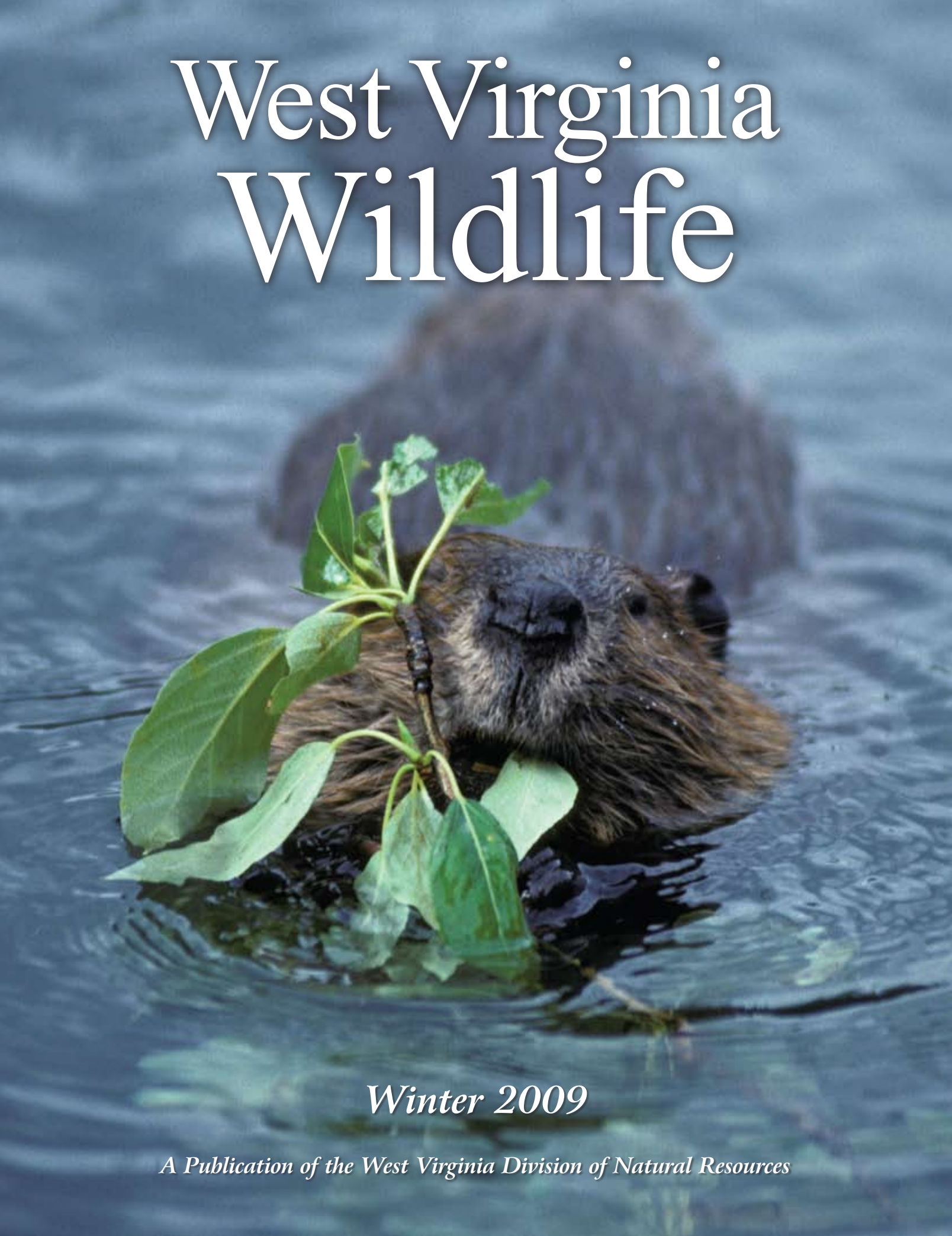
West Virginia Wildlife



Winter 2009

A Publication of the West Virginia Division of Natural Resources

The Cost of Doing Business

Through the years, those of us who work in government have heard time and again that we need to run government like a business. Well, hunters and anglers who purchase a license in 2010 will experience what that means.

In the past, the DNR has had to get a bill passed in the state legislature to increase license fees, and that usually happened every eight years or so, except that the last time the period between increases was 16 years. That's not how businesses operate. They increase (or very, very seldom decrease) what they charge for a product annually, monthly, or as is the case with gasoline, sometimes daily. They pass small increases in costs to them along to the consumer within a short time. The last license fee increase took effect in 2006, and admittedly was fairly large, creating sticker shock among some in the sporting community.

Included in the bill that passed in 2005 was language to index license fees to the U.S. Consumer Price Index (CPI) to keep up with inflation. To help delay any increase to hunters and anglers, we computed the increase to be rounded DOWN to the nearest dollar. The CPI increased 8.3 percent during the period from January 2006 through April 2008, triggering the first increase which took effect Jan. 1, 2010 – four years from the last increase. For residents, the resulting increase was only one or two dollars; or in several cases, no increase occurred. Nonresidents, paying higher fees to begin with, witnessed greater increases, even though most were still only two to three dollars. The annual hunting and trapping license did increase $9 for nonresidents.

State wildlife agencies typically see a one- to two-year dip in license sales after a fee increase. We hope that the same effect doesn't occur with a smaller increase. This is how a business would operate – passing small increases along as necessary. As an agency dependent on license sales, I hope our hunters and anglers will find a few extra dollars to enjoy their favorite pastime this year, and understand our continuing efforts to be fiscally responsible.

Frank Jezioro

Frank Jezioro, *Director, Division of Natural Resources*

West Virginia Wildlife

Steve Shaluta/ WV Dept. of Commerce Photo

Rotting log sprouts various living things, including mushrooms. **19**

Winter 2009
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Features

Photo by Larry Berry/WV DNR Photo

Photo by Steve Shaluta/WV Dept. of Commerce Photo

Photo by Bill Lindner

Departments

Covers

Front Cover: Beaver swimming – Len Rue, Jr.
Inside front cover: DNR biologist at work – Steven Wayne Rotsch
Back Cover: Winter in Tucker County – Steve Shaluta / *WV Dept. of Commerce Photo*

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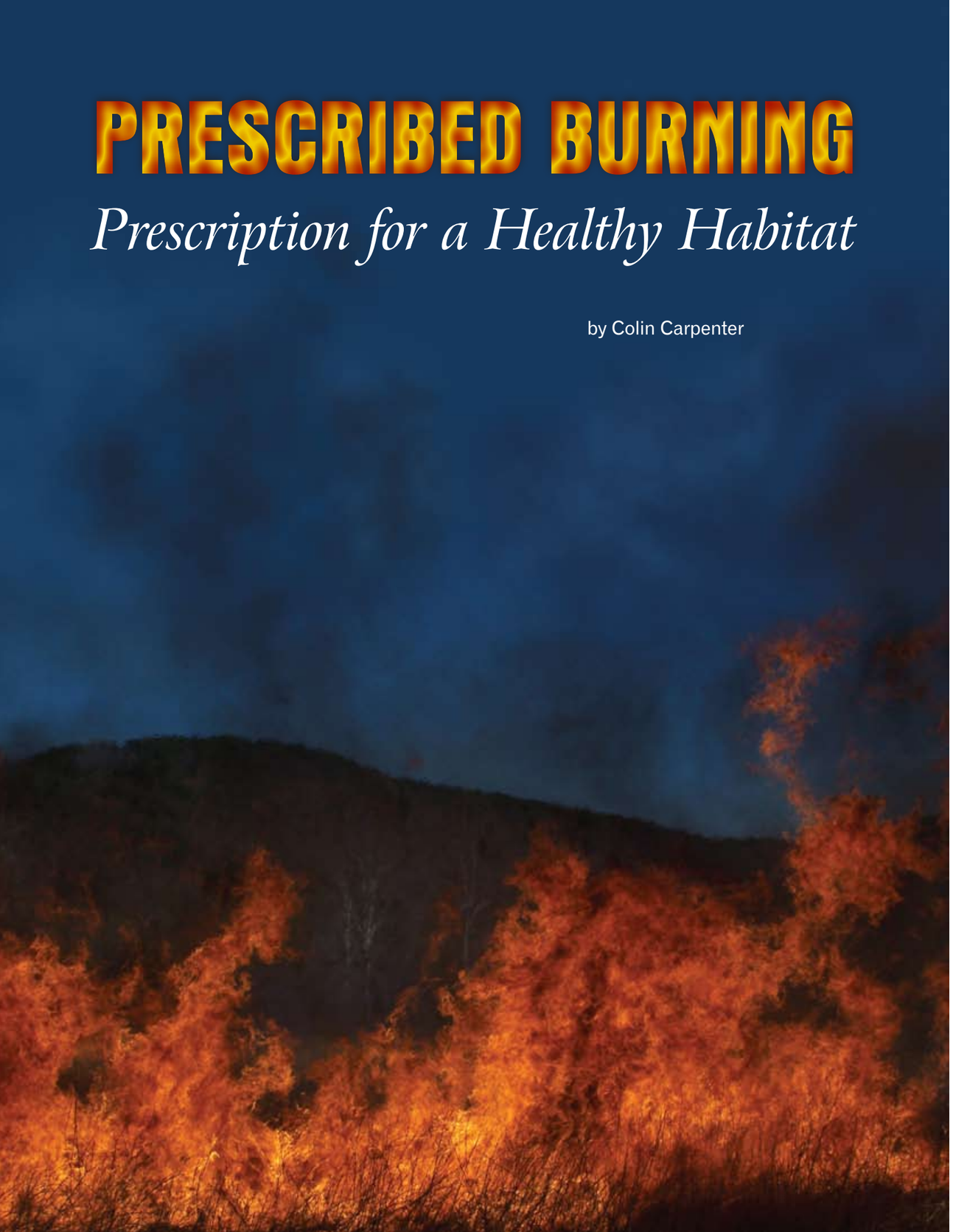
PRESCRIBED BURNING

Prescription for a Healthy Habitat

by Colin Carpenter



Since 1944 the iconic character Smokey Bear has warned us of the dangers of wildfires. Wildfires (often called "brush fires") are any unwanted, unplanned or uncontrolled outdoor fires. Smokey's message concerning wildfires is a good one. Throughout the United States, wildfires destroy homes, property and timber as well as take lives. However, fire can be a cost-effective wildlife management tool when properly planned and carefully executed.

Early settlers found Native Americans using fire to provide better access to the forest, improve hunting, and remove brush to allow farming. In the southern Appalachian region, large savannahs and grasslands occurred over much larger areas than they do today. Settlers used fire in much the same way as the Native Americans, and often built homes and communities in areas that had already been cleared by fire. However, the destructive wildfires that occurred following widespread logging at the beginning of the 20th century left millions of acres devoid of trees. The wildfire problem following logging, as well as the need to provide forests with a fire-free interval to allow the reestablishment of trees, led many foresters to advocate total exclusion of fire from the woods.

As knowledge concerning the effects of fire on ecosystems has accumulated, the attitudes of many resource managers have changed. In fact, fire is essential to the maintenance and perpetuation of many plant communities. Wildlife managers and foresters manipulate the timing and intensity of fires to achieve desired management objectives. These fires are called prescribed fires, prescribed burns or controlled burns. A prescribed fire is a fire conducted for specific, clearly stated purposes that is confined to a predetermined area under specific weather conditions and conducted by personnel with the required training and experience.

Conducted under optimum conditions, controlled burns can improve wildlife habitat and benefit wildlife.

Photo by Larry Berry/WV DNR Photo

Larry Berry/WV DNR Photo

Wildlife Resources Section employee uses a drip torch to light a prescribed grassland burn.

Prescribed burning is the most effective management tool to maintain and rejuvenate native grasslands. Prescribed burning also is beneficial to maintain old-field communities that are composed of a mixture of weeds, forbs, native grasses and shrubs. Prescribed burning reduces the amount of thatch (dead vegetation) at ground level, increases the variety of forbs, releases nutrients back to the soil, promotes vigorous warm-season grass growth, and suppresses the growth of competing invasive plants. Prescribed burning also produces more succulent vegetation that is more palatable to deer and rabbits, and supports a larger number of insects that are readily available to young birds.

Prescribed burns in grassland habitats are usually conducted from February through April. Fires should be conducted at this time of year to avoid the nesting season and to allow the previous year's grasses to remain as winter cover as long as possible. Woody

Larry Berry/WV DNR Photo

Most burns in forested areas are conducted in late winter and early spring when weather conditions allow managers better control of the fire.

vegetation that is encroaching into grasslands can be effectively controlled if prescribed burns are conducted from August through September.

Prescribed burns used to improve wildlife habitat in forested habitats are often used in conjunction with timber harvesting. Research conducted in West Virginia in the early 1980s found that timber thinning (either by mechanical or chemical means) followed by prescribed burning promoted a forest floor covered with nutritious herbs that were beneficial for wild turkey broods. Wildlife managers manipulate the amount of overstory canopy cover in the forest as well as the frequency of prescribed fire to guide plant community response following the fire. Typically, longer periods of time between prescribed burns will favor a woody understory. Shorter periods of time between prescribed burns will favor an understory composed of grasses and forbs. Recent research also has indicated that partial overstory removal in an oak stand followed by prescribed fire is a good way to establish oak regeneration in the next stand.

The time of year in which prescribed forest burns are conducted also will affect plant community composition following the fire. The majority of prescribed burns in forested habitat are conducted in February through April, similar to grassland burns. One of the toughest parts of prescribed burning in forested habitats is creating a fire hot enough to kill undesirable understory tree species but not hot enough to kill or injure desirable overstory trees. During late winter and early spring, large fluctuations in daytime temperature and relative humidity levels often allow better control of a prescribed fire. In addition, lower average daytime temperatures help to reduce fire intensity.

Wildlife managers who use prescribed fire develop a detailed burn plan before conducting a burn. The burn

A road serves as a convenient, effective fire break.

Boundaries for grassland fires are often created by disking the perimeter to expose bare ground.

plan includes a site description and map, personnel assignments, weather conditions under which the fire will be conducted, equipment availability, hazard areas, agency contacts, a contingency plan if the fire escapes, and the goals and objectives of the burn. Burn plans also describe smoke management concerns. Weather conditions on the day of a burn will influence smoke dispersal and must always be taken into consideration.

Fire behavior is influenced primarily by wind speed and direction, relative humidity and fuel moisture levels. In a burn plan, each weather condition has a range under which a prescribed burn is considered acceptable. If wind speed is too low, relative humidity is too high and fuel moisture is too high, prescribed burns will not burn hot enough to meet management objectives. If wind speed is too high, relative humidity is too low and fuel moisture is too low, prescribed burns have the potential to escape and cause damage to surrounding properties.

All prescribed burns are contained by a fire line or fire break of some kind. Burns conducted in grassland habitats often are surrounded by bare ground created with a tractor and either a disk or plow. Cool season grasses and legumes such as rye grass, orchard grass and clover also will serve as a suitable fire break. Fire breaks for prescribed burns in the forest can be constructed by a bulldozer, by hand with rakes, or with a leaf blower.

Colin Carpenter/WV DNR Photo

Larry Berry/WV DNR Photo

DNR personnel use a variety of lighting (firing) techniques when conducting prescribed burns. The technique chosen must be matched with burn objectives, fuels, topography and weather factors to prevent unwanted damage to the habitat being managed. Fires move with the wind (heading fire), against the wind (backing fire) or perpendicular to the wind (flanking fire).

Heading fires are the most intense type of fire because of a faster spread rate, wider flaming zone and longer flames. Heading fires are best applied in medium

Joe Calvert

Managers light a heading fire, burning with the wind to quickly burn large grassy fields.

to large sawtimber stands (trees greater than 12 inches in diameter) and in areas where hardwood leaves are the main fuel source. Heading fires burn rapidly and can be used to burn large areas in a short amount of time. Managers frequently use them to burn large, fallow fields and native, warm-season grasses. Heading fires should not be used in forested areas with large accumulations of heavy brush.

Backing fires are the least intense type of fire. Backing fires have a slow spread rate, narrow flaming zone and short flames. Backing fires should be used in young timber stands with trees less than three inches in diameter and in areas with large accumulations of heavy brush. Backing fires are the slowest type of fire and are not conducive to burning large areas in a short period of time.

Flanking fires, intermediate in intensity, are best used in medium to large sawtimber stands without a heavy accumulation of brush.

Flanking fires can be ignited rapidly to burn large areas, but need to have a consistent wind direction. Fewer control lines are needed with flanking fires than backing or heading fires.

Most wildlife managers use a combination of firing techniques when conducting prescribed burns. The two most common techniques are backing fires and heading or strip-heading fires. Typically, a backing fire is used to create a large black area on the downwind side of a prescribed burn area. When the backing fire has created a significant black area, narrow strips of heading fire are lit and allowed to burn toward the backfire. Essentially, the backing fire is used as a buffer to prevent the fire from spreading out of control.

Prescribed burns are complicated to organize and execute and should only be attempted by trained professionals. Unfortunately, the areas in which prescribed fires are most beneficial also are the areas where problems with wildfires are greatest. However, if care is taken in planning and carrying out a prescribed burn, the reward will be well worth the effort.

If you're hunting on a West Virginia wildlife management area or one of our national forests and see a recently burned area, make an effort to come back and see what it looks like one or more years down the road. You'll be surprised at the variety and abundance of plant and animal life that is calling the once blackened area home.

Steven Wayne Rotsch

Wild turkeys benefit from the nutritious regrowth and abundant insects which result from a controlled burn.

Colin Carpenter is the assistant district wildlife biologist stationed in Beckley.

Field Trip

Hillcrest Wildlife Management Area

Joshua Allison/WV DNR Photo

Jacob Dingel/ PGC Photo

Ring-necked pheasant

Description: Hillcrest is West Virginia's northernmost wildlife management area. Its topography and habitats make it unique among the state's 72 WMAs. Hillcrest consists of 2,212 acres of flat bottomlands and rolling uplands. The elevation ranges from 1,000 to 1,300 feet above sea level. The open fields, hedgerows, meadows and orchards are excellent for viewing wildlife.

Viewing Information: Look for white-tailed deer in the fields in the early morning and evening in summer and in the apple orchards in winter. Cottontail rabbits and mourning doves are common inhabitants. In spring, come early in the morning to hear a ring-necked pheasant cock crowing a loud double "kork-kok," or search the hedgerows for these beautiful, introduced game birds. The male is easily identified by its large size, long tail, white ring around its neck, and multi-colored face. The female is smaller and mottled brown, with a long, pointed tail.

In spring and summer, the hay fields support bobolinks and Henslow's sparrows, uncommon birds in West Virginia. Bluebirds also make use of these open fields. In the apple orchards, look for Baltimore orioles, meadowlarks and bluebirds. The fields here in summer are filled with dragonflies and butterflies. In winter, birds of prey migrating down the Ohio River stop at Hillcrest to rest and feed in these same open fields.

Small forested woodlots scattered throughout Hillcrest provide necessary food and cover for squirrels and wild turkeys. Several beaver ponds and three developed shallow wetlands provide habitat for wood ducks and mallards, as well as several species of amphibians. From February through April, the "peep" of the northern spring peeper can be heard throughout the area as it announces the approaching spring.

THIS IS A NATURAL AREA WITH NO FACILITIES AND IS A PUBLIC HUNTING AREA. PLEASE CHECK WITH THE MANAGER FOR SEASONS AND AFFECTED AREAS.

Directions: From the junction of U.S. Highway 30 and state Route 8 south of Chester, travel south on state Route 8 for 2.2 miles to Middle Run Road. Turn left onto Middle Run Road and proceed for 0.9 mile. The area runs along the right and left sides of the road. You also can access Hillcrest by Smith Road and Gas Valley Road.

Closest town: Chester

Ownership: West Virginia Division of Natural Resources (304-387-1753)

BEAVER

the Mammal with a Mountaineer Spirit

By Rich Rogers

It takes time, but a beaver can use its chisel-like teeth to fell large trees.

Photo by Len Rue, Jr.

While we may not know every reason Europeans left their homelands for the shores of America, we do know that pursuit of freedom and fortune played major roles. History tells us that one of the first professions in North America of both early explorers and settlers involved trapping and trading for furs to send back to the motherlands.

At that time, and for many years after, the main North American species sought for its valuable fur was a large rodent – the beaver. Ancestors on my mother's side left extensive detailed records of their catches when they first settled what is now the eastern maritime provinces of Canada in the early 1600s. At that time, thousands of beaver pelts were shipped back across the Atlantic Ocean to enlarge the coffers of various monarchies.

Some of the first explorers moving westward across the continent went in search of beaver pelts that were quickly becoming scarce along the East Coast. This trend of trappers preceding actual settlement ended at the Rocky Mountains in the early- to mid-1800s. By that time beaver had become quite scarce throughout much of their original range. This last major fur "boom" ended when beaver felt hats were no longer in fashion demand in Europe.

While West Virginia has never been a historic hot spot for beaver trappers, beavers were always easy to find due to the predictable branching pattern of creeks and rivers in the state's mountains. One account notes that by the mid-1700s, traders bought fur from the Catawba and Cherokee along the South Branch of the Potomac River. Other traders were doing business with Native Americans and trappers collecting fur throughout the country that is now known as West Virginia. Major trading posts serving the region were located on the present sites of Pittsburgh, Cumberland (Maryland), and Point Pleasant (West Virginia).

Beaver numbers were greatly depleted soon after the American Revolution and extirpation occurred around 1825. This was the same time period that the last woodland bison and native elk were to be found in West Virginia. At the same time Catawba, Mingo,

Len Rue, Jr.

Beaver gathers sticks for his lodge.

Delaware, Shawnee, Cherokee and a few other peoples disappeared, and with them, the passing of the great era of the eastern wilderness.

A 1911-1912 report of the Forest, Game, and Fish Warden of West Virginia stated that "the many streams, mountains, and other natural features within our state that have the word 'beaver' as part of their name indicates the general distribution of the mammal here in an early day." The last known colony at this time was located at Tearcoat Creek in Hampshire County in 1922. This colony disappeared soon after it was reported.

The beaver is the first known extirpated wildlife species to be reintroduced in West Virginia. This was accomplished through a joint effort by the West Virginia Conservation Commission and U.S. Forest Service between 1933 and 1940. The project received support after a severe drought in 1930 because dam-building activities of beaver help conserve water. All beaver in the original stockings were obtained from Michigan and Wisconsin and were placed in Mineral, Nicholas, Pocahontas, Randolph, Summers, Tucker, Wetzel and Wyoming counties.

Beaver now live in every county of the state with the vast majority found and harvested in the high mountain and Eastern Panhandle regions. A 1949 publication of the West Virginia Conservation Commission stated that due to agriculture and locations of human dwellings in bottomlands, little suitable range existed in the state which was not then occupied by beaver. Little did anyone realize how persistent, resilient and industrious beaver would turn out to be – truly an animal reflective of the hard-working nature of the Mountaineer.

A young mated pair of beaver can quickly colonize a suitable area. In West Virginia, breeding takes place in January or February with most young being born after a gestation period of about four months. Sometime before giving birth, the female will force the male out of the lodge or burrow, and he will not be allowed back until the kits have been given a chance to grow. The young will stay with the family for almost two years before striking out on their own. Thus, a colony may consist of three generations of beaver at any given time. The female gives birth to an average number of four young.

Adult beavers in West Virginia weigh between 35 and 45 pounds. Individuals in excess of 50 to 60 pounds are not uncommon. Males and females mark their territory by depositing scent from special glands located next to the anal/urogenital opening on pushed up mounds of mud and leaves on the bank. Trappers, armed with this knowledge along with the scent from another colony's beaver, have put many beaver pelts on their hoop stretchers. Remarkably, effective beaver trapping techniques have not changed much since early times.

Snow-covered beaver dam at Green Bottom WMA.

Photo by Gary Sharp/WV DNR Photo

Leonard Lee Rue III

Beaver swims swiftly to its underwater entrance of its lodge.

Beavers typically make their dens in bank burrows or lodges built and excavated by the beaver themselves. Bank dens are more common on large waterways where water levels fluctuate often. Stick lodges are more common on smaller streams or ponds.

Beavers build their dens with an underwater entrance and ventilation overhead. Biologists have measured temperatures inside lodges and found them to be quite a bit cooler in summer and warmer in winter than outside air.

In colder climates, such as the conditions that exist in our higher elevation counties, beaver live under ice all winter. They pile extensive food caches of green sticks underwater in the fall. This stored food may have to last all winter. Older West Virginians will tell you it will be a long, cold winter if beaver lay up a large food cache in the fall.

Beavers build dams for the protection of a semi-submerged den and food supply. All age classes participate in dam construction. Beavers use anything available that can be carried, pushed or floated. The dams are primarily made of stick, stone and mud. They are tightly constructed and very difficult to dismantle by hand.

Beaver prefer herbaceous vegetation for food in the summer and early fall. They prefer the living, inner layer under the bark of trees the rest of the year. Aspen is favored where found, but all hardwoods will be eaten. Beavers fell most trees to get at the succulent limbs at the top of the tree for food. They accomplish this with specialized chisel-like teeth that grow continually throughout the life of the animal. Anyone spending time around a beaver pond will notice the many peeled fresh sticks floating in the water or laying on the edge of the bank.

Although beavers aren't aggressive by nature, a beaver bite can be quite nasty. Fortunately for other animals, most beaver fighting is what biologists call

Elizabeth Byers/WV DNR Photo

One of numerous beaver lodges in Canaan Valley National Wildlife Refuge.

Green frogs are one of many animals that inhabit beaver ponds. Photo by Johanna Ellis

"intraspecific," meaning among themselves. Trappers catching beaver late in the season will notice numerous crescent-shaped holes in many hides due to battles between beaver. Such blemishes decrease the value of a hide on the fur market and most trappers plan to trap before most of this infighting happens.

Although slow on land and possessing fairly poor eyesight, beavers are protected by a thick layer of fat during part of the year and a loose, thick hide. They warn away intruders by slapping their large flat tail on the water while surface diving, making a sound like someone slapping a canoe paddle on the water. Aggressive males also snuff their noses and growl at a threat while approaching in water. Numerous whinings, mewings and other sounds also have been recorded in dens.

At a point in history when wetlands are at a premium due to human development, beaver are champions at building them. Wildlife is attracted to, and abounds in and around beaver colonies. Where humans may see beaver as destructive, wildlife species experience them as the ultimate architect of prime wildlife real estate. Beaver ponds teem with birds, reptiles, amphibians, insects, fish and mammals.

Due to a decline in numbers of trappers, poor fur prices and greater tolerance for beaver activities, beaver trapping seasons have been greatly liberalized since the reintroductions of the 1930s. Trapping season extends from the first Saturday of November until the end of March. There is no bag limit, which gives landowners experiencing damage to ornamental trees, timber or crops a longer time to take advantage of trapping opportunities. Regulated trapping today poses no threat to beaver populations in West Virginia. Yearly harvests have ranged from 1,000 to 2,000 animals for the last couple of decades. This harvest is highly dependent on fluctuations in fur prices on the market.

The return of beaver to its native range is a wildlife management success story. Resilient in the face of tragedy, industrious by nature, family-oriented, persistent when presented with obstacles, and gentle yet aggressively defensive of what is theirs, the beaver is truly a reflection of the mountain spirit that thrives in West Virginia to this day.

Rich Rogers is the district wildlife biologist stationed in Romney.

Wildlife Diversity Notebook: Striped skunk

By Art Shomo

Jacob Dingel/PGC Photo

Common Name:
Striped skunk, polecat

Scientific Name: Mephitis mephitis

West Virginia Status:
Common throughout the state.

Description: The striped skunk's body is black with two broad white stripes on its back, starting at the tail and joining in a cap on its shoulders and head. There also is a thin white stripe down the center of its face. Its bushy tail is black, often tipped or fringed with white. The stripes vary in length and width among individuals. The male and female look alike, but the male is larger. Adult skunks measure about 24 to 30 inches in length and weigh 6-14 pounds. They have small heads, eyes and ears, and a pointed nose.

Habitat: Striped skunks live in a variety of habitats They prefer a mixture of woods, thickets, shrubby areas and fields, but avoid dense forests. They are usually found in areas with good cover, including cornfields, brushy borders of waterways, hayfields and fencerows.

Range: Almost all of the United States, southern tier of Canadian provinces, northern Mexico; from sea level to timberline.

Diet: Striped skunks are omnivorous. Their choice of food depends on what is available. In summer, they feed heavily on insects – adult and larval forms – including grasshoppers, crickets, beetles and wasps. In suburban areas they will use their long claws to dig up lawns to eat grub worms. They also will eat spiders, toads, frogs, lizards, mice, chipmunks, and the eggs of turtles and ground-nesting birds.

In fall and winter, skunks eat fruit, including wild grapes, Virginia creeper berries, and cherries; small mammals such as mice, voles and moles; plants, including grasses, leaves and nuts; and carrion.

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

Life History: Although solitary for most of the year, males and females get together to breed in February and March. Males travel widely in search of mates and breed with several females if possible. Shortly after mating, the female drives off the male. After a 60-day gestation period, she bears four to seven young, each weighing less than an ounce. The young are born blind with little hair, although the future black-and-white pelage can be seen on the pinkish body. The scent glands can spray at three to four weeks of age. Weaned at six to eight weeks, the young then venture out with their mother at night to hunt for food.

The young are fully grown by November. During the fall, skunks gorge themselves to store up fat to help sustain them during the long winter. Striped skunks don't hibernate, but they may stay in their dens for weeks at a time during harsh winters and may lose 10-30 percent of their body weight. They often use abandoned dens of other animals, but can use their long claws to dig their own dens. They may also take refuge beneath a building.

The young sometimes overwinter with their mother in an underground den. Dens have been found containing 12 or more skunks.

Skunks are best known for their chemical defense. The pair of scent glands have nozzle-like ducts that protrude through the anus. When threatened, they use a quick muscular contraction to shoot the pungent, oily musk up to 15 feet. The main active ingredient of the musk, creamy or yellowish in color, is the sulphide mercaptan. Skunks can aim the spray in any direction by twisting its rump and can even spray when held up by the tail. Before spraying, a skunk usually tries to bluff its enemy by drumming its forefeet, snarling, clicking its teeth, arching its back and raising its tail. If those messages fail to discourage the intruder, it then uses its ultimate, chemical weapon. Humans use the musk, after the odor is removed, as a perfume base because of its clinging quality.

Although its odor repels most predators, the skunk is prey for great horned owls along with some larger mammals, including coyotes, foxes and bobcats. They also fall victim to diseases such as rabies, getting hit by vehicles, and starvation. As in other states, skunks can be hunted and trapped, although the demand for their pelt is low.

Skunks are usually sluggish and move at a deliberate walk or slow trot, with a top speed of about 10 miles per hour. They can swim but are poor climbers. Their sight, smell and hearing are average at best compared to other mammals, but they possess an acute sense of touch.

Like many mammals, a skunk's pelt is composed of soft, wavy underfur covered with long, coarse guard hairs. They molt each year, beginning in April and ending in September.

Birds of West Virginia's Wetlands

Wetlands are a wonderful place to observe some of the state's unique birds.

From left to right: Wood duck, Great egret, Red-winged blackbird, and Black-crowned night heron

Photo by Bill Lindner

Ol' Marble Eyes

By David I. Wellman, Jr.

A mouth full of sharp teeth, large iridescent eyes, and great table fare may be how many Mountain State anglers would describe Ol' Marble-Eyes, more commonly known as the walleye. Other names associated with walleye are walleyed pike, jack salmon, or yellow pickerel. However, walleyes are not related to pike, salmon or pickerel.

The walleye is the largest member of the perch family, which includes the yellow perch, sauger, and several species of darters. Walleyes are yellow-green along the top and sides, fading to white on the belly. Closely resembling the slightly smaller sauger, walleyes can be distinguished by a large black blotch on the base of the spiny dorsal fin and the large white spot on the bottom tip of the tail.

West Virginia walleyes begin spawning in early March and may continue through early April when water temperatures are in the range of 40-48 degrees. Spawning occurs over sandy, rocky and gravel bottoms in two to four feet of water. Once the adhesive eggs are deposited, it typically takes two to three weeks for hatching to occur. Unfortunately for the eggs, walleye spawning often corresponds with extreme weather and water conditions. High water flows associated with cold spring rain or snowmelt can cause water temperatures to drastically drop within a day, which reduces egg survival because of temperature shock. Water level fluctuations in our flood-control reservoirs can be extreme, increasing or decreasing 5 to 10 feet in a day. Muddy water caused by sudden increases in flows can smother incubating eggs, while decreasing lake elevations can leave the eggs above the water level and kill them. It seems that the odds are stacked against walleyes from the very beginning.

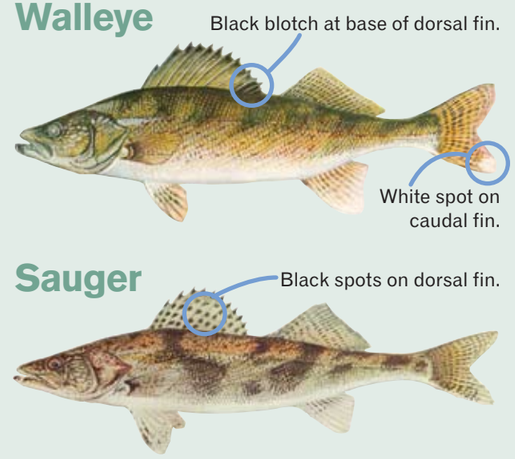
Immediately upon hatching, walleye fry are unable to swim until their fins develop, which usually occurs within five days. During this time they are moved about by wind and current while surviving on their yolk sac. After five days, they start feeding on microscopic organisms called zooplankton. If adequate supplies of zooplankton are not available, walleye fry will starve. In addition, walleye eggs and fry are often eaten by other fish species, as well as by adult walleyes. You can easily see why walleye populations may be excellent for some years, but not as good in others.

Adult walleyes are very efficient predators, feeding on whatever fish species are most abundant.

Jay Carper

Jay Carper of Clay County caught this beautiful 28-inch walleye from Elk River below Sutton Lake. This area has historically provided trophy-sized walleyes for Mountain State anglers.

Sauger and walleye appear similar, but can be easily separated by a few basic characteristics.



In West Virginia reservoirs, minnows and young-of-the-year bluegills are common food items, while gizzard shad and minnows are abundant food sources in rivers. Growth depends on several factors such as food availability and quality, walleye population density, competition with other fish species, and environmental conditions. In West Virginia, walleyes reach an average of 12 inches in their first full year of growth, and may take five years to reach 18 or more inches, again depending on several factors. Walleyes have reached fantastic sizes in the Mountain State. The length record is 35 inches and was caught in 1976 from the Kanawha River at Kanawha Falls. The most recent weight record was caught from the Elk River in 2004. It was a behemoth walleye weighing in at nearly 19 pounds, one of the largest ever caught in the United States!

Walleyes were once abundant in large rivers such as the Kanawha, Monongahela, Ohio and many of their tributaries. But by the 1950s, pollution from mining, timbering and other industrial activities, greatly reduced or eliminated them. Passage of the federal

Clean Water Act in the early 1970s and other environmental regulations greatly improved water quality to the point that not only walleyes, but also many other fish species began to thrive once again.

Reservoirs constructed by the U.S. Army Corps of Engineers throughout West Virginia since the 1960s created new habitats suitable for walleyes. Those who fish Summersville Lake and Tygart Lake know these reservoirs have two of the Mountain State's best self-sustaining walleye populations. Both reservoirs have ample spawning habitat in the form of rocky bottoms and steep-sided shorelines. However, most of our other reservoirs have limited reproduction and supplemental stocking is required.

Frank Jernejcic/WV DNR Photo

Walleyes are attracted to currents just downstream of lock and dams on West Virginia's major rivers. Many lock and dams, such as Hannibal on the Ohio River provide excellent year-round access for anglers.

Opportunities for catching walleyes, prized by anglers, are continuing to improve across West Virginia. In 2001, Apple Grove Hatchery was constructed along the banks of the Ohio River in Mason County. This facility provided the DNR with the ability to raise two- to three-inch fingerling walleyes, which are stocked in several reservoirs and a few rivers. Previously, DNR's ability was limited to stocking only walleye fry.

Mark Scott/WV DNR Photo

DNR fisheries biologist Jeff Hansbarger with a nice walleye collected during electrofishing surveys on the New River. Fingerling walleyes have been stocked in New River downstream of Sandstone Falls since 2004.

Fingerlings, though more expensive to raise, have a much higher survival rate because of their larger size than fry. In 2009 alone, DNR stocked about 172,000 fingerling walleyes in seven reservoirs, three small impoundments and four rivers.

Walleyes are very sensitive to light and their location within a given body of water is dependent upon weather conditions such as sunny or cloudy skies, wind, water turbidity and time of day. On cloudy and windy days when light is reduced, walleyes can often be found in shallow water; but on calm, bright days, walleyes will likely be in deeper water. Walleyes exhibit a crepuscular feeding behavior, which means they feed actively at dusk and dawn, often moving into shallow water. This 'twilight bite' is a good time to roam the shorelines and fish for walleyes. Also, the currents immediately below the lock and dam tailwaters on our major rivers such as the Ohio, Kanawha and Monongahela rivers attract walleyes, and fishing can be excellent in these areas. Walleye angling is a challenge, but ample opportunities exist to reward the knowledgeable and persistent Mountain State angler.

David Wellman, Jr. is the assistant district fisheries biologist stationed in Farmington.

Mountain State Flora

The Value of Rotting Logs

Trees are like people. They die from diseases, infections, injuries, burns, drowning, malnutrition, and sometimes just plain old age. Walking through the woods, we see dead or dying trees of various kinds. For example, a big white oak, with its bark ripped from crown to root, was literally cooked by a bolt of lightning during a summer thunderstorm. In a grove of black oaks, many are dying lingering deaths from infected wounds started years ago when an autumn fire swept through the fallen leaves and scorched the living wood. In a dense forest, there are many that have lost the battle for space and sunlight. In some places, we see trees that are slowly starving because dashing rains have carried away the fertile topsoil and the trampling feet of picnickers have injured the shallow roots that bring them food.

Steve Shaluta/WV Dept. of Commerce Photo

The cycle of life continues as decaying trees form new soil from which they originally grew.

At the paved public walkway at the State Wildlife Center at French Creek, and at a few other areas where the public may congregate, we remove dead trees. But elsewhere we let them stand until they fall and then rot where they lie. A lot of people think that is both untidy and wasteful but there is an important reason for it. In order to restore or maintain a healthy natural woodland, those slowly decaying trunks, branches and twigs are vital elements of the ecosystem. It would be an unnatural, strange forest without them.

A forest is more than trees. The trees are the framework, but around them is woven an unbelievably complex fabric of life: squirrels, mice, birds, bees, beetles, worms, wildflowers, weeds, mushrooms and many other living and nonliving components. Over a period of years, a slowly enlarging hole in a standing dead snag, for instance, may be occupied in turn by a fungus, a boring beetle, a colony of carpenter ants, a woodpecker, a deer mouse, a squirrel, a screech owl, and a raccoon. The dead roots, the loosening bark and the softening trunk also shelter or feed a host of other wood colonists. The roots gradually weaken until one day, in a gust of wind, the snag crashes to the ground where the final act of the drama takes place.

Some fallen trees rot much more rapidly than others, depending upon the kind of tree and whether or not it lies in contact with damp soil. Bacteria and the root-like threads of fungi – the fruits of which are mushrooms – spread inward through pores and crevices in the dead wood, eating away some of it and leaving the remainder soft. The mushroom growths on the outside of the rotting log may include several sizes, shapes and colors: bracket types, puffballs, parasols, and some resembling a turkey gobbler's tail, oyster shells, or crusts.

There is little hint of the wealth of small animal life within until you pull off a big piece of loose bark. Ants, centipedes, millipedes, daddy longlegs and beetles scurry away. On the exposed wood are artistic patterns made by the engraver beetle. A fiery red mite may creep under a shred of bark. Soon no visible sign of life is left except tunnels into the softened wood and perhaps a silk-covered ball of spider eggs hidden in a crack.

Now roll the log over. On the moist underside there are likely to be sow bugs, slugs, snails, earthworms, spiders, crickets, firefly larvae and various beetles. There may be a salamander or two, a toad, a harmless snake and a mouse's nest with her store of seeds. To maintain the environment these organisms need to survive, be sure to roll the log back in place. Living and dying, generation after generation of them convert that wood back into soil food and humus, which a healthy forest must have.

There is drama and treasure in a rotting log.

Adapted from Nature Bulletin #441 with permission from the Forest Preserve District of Cook County, Illinois.

Build-A-Beaver! Animal Adaptations

Objective

Students will learn about some of the unique and interesting features (physical adaptations) of beavers and how those adaptations help beavers survive.

Method

A student volunteer is built into a simulated beaver with the beaver's adaptations made from objects that are similar.

Materials

Pictures of a beaver, some string and tape, chisel, pair of swimming fins, swim goggles, swimming earplugs or ear muffs, nose plug, snorkel, two inflated large red balloons, thermal underwear top, raincoat, can of silicone waterproofing spray, small wooden canoe paddle and two combs.

Background

A beaver possesses an array of unique features that help it survive in its watery world. Its flat 12- to 17-inch long, paddle-like tail serves superbly as a rudder while swimming, and its fully webbed hind feet help it swim fast. The beaver also slaps its tail on the surface of the water to warn of danger nearby. A clear, see-through inner eyelid covers and protects the beaver's eyes, and watertight flaps of skin seal off its nostrils and ears. Its lips also can be drawn tightly behind its teeth to let the beaver chew wood with its chisel-sharp teeth while under water, and a special flap at the back of its mouth seals off the mouth cavity from the air pipe. Large lungs hold extra oxygen for long dives. Also, waterproofing oil from a special gland, built in combs (split toenails on the fourth toe of each hind foot) to brush the oil over its coat, and dense water-repelling underfur keep the beaver warm and dry.

Procedure

1. Share pictures of beavers with the students. Ask them if they were a beaver, what kind of features they might need to help them live in water as real beavers do.
2. Discuss the meaning of the word "adaptation" – in this case, a physical feature the beaver has to help it survive.
3. Ask one student to be a volunteer to become a beaver.
4. Use each of the items to then "build" a beaver by placing them on the volunteer. For each item, discuss how they represent the different adaptations that beavers have to help them survive.

   Fins – fully webbed hind feet of a beaver that help it swim fast.

   Thermal underwear – the warm under fur of a beaver that helps it stay warm.

   Rain coat – the outer coat of the beaver that keeps it dry.

   Silicone spray – the oil that the beaver spreads upon its fur to help its coat stay waterproof.

   Combs – the spit toenails on the hind foot of a beaver used to spread the oil on its coat while grooming (attach with string or tape to the fins).

   Chisel – chisel-sharp teeth a beaver uses to chew wood for building its dam, its lodge and for food (tie to a string to hang around the student's neck).

   Paddle – rudder like tail of the beaver used for steering while swimming and for slapping on the surface of the water to create a warning sound when danger is near (have student hold this or attach with a string around waist).

   Goggles – special clear eyelids that cover and protect the beaver's eyes, letting it see underwater.

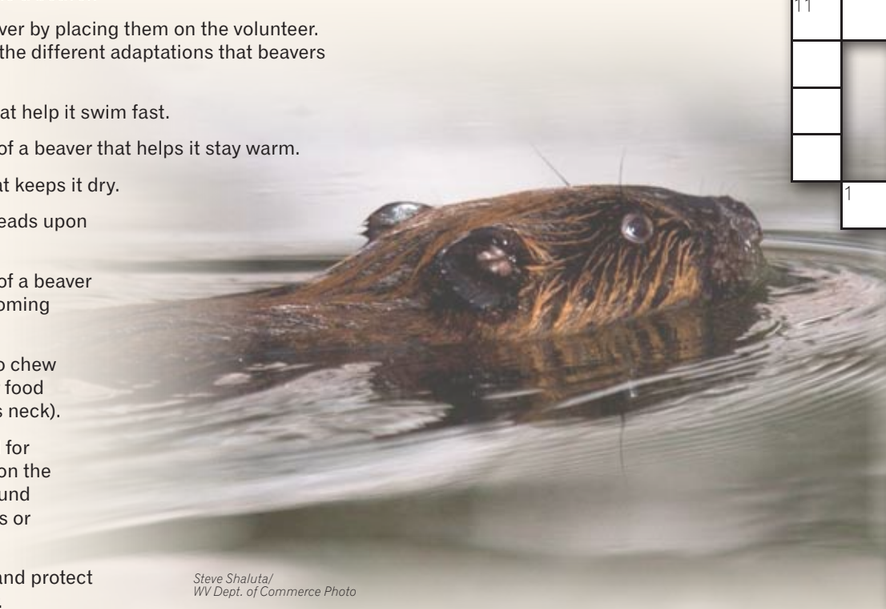
   Ear and nose plugs – valves that seal off the beaver's ears and nose when swimming underwater to keep the water out.

   Snorkel – represents the structure in the beaver's mouth that lets it breathe without getting water in its mouth when carrying wood through the water.

   Red balloons – large lungs of the beaver that hold extra air so the beaver can hold its breath for a long time (tape these on).

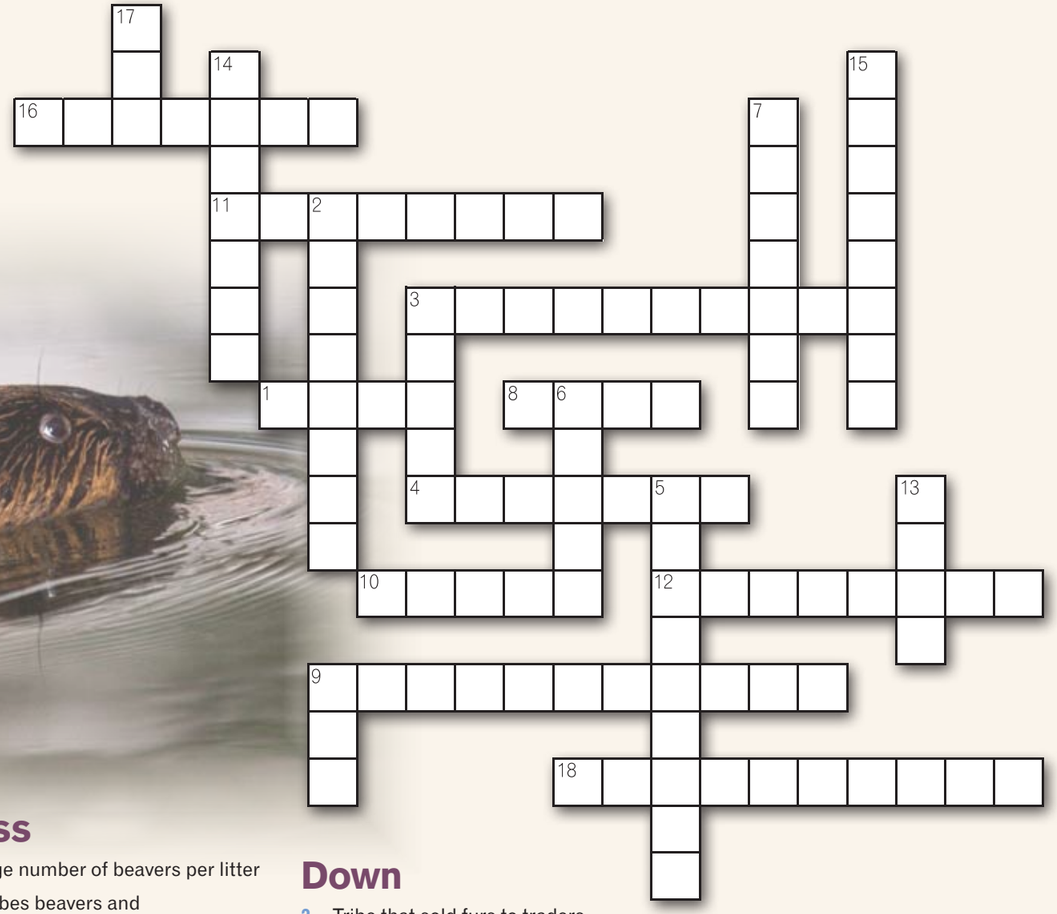
Discussion/Evaluation

Review the unique adaptations beavers have to help them survive in their environment. Have students draw their own beaver. Have them be sure to include details in their drawing showing the physical adaptations of the beaver, the way they are in reality (internal adaptations like large lungs may have to be skipped). Have them label the adaptations on their drawing.



Steve Shaluta/ WV Dept. of Commerce Photo

West Virginia Wildlife Article Puzzle



Across

1. Average number of beavers per litter
3. Describes beavers and walleye anglers
4. Fire that moves with the wind
8. Backing fires burn at this rate
9. DNR stocked 172,000 of these in 2009
10. Food stored underwater by beavers
11. One state used to get beavers for restocking West Virginia
12. One of first professions of early U.S. settlers
16. Home of beavers and many other animals
18. Opposite of wildfire

Down

2. Tribe that sold furs to traders
3. Family to which walleye belong
5. Fires release these back to soil
6. Beaver home built in open water
7. Ol' Marble Eyes
9. Term for newly hatched walleye
13. Body part that beavers slap on water
14. Class of animals to which beaver belong
15. Ecological role of walleyes in lake
17. Young beaver

Larry Beryl/WV DNR Photo

Ohio Black Bear Poachers Apprehended in Nicholas County by West Virginia Conservation Officers

A lengthy bear poaching investigation was brought to a conclusion Oct. 22 and Oct. 25, when West Virginia Division of Natural Resources (WVDNR) conservation officers and Wildlife Resources Section personnel apprehended a group of eight hunters in Nicholas County for using bait to lure black bear into sites where they could be shot from elevated and camouflaged stands. It is illegal to bait black bear in West Virginia.

"This group of hunters, all of whom were residents of Ohio, had been participating in this type of illegal activity for several years," said Capt. Michael Waugh of the WVDNR District 3 Office in Elkins. "They had purchased their bait, which consisted of donuts and corn, from multiple out-of-state vendors. The bait was then hauled into the area by truck and distributed to the bait sites using all-terrain vehicles. This out-of-state purchase and interstate transport of the bait is believed to have been an effort on the part of the poachers to conceal the quantities of bait, the purposes for which it was being purchased, and to avert suspicion in the areas they were baiting."

Seven baited shooting sites were located by Conservation Officers D. Duffield, T.L. White and Wildlife Manager Tom Pratt when they entered the woods in Nicholas County near Summersville. On Oct. 22, five of the hunters were apprehended at a cabin used as a base camp from which to stage these illegal activities. As the individual hunters were located and removed from the elevated shooting platforms, Sgt. C.R. Johnson conducted interviews that led to additional information and the discovery of multiple baited black bear kills from previous years.

Sgt. C.R. Johnson/WV DNR Photo

Conservation officers and wildlife manager with confiscated bait and bears.

Two large adult black bears were seized at the base camp location as well as large quantities of bait stored for future use. The first was a large male bear that was estimated to weigh in excess of 240 pounds. The second was a three- to four-year-old female estimated to weigh more than 130 pounds. Two additional black bears were killed at the bait sites earlier and had already been removed from the base camp to locations outside the borders of West Virginia. Requests for assistance in recovering these black bears have been made to the U.S. Fish and Wildlife Service under the provisions of the Lacey Act.

In conjunction with the Nicholas County Prosecuting Attorney's Office, charges were lodged against the eight participants in this illegal baiting scheme. The suspects chose to enter pleas to these charges at the arraignment. The charges lodged included killing bear over bait and hunting bear over bait. Penalties included fines of $2,319, replacement costs of $500 and 100 days in jail. The jail term was suspended contingent upon the payment of fines and costs.

Arraignment is pending for two of the alleged violators.

Also, based upon information provided by Sgt. Johnson, on Oct. 26, 2009, David Moore of New Richmond, Ohio, surrendered parts of three black bears that had been taken over bait in West Virginia to Ohio wildlife officers. No charges have been filed at this time.

"This investigation serves as a classic reminder that the Division of Natural Resources and its employees are ever mindful of their charge to protect the natural resources of the state of West Virginia for the benefit and enjoyment of our citizens and their children," said Capt. Waugh.

West Virginia Joins Interstate Wildlife Violator Compact

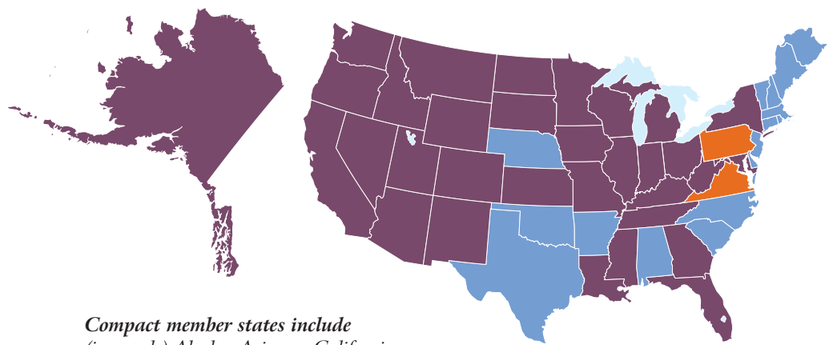
When it comes to sportsmen who break hunting, fishing or trapping laws, the catchy phrase that "What happens in West Virginia, stays in West Virginia," doesn't apply as of Jan. 1, 2010. Gov. Joe Manchin signed the Interstate Wildlife Violator Compact Dec. 7 at the Stonewall Resort. "This cooperative interstate effort will enhance West Virginia's ability to protect and manage the state's wildlife resources for the benefit of all residents and visitors," Gov. Manchin said.

Ron Snow/WV Dept. of Commerce Photo

Conservation officer checks hunter's license.

According to the reciprocal agreement, those who have their hunting or fishing license suspended in a Compact member state also can have their sporting privileges denied in any of the 31 other states which have signed the Compact.

This agreement greatly expands the consequences of illegal actions. In the past, hunters who had their licenses suspended in Ohio could still come to West Virginia to hunt. Likewise, West Virginia residents who had their hunting privileges suspended in West Virginia could still go elk hunting in Colorado. "This should give potential violators second or third thoughts about breaking the laws that protect our fish and wildlife resources," said Frank Jezioro, director of the West Virginia Division of Natural Resources. "If people get their licenses revoked for some grievous offense, we sure don't want them hunting here," Jezioro said.



Compact member states include
(in purple) Alaska, Arizona, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Mexico, New York, North Dakota, Ohio, Oregon, South Dakota, Tennessee, Utah, Washington, Wisconsin and Wyoming. Virginia and Pennsylvania (in orange) are considering joining the Compact.

Calendar of Events

MARCH

15-16 Hunting and Fishing Regulations Public Meetings
12 locations around the state
Call 304-558-2771 for exact locations and times; check hunting or fishing regulation booklets for dates and general locations

APRIL

8-11 School of the Longhunter and Contemporary Longrifle Association Show
Prickett's Fort State Park
An intense weekend of instruction exploring the role of early frontiersmen on the American frontier … focusing on the skills of the long hunter. In addition to the educational programming, there will be a sanctioned CLA mini-show and sale. Registration for Longhunter includes admission to both events.
Contact: 304-363-3030

17 26th Annual Sue Browning Wildflower Hike
Chief Logan State Park
Includes continental breakfast, guided hike, lunch and door prizes. $10 for advanced reservations. Registration at the museum in the park. Contact: Sandy Mayo 304-855-5863

17 Stream Clean
Cabwaylingo State Forest
Lunch is free, and provided by Argus Energy, for all participants. The event starts at 8:30 a.m. and ends at 3:30 p.m. Contact: Lynette Simko 304-385-4255

23-25 Becoming an Outdoors-Woman Workshop
Canaan Valley Resort State Park
Full weekend of BOW activities. Choose from 30 different classes. To register, contact Billie Shearer at 304-558-2771, billieshearer@wv.gov or go online to www.wvdnr.gov.

Governor's One Shot Whitetail Hunt
and Banquet Dec. 6-7 Stonewall Resort

Invited guests joined Gov. Joe Manchin and West Virginia Division of Natural Resources Director Frank Jezioro for a special event designed to draw attention to hunting opportunities in the Mountain State and to the Hunters Helping the Hungry (HHH) program. WVDNR and the West Virginia Trophy Hunters Association sponsored the annual "West Virginia Governor's One Shot Whitetail Hunt" Dec. 6-7 at the Stonewall Resort.

Participants sighted in their firearms at the Stonewall Jackson Lake Wildlife Management Area on Sunday, Dec. 6. The next day they were taken for guided hunts on private property near the park. The hunt was for antlerless deer only, and the deer harvested were donated to the HHH program, with the venison to be distributed to needy families across the state. Awards for participants in the One Shot Whitetail Hunt were presented during a banquet at the Stonewall Resort that Monday evening.

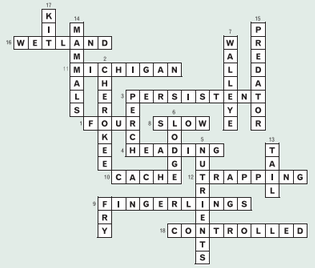
This event began in 2007 when Gov. Manchin and other state governors participated in a One Shot Antelope event in Lander, Wyoming. He decided to bring that experience to West Virginia, where whitetail deer hunting opportunities are among the best in the East. In 2007 the event raised $17,000 and in 2008 it raised $35,000 for the HHH program. This year, registrations for the charity hunt provided more than $50,000.

Steve Shaluta/WV Dept. Commerce Photo

The Governor's One Shot Whitetail Hunt ended with a banquet for participants.

"This is an opportunity for our guests to learn about what West Virginia has to offer outdoor sportsmen, and also to help promote the worthy Hunters Helping the Hungry program that means so much to so many less fortunate West Virginians," Manchin said.

Answers to page 21.



ACROSS
1. Four 3. Persistent 4. Heading 8. Slow 9. Fingerlings 10. Cache 11. Michigan 12. Trapping 16. Wetland 18. Controlled

DOWN
2. Cherokee 3. Perch 5. Nutrients 6. Lodge 7. Walleye 9. Fry 13. Tail 14. Mammals 15. Predator 17. Kit

West Virginia
Wildlife