, animals may starve. Before starvation occurs, serious damage to the surrounding habitat will occur in the form of over-browsing.

Concentrating animals into feeding areas also increases the risk of disease transmission. Feeding changes the natural dispersion of wildlife and causes them to congregate in an unnaturally small area. When wild animals concentrate, disease outbreaks can occur and be very serious. Examples of diseases associated with feeding include blackhead in turkey and Chronic Wasting Disease in deer.

Blackhead is a disease caused by a protozoan parasite that lives in the intestines of most domestic chickens. Wild turkeys are very susceptible to this disease when concentrated around an infected food source. In this situation, the turkeys ingest intestinal worms that harbor blackhead.

Chronic Wasting Disease (CWD) belongs to a family of diseases called spongiform encephalopathies. Infected animals suffer damage to nerves in the upper spinal cord and brain tissue that eventually results in death. CWD can be spread from animal to animal, and has been confirmed and contained

unnecessary die-off.

I will be the first to acknowledge that many areas of our state experienced a high deer mortality from the January 1993 storm. However, I often wonder how many of the deer on Bower Ridge would have survived the storm if they would have spent the previous summer and fall building a good fat reserve eating natural food consisting of woody browse and hard mast instead of unhealthy and indigestible foods often handed out by violators.

The impact of the feeding was cumulative. Many of the deer that were fed and had lost their fear of humans were raising fawns. I believe the fawns learned an opportunistic approach that handouts were much easier to seek than foraging for food. This made the fawns much more susceptible to predation and less likely to survive in the wild.

Another problem associated with feeding wildlife is that the food humans often offer is unhealthy and nutritionally inadequate, causing serious health problems for the animals, especially when they're young and developing. Digestive problems can even be associated with foods that may seem healthy. An example of this would be feeding deer on your property. Deer are ruminants, which means that food is broken down in several stomach chambers by bacteria, protozoa and yeasts. It sometimes takes a deer weeks to adapt to new food types. Deer may gorge themselves on supplemen-

When wildlife concentrate, disease outbreaks, such as Chronic Wasting Disease and blackhead can occur and be very serious.



in West Virginia to a small area in Hampshire County.

Except when animals are in close proximity to humans, feeding deer and turkey are rarely a safety or health risk to humans. That is not true for bears. When bears are fed, they quickly lose their fear of people, often resulting in scary confrontations that usually lead to the bear being killed. Feeding by individuals who are hoping for a “closer look,” coupled with last winter’s mast failure has made bear complaints increase dramatically. The summer of 2007 showed over a 500 percent increase from 2006 in the amount of bear/human conflict complaints that I received in my area of assignment in Pocahontas County. Many of these conflicts were a direct result of people feeding bears.

Bears do not discriminate between houses in rural and urban areas. They think if they are fed at one house, then they will be fed at all houses. This often results in serious property damage, and in extreme situations has contributed to bears entering houses or camps for food. Intentional feeding is not the only risk for people / bear conflicts. It is imperative that people living, camping, or otherwise visiting bear country take great care not to provide bears with the opportunity to cause problems. This can be accomplished in part by taking down bird feeders, removing left over pet foods from feeding containers, and securing garbage in a locked building.

Campers should lock coolers in their vehicles or hang food in a food bag at least 10 feet off the ground

Bears do not discriminate between houses in rural and urban areas. They think if they get fed at one house, then they will be fed at all houses.



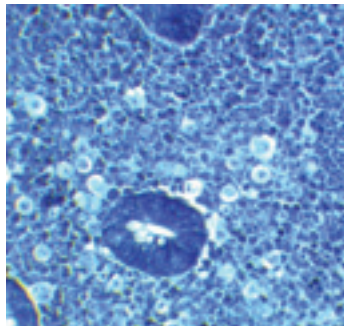
and 10 feet out from trees. Avoid discarding scraps around campsites and never take food in a tent or camper!

Wildlife management focuses on wildlife populations, not individual animals. The overall fitness of a population can't focus on individual animals, which is often the case in feeding situations. In many cases, habitat can be improved and managed to sustain more wildlife. There is no shortcut to provide this habitat improvement. In most cases, feeding is an attempt at a

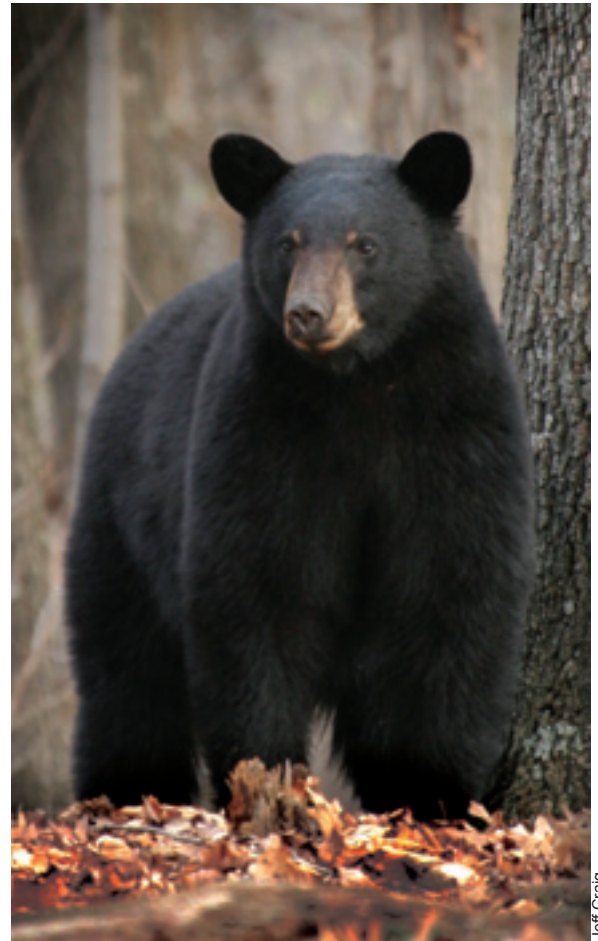


Jeff Craig

Wild turkeys can be exposed to the parasite that causes the Blackhead disease if eating from an infected food source. It is better for them to depend on wild food sources.



A microscopic view of the parasite that causes blackhead in turkey.



Jeff Craig

Bears become used to receiving hand-outs and lose fear of humans.

shortcut to provide more wildlife, but in the long run it usually leads to problems and, ultimately, less wildlife.

Patrick McCurdy is a wildlife manager in charge of Rimel WMA.

Taking It Outside in Fall

The essence of outdoor education, according to J.A. Partridge author of *Natural Science Through the Seasons*, is “to initiate children into the romance and wonder of science, and to enhance their natural desire to get to know the world around them and find an explanation of its phenomena.”

Here are some projects that appeal to youngsters and have proven successful in giving children more insight into their surroundings, including the flora and fauna, than can be obtained solely from books. These are starting points in areas of exploration and study. They may be supplemented by use of books such as the *Peterson First Guide* series and DNR publications.

(1) Tree Map-Make a map of one block on a suitable street, locating the trees in the parkway on one side (and on the private property if desired). Number them consecutively, identify them, measure their breast high (4-1/2 ft.) diameters, and collect leaf samples. Learn commercial uses if any. Study shape, branching, twigs, leaves, flowers, seeds and bark. Visit the street regularly classroom tours regularly to record comparative seasonal changes.

Don't let identification scare you from doing this activity. It is sufficient to recognize a bur oak as “the one with very rough bark, gnarly branches, and hard strong wood.” Eventually they should learn to distinguish oaks from maples, elms, cottonwoods, etc.,

and tell why.

(2) Tree Diary- Have your students or child adopt a tree and keep a diary of what happens: when it blooms, puts on leaves, bears seeds, and loses its seeds; what birds visit or nest in it; when the leaves change color in autumn and when



Check out pond life by identifying creatures with a “key.” Take a sample of pond water and watch what grows in it.

it becomes bare; broken branches or other accidents to it; and how much its diameter increases. Your student or child may also study its twig characteristics, including the leaf scars and the buds; the kind and color of its flowers; the shape and sizes of its leaves; and its value to people.

(3) One Small World- Select a small area, perhaps 3 feet by 3 feet, in a place not likely to be disturbed

and preferably one with various plants. If some are unknown to you, collect and press samples from nearby areas. Use guides to help identify them. Keep watch for blooming and seeding dates, and emergence of new plants. Collect specimens of insects that visit it.

Dig a hole nearby and measure the depth of humus (if any), top-soil (what color), sand (if any), and how far it is to the mineral subsoil such as clay. Also on a nearby similar spot, conduct the next experiment (4).

(4) Life In The Soil-Mark a 12” x 12” square of ground. Carefully skim off the grass and other plants. Remove the top one-inch layer of soil and place in a receptacle or on a newspaper. Do likewise with successive one-inch layers (6 or more). Assign 6 or 8 children to each layer to crumble and pick it apart (or screen it) to find and count every kind of animal life: ants, beetles, eggs, larvae, pupae, sow bugs, spiders, worms, millipedes, thrips, etc. Tabulate and total. Multiply by the number of square feet in an acre or in a standard vacant lot. This can be done on various types of areas: vacant lot, old fields, woodland, etc.

(5) Pond Life- Into a wide-mouth jar put a gob of mud from the bottom of a pond, perhaps a couple of dead leaves, and fill it with the pond water. Add a teaspoonful of sugar for food. Keep undisturbed and fairly cool. Examine frequently with a strong magnifying glass to see what develops: algae, pondweeds, rotifers, water fleas, cyclops, insect



larvae, etc. Examine tiny animals with a microscope and use keys to help identify what you see.

(6) *Hitchhikers*- In autumn, some plants have seeds that cling to animals' hair and to woolly clothing as you walk through them. Collect burdock burs, beggar lice, sticktight, Spanish needles, etc. in plastic bags. Examine each under a magnifying glass and mount a specimen on cardboard, identifying it by name, name of parent plant, and an enlargement of what enables

it to steal a ride. Count the seeds in burdock burs.

Other projects may be conducted to demonstrate how seeds are widely dispersed: (a) by winds; (b) by water; (c) on the feet of waterfowl and wading birds; (d) eaten but not digested by birds or mammals; (e) buried by squirrels.

Good luck with the projects and have fun while learning!

Adapted from The Nature Bulletin, Roberts Mann, Conservation Editor.

NATURE NOTE: Changing Colors

There are few sights in the world as beautiful as the leaves changing colors in the fall of the year. Unable to simply glide from fall to winter, the leaves turn to brilliant oranges, yellows, reds and purples. In New England the sugar maple turns to bright oranges and yellows. The Rockies have the glistening gold of the aspens, and in the Appalachians, there are the scarlet red of the red oaks and the regal purple of the black gums.

Have you ever asked yourself what determines the color of a certain tree? What makes the tree automatically start to change colors? The answer is found in the sap. The sap gives instructions to the tree on what color its leaves should turn.

The amount of iron, magnesium, phosphorus or sodium in the tree, and the acidity of the chemicals in the leaves determine whether the tree turns amber, gold, red, orange, purple, or just fades

from green to brown. For example, scarlet oaks, red maples and sumacs have a slightly acidic sap which causes their leaves to turn bright red. On the other hand, the leaves of some varieties of ash, growing in areas where limestone is present will turn a regal purplish-blue.

What triggers the change? Popular myth credits Jack Frost with orchestrating the color transformation, but in reality, the thermometer has little to do with it. The answer lies in the shifting of the day and night. As the days grow shorter and the nights longer, a chemical clock inside the tree starts up, releasing a hormone which stops the flow of sap to each leaf. The sap stands still, unable to move, and becomes very thick. As it dries, the colors of fall emerge to paint our forest landscape.

Adapted from Exploring the Forest, a teacher's handbook published by the USDA Forest Service.



Orange: sugar maple

Steve Shaluta



Red: red oak

The Dow Gardens Archives, Bugwood.org



Yellow: Aspen

Terry Spivey, USDA Forest Service, Bugwood.org



Purple: black gum

The Dow Gardens Archives, Bugwood.org

WV Chapter of National Wild Turkey Federation Honored



Mark Shook

Turkey with transmitter on back takes flight.

The West Virginia Chapter of the National Wild Turkey Federation was chosen as the 2006 recipient of the Division of Natural Resources *Sportsmen's Organization of the Year Award*.

"This organization always does an outstanding job of supporting our state's outdoors sportsmen and the DNR with their programs and contributions," DNR Director Frank Jezioro said. "Over the past 20 years the West Virginia chapter has donated more than half a million dollars for habitat enhancement, equipment,

wildlife management area projects, educational programs for young people all over the state, and many other worthy projects."

The state chapter has a Wild Turkey Super Fund that raises money for projects that support wild turkey conservation and preservation of the hunting tradition. Among the major contributions made this year were \$194,000 that went toward the Little Indian Creek Wildlife Management Area in Monongalia County (see related story page 12) and \$9,000 for the state gobbler study. Other efforts supported by the state chapter include the Hunter Safety Education Program; wild turkey research, management and

restoration; women's programs such as Women in the Outdoors; rewards for the prosecution of turkey poachers; law enforcement equipment; land purchase; and Wheelin' Sportsman, a program for disabled outdoorsmen and women.

"DNR would not be able to perform as well as

it does without the remarkable support of individuals and organizations such as these," said Jezioro. "Our agency thanks this year's winners and all the other organizations and citizens who work so hard to improve our environment and quality of outdoor recreation."

License Plates Still Available

Nature and hunting enthusiasts can still purchase West Virginia's popular wildlife license plates. One features a white-tailed deer standing alongside a mountain stream and the other portrays a rose-breasted grosbeak at Dolly Sods. Both wildlife plates were designed by artist Tom Allen.

The wildlife license plate fees include the \$30 annual registration fee,

a \$15 annual fee which supports the Wildlife Diversity Program, and a one-time \$10 fee. The total cost of the plate is \$55 the first year and \$45 in subsequent years.

The program supports the conservation of the Mountain

State's rich nongame wildlife and botanical resources. Contact your local West Virginia Division of Motor Vehicles office for more details.



Hands-On Educational Trunks Available To Teachers

Ever wonder how you were going to get that lesson plan complete for science? Here's the answer. The DNR currently has two great educational resource trunks-on bats and neotropical migratory birds-that are full of wonderful materials, including lots of books, videos, puppets, posters, transparencies, audiotapes, stamps, puzzles and games. A

trunk on mammals will become available later this fall.

All the trunks are interdisciplinary, literature-based, and provide hands-on experiences which foster an awareness and appreciation of West Virginia's wildlife.

Best of all a huge lesson plan is included in the package that is full of great exercises that the kids will really

love. These are geared for classes in the K-5 range.

Trunks are available for loan to educators statewide with a \$25 refundable deposit. Return postage is the responsibility of the school (approximately 10-\$15) and the trunks are loaned for a three-week period. Teachers receive the manual two weeks in advance of the trunk delivery.

For an applica-



Mark Shook

Summer tanager

tion form, write the Wildlife Diversity Program, WVDNR, P.O. Box 67, Elkins, WV 26241; call (304) 637-0245; or email: kareneye@wvdnr.gov.

DNR Now Offers Online Hunter Education

The Law Enforcement Section of the DNR is now offering Alternative Delivery Hunter Education courses to any person eligible to take the “traditional” course to earn a permanent Hunter Education Card.

Those interested must first register at one of the six law enforcement district offices listed on the DNR Web site www.wvdnr.gov or the Hunting/Fishing regulation booklet.

Upon registration, you can complete a study workbook or take an online course at www.ihea.com. After completing that stage of the course, you will be required to attend

Clarification

A reader from Georgia pointed out that although a photo cutline on the story about the Southeastern Cooperative Wildlife Disease Study (*Spring/Summer, 2007*) indicated that Frank Hayes developed the CapChur gun, it was a cooperative effort between Jack A. Crockford who built the first CapChur gun and Hayes who developed the tranquilizing chemical.

“Had it not been for the cooperative efforts of these two men, the CapChur gun system for tranquilizing wildlife would probably have not been developed until later years,” reader Robert S. Baker writes.

practical exercises and take a written exam.

“Because a lot of our youth are tied up with school activities in the fall, these alternative courses will give them additional

opportunities to complete a hunter education course that is required to purchase a hunting license,” according to Lt. Tim Coleman, DNR Law Enforcement Section.

New State Record For Striped Bass

A state record for striped bass was recently caught by Michael Pittman, Jr., of Wayside in Monroe County. Pittman caught the 40.88-inch, 21.38-pound fish from Bluestone Lake in Summers County July 8. He caught the record striped bass using a crank bait while fishing near the mouth of the Bluestone River.

Pittman’s catch establishes a new West Virginia record for length. The previous length record for striped bass was a 37.75-inch fish caught by Har-

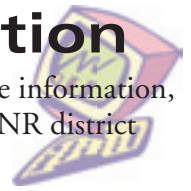


Michael Pittman, Jr. with his state record bass.

old Mills from Bluestone Lake in 2006. The current record weight for striped bass is a 29.56-pound fish caught by Terry Watkins at Bluestone Lake.

Anglers who believe they have caught a state record fish should check the 2007 Fishing Regulations brochure or go online: www.wvdnr.gov.

For more information, contact a DNR district office.



New Clays Shooting Range Opens

The first sporting clays shooting range to be built in a West Virginia State Park opened this summer at Cacapon Resort State Park. The Wobble Clay Shooting Range is located at a section of the park where it was determined that noise impact would be minimal.

“This facility, with guns, shells, and eye and ear protectors furnished, is a perfect place to introduce new shooters, especially youngsters and women, to another outdoor activity they can participate in for the rest of their lives,” said DNR Director Frank Jezioro.

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Gift Books Suggestions For Naturalists

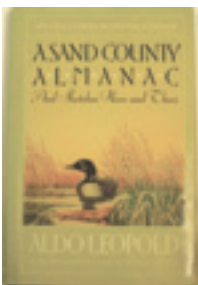
Every year, the scenario is the same. What should you buy the friend or family member who loves the outdoors which will last longer than designer chocolate and be more meaningful than a pair of gloves? The easy answer: a book!

Recently DNR staff members were asked to share what book they would recommend for gift-giving and why. Here are some of the results.

Sand County Almanac

By Aldo Leopold (two recommendations)

Why I like this book - "A classic and required reading for most wildlife students. It would be enjoyed by anyone that has a love for wild things and places."



"It's a collection of observations and short stories from his early childhood through his professional career, lending insight into his thinking and the values that shaped his philosophy. He was way ahead of his time, and is by some accounts still ahead of where we are today. It was a must read when I was going through school and I would recommend it to beginners as well as the accomplished naturalist."

Cache Lake Country: Life in the North Woods

By John J. Rowlands

Why I like this book - "The book was perhaps the most influential in my life as a 12-year-old boy."

The Audubon Backyard Birdwatcher: Birdfeeders and Bird Gardens

By Robert Burton and Stephen W. Kress

Why I like this book - "The book not only has information on how to feed and construct habitat for birds, but also has interesting behavioral information about and photos of the birds one is most likely to see in their backyard."

Attracting Birds To Your Backyard: 536 Ways To Turn Your Yard and Garden Into a Haven For Your Favorite Birds

By Sally Roth

Why I like this book - "It includes a lot of information on attracting birds for your backyard enjoyment."



A Field Guide to the Birds of Eastern and Central North America

by Roger Tory Peterson.

Why I like this book - "It's simple to use and it uses drawings and arrows to accentuate field marks used for identifying birds. It's been around for a long time!"

Last Child in the Woods

By Richard Louv

Why I like this book - "Writing to the heart and intellect with telling anecdotes and pertinent research, Louv gives the reader an assessment of the social and ecological consequences of America's divorce from nature and prescribes new paths for reconnecting children with nature, resulting in healthier, better adjusted kids who will care for our planet."



Ravens in Winter and Winter World: The Ingenuity of Animal Survival

Both by Bernd Heinrich

Why I like these books - "Although the author is a noted researcher published in many technical journals, his writing is straightforward, wonderful in its simplicity, and fascinating. Both books follow the sequence of questions, observations and answers in studying adaptations and behavior of animals in the wild."

A Dazzle of Dragonflies

By Forrest L. Mitchell and James L. Laswell

Why I liked this book - "This book is phenomenal for the photography alone (produced using high resolution scans of living specimens - so the colors are true and jewel-like). The writing is clear and readable. The section on folklore associated with these insects is especially enjoyable."



Lichens of North America

By Irwin M. Brodo, Sylvia Duran Sharnoff and Stephen Sharnoff

Why I like this book - "Coming in at 795 pages and almost 10 pounds, this is the only complete guide to lichens in North America including identification keys, species descriptions, and 939 spectacular color photographs. This is an authoritative reference and an attractive gift book."

2008 West Virginia Wildlife Calendar



The perfect gift for outdoor enthusiasts!



\$8

The twenty-third edition of the West Virginia DNR Wildlife Resources' popular wildlife calendar is sure to be a welcome addition to home or office. The 14- by 11-inch calendar features full color original paintings of native wildlife and landscapes. Detailed captions provide insight into the natural history of each subject. The 2008 calendar includes the mourning dove, red fox, snapping turtle, Dolly Sods and other animals and scenics, painted by award-winning artists.

Monthly hunting and fishing information and facts of interest for outdoor enthusiasts are also featured, as well as hunting, trapping and fishing regulation summaries and sunrise/sunset times. There are also major articles on shooting ranges, fish research and other DNR news. Throughout the calendar there are seasonal tips for enjoying West Virginia's natural heritage, whether a hunter, angler or backyard naturalist.

Outstanding beauty and quality with the modest \$8 price (plus tax and shipping) make this the premier theme calendar available to all wildlife lovers. Proceeds assist the West Virginia DNR Wildlife Diversity Program.

Order A Calendar Today!

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West Virginia Division of Natural Resources

P. O. Box 67,

Elkins, WV 26241

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