

the
Maryland
natural resource

Vol. 20, No. 1 | Winter 2017

ON THE COVER

Then & Now: A look back
at the past 20 years

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Historic sites
State fishing records

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THE NATURE OF CHANGE



I'm always excited to see fellow Marylanders sharing my pride in our beautiful state. That pride was on full display in the 2016 Natural Resource Photo Contest.

First, I'd like to congratulate this year's grand prize winner—Mitch Adolph of Baltimore County—and thank everyone who has captured these stunning images throughout the past year. Each of the selected pictures showcases our state's natural beauty and heritage of resource stewardship.

Further, these photos reflect my administration's ongoing commitment to effective land and water conservation efforts, practical wildlife management policies, and diverse recreational opportunities. I've really enjoyed the opportunity to explore the majes-

ABOVEBOARD



This issue begins the 20th edition of the *Maryland Natural Resource* magazine. To mark this special occasion, each of our four 2017 issues will feature an original article out of Volume 1, followed by a story on the same topic from today's perspective.

In the winter of 1998, the Department of Natural Resources had the intent to share with our citizens the department's accomplishments, announcements and aspirations regarding the conservation and restoration of nature's bounty in our state.

Throughout the years, dedicated employees and devoted citizens have made great strides toward meeting many of our shared goals, and progress continues to this very day.

Some of Maryland's most treasured natural resources include our public lands, our fisheries and wildlife and our cherished Chesapeake Bay. While the needs of these areas have certainly evolved over the past 20 years, there has been a great deal of progress.

Our public lands have grown from 375,000 acres to nearly 450,000 through initiatives such as Program Open Space and the Rural Legacy Program. Protected properties include working farms, forests, shorelines, wetlands and—of course—our beloved state parks, which have increased from about 50 to a network of 72.

Within such lands, we have succeeded in saving several species from irreparable harm. Perhaps most notably is our bald eagle population. Specialists enacted protective zones around nests,

ensuring their growth and safety. After decades of monitoring, we have watched their numbers surpass 400 nesting pairs.

Our fisheries team has reaped similar successes. Following the collapse of the striped bass stock in the 1980s, a moratorium resulted in a recovered fishery by 1996. In the years since, significant spawns have occurred, including the eighth highest on record in 2015, where an average number of 24 juvenile fish per sample nearly doubled the long-term average.

With more shoreline along the Chesapeake Bay than any other state in the watershed, Maryland stands to benefit the most from having this unique estuary restored. To that end, we have supported and participated in many projects to achieve cleaner waterways. Several areas have shown decreasing levels of nutrients and sediment since statewide water monitoring began in 1999. This has fostered better conditions for underwater grasses and has led to the highest bay grass acreage ever recorded this past year.

Furthermore, under Gov. Larry Hogan the Chesapeake and Atlantic Coastal Bays Trust Fund has been fully funded for the first time in its history, giving us all reason to believe that our positive gains will continue.

We know that we've been entrusted with our state's precious natural resources. We appreciate the work done and how far we've come and look forward to continuing our careful stewardship well into the next 20 years.

—RANGER ALISON WOODFIELD, MARYLAND PARK SERVICE CUSTOMER SERVICE MANAGER

—CAPT. KELLEY JOHNSON, NATURAL RESOURCES POLICE

—STACY SCHAEFER, LAND CONSERVATION ASSOCIATE DIRECTOR

Send YOUR questions for our experts to access.dnr@maryland.gov

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ASK AN EXPERT



Goose hunter with dog

Someone may be hunting on my property. What can I do? (Randy in Randallstown)

Posting property boundaries in a conspicuous manner makes it illegal for anyone to enter without a landowner's explicit permission. Maryland law allows the use of oil-based, bright blue paint stripes and/or signs to indicate private property. Vertical paint marks at least 2 inches in width and 8 inches in length must be centered at least 3 feet, but no more than 6 feet, from the ground or water surface.

Anyone hunting or trapping on private property anywhere in Maryland **must** get written permission from the property owner. Most hunters are responsible and respect private property, but there may be instances where you need to call the authorities.

Hunting laws are enforced by the Maryland Natural Resources Police. If you think someone is hunting on your property against your wishes, please call 410-260-8888 to report the activity.

—CAPT. KELLEY JOHNSON, NATURAL RESOURCES POLICE

I saw news about adding Rural Legacy acreage. What exactly does that mean? (Mitch in Mitchellville)

Established in 1997, the Rural Legacy Program preserves large, contiguous tracts of productive and valuable agricultural and forested lands that contain exceptional features.

The goal is to save Maryland's rural heritage and working farms and forests through conservation easements. This grassroots program operates through local government and private land trust sponsors, which in turn work with willing property owners in 31 locally-designated areas in every county.

In order to be eligible to sell an easement, a property must be within a designated Rural Legacy Area. A map detailing these properties is available at dnr.maryland.gov/land.

To date, the public-private partnership program has permanently protected 87,811 acres through conservation easements.

A law championed and signed by Gov. Larry Hogan in 2015 increased state funding for critical land conservation, preservation and recreation programs by \$60 million. As a result, the Rural Legacy Program funding saw a boost of 70 percent.



Skiers at Swallow Falls

I'm hoping for a snowy winter! Where can I go cross-country skiing? (Abby in Westminster)

Cross-country skiing trails are available at more than 20 state parks.

One example of a popular and spectacular location for skiers is Herrington Manor State Park in Garrett County. The park offers 10 miles of trails into the adjoining state forest that range from beginning to intermediate levels. There is also a 5.5-mile trail that runs between Herrington Manor and Swallow Falls state parks.

Some parks even provide needed rental equipment, including skis, boots and poles. It's also advisable to check if conditions are right for cross-country skiing.

To find the complete list of state parks where cross-country skiing is available, along with information on conditions, please visit dnr.maryland.gov/publiclands.

—RANGER ALISON WOODFIELD, MARYLAND PARK SERVICE CUSTOMER SERVICE MANAGER



Gunpowder River Rural Legacy Area

The Rural Legacy Board includes Maryland Department of Agriculture Secretary Joseph Bartenfelder, Department of Planning Secretary Wendi Peters and Department of Natural Resources Secretary Mark Belton, who serves as chair.

—STACY SCHAEFER, LAND CONSERVATION ASSOCIATE DIRECTOR

Send YOUR questions for our experts to access.dnr@maryland.gov



GEORGE HURLBURT

Coconut Curry Oyster Soup

Submitted by Tammy Davis

Ingredients

- | | |
|--|-------------------------|
| 1 tsp. canola oil | 2 dozen medium oysters |
| 4 stalks lemongrass | 1 tsp. soy sauce |
| 2 medium shallots | 1½ tsp. sesame oil |
| 2 cloves garlic | 12 oz. sliced mushrooms |
| 2 tsp. chopped ginger | 4 green onions, chopped |
| 2 tsp. prepared red curry paste | Chopped basil |
| 3 tsp. Asian fish sauce (or soy sauce) | Red chilies |
| 6 limes, reserve zest of 3 | |
| 4 cups chicken broth | |
| 2 13.5 oz. cans coconut milk | |
| 2 tsp. brown sugar | |

Instructions

Broth: Finely chop lemongrass, using only the tender white inner portion of each stalk. Chop shallots and finely mince garlic and ginger, and saute in the oil with the red curry paste.

Add chicken broth, reserved oyster liquor, fish sauce, lime juice, brown sugar and coconut milk, and bring to a simmer.

While the broth is cooking, marinate drained oysters in soy sauce and sesame oil. Slice mushrooms into bite-sized pieces.

After 10 minutes, add mushrooms to broth. Cook 3-5 minutes; they should remain firm. Add oysters and marinade, and cook until oyster edges begin to curl.

Serve immediately with chopped green onion, basil, lime zest and chilies as garnish.

Expiration reminder

Attention subscribers! In an effort to be more green, we are no longer sending renewal letters with your final *Maryland Natural Resource* issue. Instead, please look for a stamp on the back cover indicating your subscription status. Purchasing and renewal may still be done online or through the mail.

Please direct questions to Stephen Badger at 410-260-8009 or stephen.badger@maryland.gov.



Favorable weather conditions and increased hunting opportunities in western Maryland enabled hunters to achieve a record harvest in the 2016 black bear hunt with 167 bears reported to mandatory check-in stations.



BRIAN SCHROYER; STEPHEN BADGER

Trail construction; hunters

Coming Soon: Western Maryland Off-Road Vehicle Trail

Last fall, the Board of Public Works approved the construction of several projects within Savage River State Forest, including the development of the state's first modern off-road vehicle trail.

The trail will include the first-ever campsite designed to support off-road vehicle riders. Other features will include single-track hare scramble-style trail sections, technical trail spurs, internal loops, vehicular pull-offs and a full-sized rock crawl area.

The Maryland Department of Natural Resources, which manages state forests and parks, seeks to open 6 miles of improved trails in spring or early summer 2017.

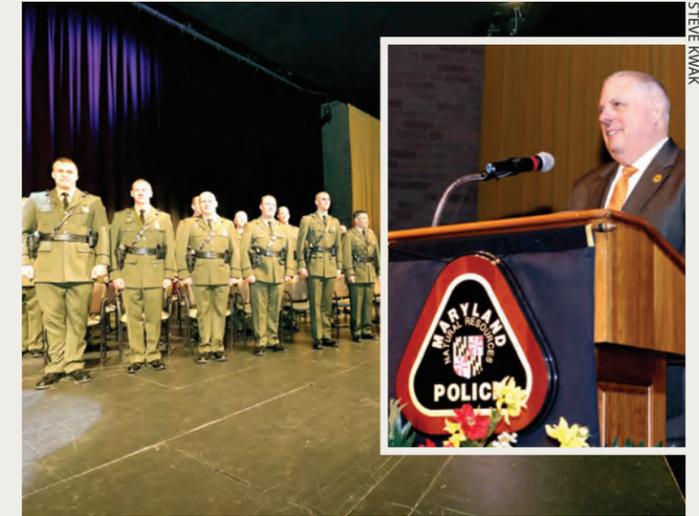
"Improving access to our public lands and resources, and enhancing and promoting outdoor recreation is at the heart of what we do," said Secretary Mark Belton. "Providing an enjoyable and safe area to pursue one's passion in an ecologically-responsible and sustainable manner is in everyone's interest."

The new St. John's Rock Road trail, located near the Allegany-Garrett County line, will complement the state's existing off-road trail system in select areas of Garrett, Potomac and Savage River state forests.

All off-road vehicles must be registered annually with the department and display a current registration sticker, which is available for purchase online, at department service centers or Maryland Forest Service offices.

The Western Maryland Recreational Access and Trail Restoration project is estimated to cost \$1.4 million and is set for completion around May or June 2017 (weather dependent). Part of the funding was provided through the Recreational Trail Program, which is administered by the Maryland Department of Transportation's State Highway Administration.

dnr.maryland.gov/forests



STEVE KWAK

Ceremony; Gov. Hogan speaking

Natural Resources Police Academy Holds Historic Graduation

In November, the Maryland Natural Resources Police Training Academy graduated its newest class of recruits. Friends and family gathered at the John Carroll School in Harford County for the 58th Basic Recruit Class Graduation Ceremony.

With 27 graduates, the class was the largest in department history. Gov. Larry Hogan became the first governor to serve as the ceremony's keynote speaker. Natural Resources Secretary Mark Belton and Superintendent Col. Robert K. "Ken" Ziegler Jr. also gave remarks.

Recruits undergo more than seven months of live-in academy training followed by another 12 weeks of field training with senior patrol officers. The new officers will bolster patrol areas across the state, enforcing fish and game laws, protecting state park visitors, carrying out search-and-rescue missions and acting as Maryland's lead law enforcement agency for maritime homeland security.

Congratulations!

- Nathaniel T. Bradley
- Andrew M. Brayman
- Joseph W. Caw IV
- Antonio D. Colvin
- Andrew T. Cummins
- Liam R. D'Aoust
- McKenzie J. Divelbiss
- Benjamin D. Dorsey
- Jeremy P. Elmore
- Shane W. Falconer
- Jacob M. Gerzak
- Michael R. Greenfield
- Matthew C. Groleau

- Joseph C. Hambrick
- Jason S. Haynes
- Joshua T. Jones
- James E. Major
- Brianna R. McFarland
- Paul W. McMannis
- Nathaniel P. Minnick
- Kyle L. Neitzel
- Eric A. Pike
- Simon G. Roe
- Hector E. Rojas
- Zachary S. Ruark
- Brian D. Walter III
- Kevin J. White

dnr.maryland.gov/nrp

REEL EXPERTS

Celebrating state fishing records



It was nearly noon and bitterly cold on the second day of a new year when the state cell phone, affectionately called the bat phone, indicated an incoming call.

One might ask who would be fishing on a day like this and the answer is simple: Maryland anglers!

The Department of Natural Resources maintains a program to celebrate the state's amazing fisheries resources by recognizing large, trophy-sized game fish species and keeping records based on weight.

A record day

On the other end of that midday January phone call was veteran angler Lee Haile of Towson, who traveled to the Eastern Shore with his son in pursuit of a trophy chain pickerel. Recalling the eight-pound fish's impressive aquatic acrobatics, he had told his crew, "We need to go in—this could be a record." Confirming their suspicion, they managed to catch the largest specimen ever recorded in Maryland history.

Later that same afternoon, a second call came from a charter boat captain in Ocean City. He was on his way back to the dock with a group of anglers from New York and what they believed to be a state record tautog.

At 28.8 pounds, this mighty fish not only broke the state record by more than five pounds; it also became an International Game Fish Association world record. For angler Kenneth Westerfeld, it

was a lifetime achievement. "Ocean City is the best place for big tautog," he said. "The water clarity is good and the offshore wrecks hold some really big fish. I've been fishing hard for over 20 years to catch a 20-pound tog."

TO REPORT A POTENTIAL STATE RECORD CATCH, PLEASE CALL 443-569-1381 OR 410-260-8325 AND COMPLETE THE APPLICATION PROCESS ONLINE AT DNR.MARYLAND.GOV/FISHERIES

Divisional categories

The department has been keeping records of noteworthy fish as a way to celebrate the diverse resources in Maryland for decades, recognizing species from warmouth to blue marlin. The earliest goes back to May 19, 1965, when James Grant caught a chain pickerel weighing 6.8 pounds in the tidal Susquehanna River.

Maryland maintains separate divisions for record fish: Atlantic, Chesapeake and Nontidal. These three categories are for anglers who catch their fish with recreational tackle often referred to as "rod and reel" or "hook and line."

To raise awareness on the threats they pose, the department recently introduced a new Invasive Division for the three species of non-native fish considered detrimental to local ecosystems: blue catfish, flathead catfish and northern snakehead.

Eligible methods extend to bow fishing for this category, and the fish must be killed to prevent their spread.

Emory "Dutch" Baldwin III holds the current northern snakehead record. He caught an 18.42-lb beast on the Potomac River on May 20, 2016.

Confirming a catch

When an angler catches a contender for a possible state record, he or she must contact the department's Fishing and Boating Services unit. The angler must have the fish weighed on a certified scale, and the scale operator must sign the application form for the state record.

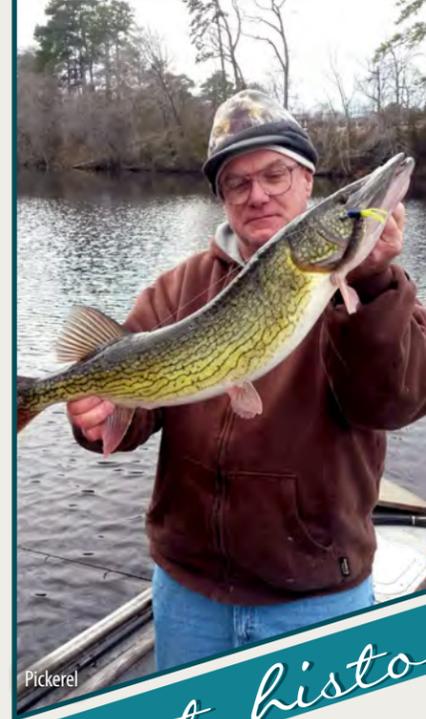
A state biologist then obtains the required paperwork and inspects the fish for correct species identification. The fish is photographed, preferably by both angler and biologist. Once all information is collected and verified, the record becomes official with a plaque and press release for all to marvel.

Many state records reflect success stories for the tireless fisheries biologists that manage the resource. At times, we get to celebrate both the fish and the angler when circumstance just begs for a thrilling tale behind the catch. All fishermen love a good story, and sometimes the big one does not get away. ■

dnr.maryland.gov/fisheries

Keith Lockwood is a recreational fisheries biologist and **Erik Zlokovitz** is the public outreach coordinator with the department's Fishing and Boating Services.

By Keith Lockwood and Erik Zlokovitz



Pickerel



Tautog



Snakehead

DEPARTMENT PHOTOS

Recent history: an impressive two years!



CHAIN PICKEREL, NONTIDAL
8 POUNDS

Lee Haile of Towson
Jan. 2, 2015, Eastern Shore



COBIA, ATLANTIC
94.6 POUNDS

Emma Zajdel of Ocean City
June 30, 2016, Little Gull Shoals



NORTHERN SNAKEHEAD, INVASIVE
18.42 POUNDS

Emory "Dutch" Baldwin of Indian Head
May 20, 2016, Potomac River

SNAKEHEAD, INVASIVE
17.47 POUNDS

Todd Murphy of Marbury
Aug. 8, 2015, Mattawoman Creek



TAUTOG, ATLANTIC
28.8 POUNDS

Kenneth Westerfeld of College Point, NY
Jan. 2, 2015, Ocean City



WHITE PERCH, ATLANTIC
1.65 POUNDS

Ryan Timmons of Berlin
July 30, 2016, Ayers Creek

WHITE PERCH, ATLANTIC
1.2 POUNDS

Finn MacCabe of Berlin
Nov. 17, 2015, Ayers Creek

WHITE PERCH, NONTIDAL
1.74 POUNDS

James Stairs of Bel Air
Aug. 2, 2016, Loch Raven Reservoir



WINTER FLOUNDER, ATLANTIC
5.2 POUNDS

Kevin Twilley of Salisbury
June 23, 2015, Ocean City



Cobia

Already an avid angler at age nine, Emma Zajdel loves fishing with her dad, Ed, and best friend, Ashton. Last June, they set out from the Ocean City Inlet to fish offshore.

No angler likes to return to port skunked, but impending weather offshore forced their return. On their way in, they thought they saw some bluefish chasing bait about 2 miles off Assateague Island and decided to, "At least catch a blue."

Emma and crew decided to troll through the feeding fish, and something immediately struck the bait. Everyone on board knew something was not right; this bluefish was taking off like a submarine at full speed! Emma settled in for a tug of war while her dad skillfully maneuvered the boat to lessen the chance of losing the fish. As the battle wore on and the fish came closer, they started to think that this bluefish was actually a shark.

At that point, Emma figured they'd play out this fight until it could be released. The fish was finally pulled to the side of the boat when Ed realized this was not a shark, but the largest cobia he had ever seen! After a brief struggle to get the fish into the boat, everyone stared in disbelief.

On official certified scales, Emma's cobia weighed 94.6 pounds and far surpassed the existing state record. Quite a feat for a 9-year-old girl who only weighed 65 pounds herself!

In Charles County—only an hour drive from the nation's capital—is a place unlike any other in the country. Emergent at low tide, the withering remains of more than 100 World War I steamships rest in a shallow embayment on the Maryland side of the Potomac River: the Ghost Fleet of Mallows Bay.

Most of these ship hulls have been resting in and around the bay since the late 1920s. In the decades since, nature has taken its course and absorbed the ships into the overall ecosystem, creating a unique ecological setting for bald eagles, osprey, great blue heron, and dozens of recreationally and commercially important fish.

Along the shoreline, 12,000-year-old archeological artifacts have been found indicating some of the region's earliest American Indian cultures. The historical significance of this unique area was enough to warrant its listing on the National Register of Historic Places in 2015 and has placed Mallows Bay in the running to become Maryland's first national marine sanctuary.

The ships are coming

In April 1917 when America entered World War I, President Woodrow Wilson called for the building of a thousand ships in 18 months to transport supplies across the Atlantic Ocean. This mobilization by the U.S. Shipping Board and Emergency

Fleet Corporation quickly made the United States one of the greatest shipbuilding nations in the world. The war, however, ended just over one year later, and many of the ships never embarked on the treacherous journey across the sea.

By war's end only 290 ships were built, and within a decade nearly all of them were out of operation and abandoned. Between 1922 and 1925, the Western Marine and Salvage Company purchased about 230 vessels and moved them to the Potomac to strip them of engine, boiler, propulsion and other valuables. Composed mostly of wood, the non-valuable remains were burned and moved to Mallows Bay, where many still lie.

Why a sanctuary?

In June 2014, the National Oceanic and Atmospheric Administration—the federal agency with authority to designate an area as a sanctuary—asked the public to generate significant community support and nominate areas for national marine sanctuary status.

This was the first time in 20 years that the door was open to protect unique ecological and historical resources by granting them sanctuary status.

Recognizing that these visible pieces of our maritime history were concentrated so close to the nation's capital, several indi-

Visit nominate.noaa.gov for more information about the National Marine Sanctuary Program and nomination process.

viduals and community groups partnered with the Maryland Department of Natural Resources, Maryland Historical Trust and Charles County to submit a nomination for Mallows Bay.

The Mallows Bay-Potomac River National Marine Sanctuary nomination was submitted in September 2014 and included letters of support from more than 60 community organizations and individuals. Four months later, the administration announced it would add the area to the inventory of eligible nominations, which kick-started a multi-year public process that will determine whether or not to actually designate the area as a sanctuary.

Status of the designation

In November 2015, the National Oceanic and Atmospheric Administration held public meetings to explain the designation process, where they asked the public for input on potential boundaries, resources that should be protected, challenges to consider and any other information that should be included in the analysis.

Throughout 2016, the department participated on an inter-governmental com-



Growth out of sunken ships

mittee that has been vigorously analyzing alternatives and preparing draft designation documents, including a draft management plan, draft environmental impact statement, proposed regulations and proposed boundaries for the sanctuary.

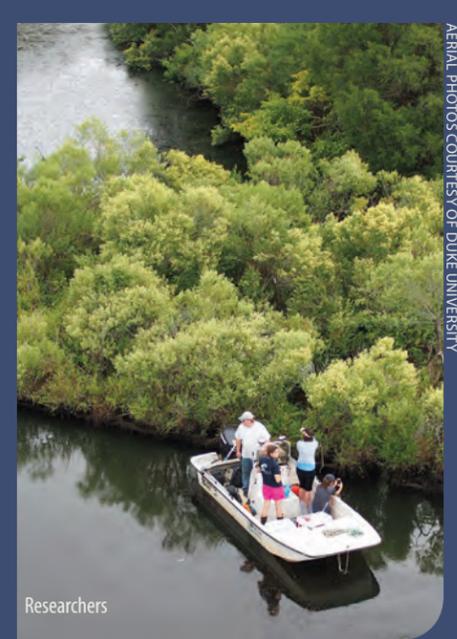
Up next is public review of those documents, which is anticipated in 2017. Partners will collect further public input, and the committee will work to incorporate those recommendations before designation occurs.

If designated, the federal government, State of Maryland and Charles County will manage the sanctuary jointly.

The original coalition of organizations and individuals at local, state and federal levels that supported the nomination—including elected officials, local businesses, American Indians, museums and universities, as well as environmental, recreation, conservation, fishing, tourism, and education groups—will continue to help mold the vision for the sanctuary and ensure effective protection and management moving forward. ■

dnr.maryland.gov/ccs

Kimberly Hernandez is a coastal planner with the department's Chesapeake and Coastal Service.



Researchers

Enhancing recreation, tourism, education and research

The Department of Natural Resources is dedicated to this effort because of the opportunities to expand public access, enhance recreation and tourism, and promote education and research. The simple act of nominating Mallows Bay as a sanctuary has ignited immense interest in the area.

Charles County elementary and high school groups have begun to use Mallows Bay for immersive field excursions, several trash cleanup events have taken place, there have been an increase in paddlers coming to experience the ships and wildlife, and several universities and organizations have sought partnerships to study the unique ecosystem.

For example, in September 2016 researchers from Marine Robotics and Remote Sensing at Duke University used fixed wing drones to collect ultra-high resolution imagery of the ecological and shipwreck features of Mallows Bay. Researchers from Syracuse University and the University of North Carolina Institute of Marine Sciences were also on board to locate submerged aquatic vegetation beds and sample vegetation and sediments.

These data will provide a baseline to monitor changes to the area over time. This first-ever in-depth aerial survey of Mallows Bay demonstrates how the national marine sanctuary designation process continues to inspire new research and education partnerships.



Submerged ship

THE GHOST FLEET OF MALLOWS BAY

America's next National Marine Sanctuary?

By Kimberly Hernandez



STEPHEN SCHATZ

As a border slave state that remained loyal to the Union, the State of Maryland played a key role in the American Civil War, one of our nation's most important and bloody conflicts.

The Old Line State saw many of the same political and social conflicts over

slavery, secession and states' rights that played out on the national stage.

The war itself also spilled into Maryland—most notably during the Confederate invasions in 1862, 1863 and 1864. In fact, it was the Battle of Antietam that transformed the most violent conflict on

American soil into a war about freedom for all Americans.

Not surprisingly, there are many federal, state, local and privately-maintained Civil War-related sites in Maryland. Most of the state-owned sites are found within our network of 72 state parks.

CHRONICLES OF THE FREEDOM WAR

A look at Civil War sites within state parks By Robert Bailey

South Mountain State Battlefield

The Battle of South Mountain was a key turning point in the Maryland Campaign: a failed Confederate invasion of the North in 1862.

Riding high on a string of victories, Confederate General Robert E. Lee's Army of Northern Virginia invaded Maryland in September. He hoped a victory on Northern soil might weaken the North's resolve and help secure Southern independence. But a copy of Lee's battle plans fell into enemy hands. Union General George B. McClellan learned that Lee had moved his army west of South Mountain, divided it, and left only a few regiments to guard the mountain passes.

Fought on Sept. 14, the Battle of South Mountain occurred in a series of engagements that slowed (but did not stop) the Union charge. The Confederates bought time for Lee to reassemble his army. The fighting on South Mountain, especially in Fox's Gap, was fierce. In all, 768 men lost their lives and 3,367 were wounded.

After the horrifically bloody Battle of Antietam, fought three days later, Lee was forced to retreat to Virginia. His retreat gave President Abraham Lincoln the opportunity to issue the Emancipation Proclamation—a major step that helped lead to the abolishment of slavery in the United States.

The South Mountain Battlefield museums are located at Washington Monument and Gathland state parks. Battlefield staff regularly host walking tours and living history demonstrations throughout the spring, summer and fall. The grounds are a mixture of federal (Appalachian Trail), state and private lands. Visitors are encouraged to contact the park before exploring the battlefield and to respect private property.

Point Lookout State Park

Situated on a narrow peninsula where the Potomac River empties into the Chesapeake Bay, Point Lookout was the site of a 40-acre prisoner of war camp that housed up to 52,264 Confederate prisoners of war from 1863 to 1865.

Union authorities established Hammond General Hospital there during the Peninsular Campaign of 1862. After the Battle of Gettysburg in July 1863, however, the federal government began incarcerating Confederate prisoners north of the hospital grounds at the newly constructed Camp Hoffman. Due in part to disease, poor water, an insufficient food supply and inadequate shelter, more than 4,000 captives perished by the war's end.



Artillery detachment staff at South Mountain

TAMMY MCGORKLE



Point Lookout

XAVIER PRINES

Among the federal army units who served as guards at Point Lookout were members of the United States Colored Troops. In a twist of fate, some of these soldiers guarded their former masters.

Scant traces of the prison camp now survive. Most of it is under the bay, but a section of the wall has been reconstructed. An earthen Civil War fort also has been preserved along with the reconstruction of the enlisted men's barracks, officers' quarters and guardhouse. A federally-administered cemetery is located north of the park, which also includes a memorial erected by the State of Maryland.

The Point Lookout visitor center features exhibits on the prison camp and hospital and offers other educational programs for visitors of all ages. The park sponsors historic programs and demonstrations throughout the year and hosts several annual festivals, including Blue and Gray Days.

Patapsco Valley State Park

The Thomas Viaduct—a stone-arched railroad bridge crossing the Patapsco River—proved crucial to the Union's effort to keep its armies supplied and to protect Washington D.C.

The viaduct made up the first leg of the Baltimore & Ohio Railroad's Washington Branch, which in 1861 was the only line connecting the federal capital with the rest of the Union.

On April 20, 1861, pro-Southern partisans destroyed rail bridges north and east of Baltimore.

To ensure that the Thomas Viaduct did not meet the same fate, a small Union force under the command of Brigadier General Benjamin F. Butler occupied the bridge and nearby Relay Junction in May 1861. Later in the war, three fortifications were built near the bridge to protect it from saboteurs and invading armies.

The circa-1835 railroad bridge is one of the nation's oldest. It is still used by CSX and MARC trains and is best viewed from the valley floor along the park's Avalon Area entrance. Locations of the various fortifications surrounding the bridge are on private property and should not be approached without consent.

Fort Frederick State Park

Known more for its role in the French and Indian War, Fort Frederick's stone fort also played a minor part in Union efforts to protect both the Chesapeake & Ohio Canal and the Baltimore & Ohio Railroad—both vital supply and transportation links for Union troops in the eastern theatre.

On Dec. 18, 1861, a federal company occupied the long-abandoned fort. These troops fought several skirmishes with Confederate raiders over the next month. Few details of these engagements remain. It is known, however that the Union successfully defended the canal and Confederates destroyed a section of the railroad. Federal troops abandoned the fort in late February 1862 but remained in the area for the remainder of the war.

Coincidentally, just before the war, a local free black farmer, Nathan Williams, had purchased the property. The Williams family farmed the land until they sold it to the state in 1922.

The park houses a few Civil War artifacts and hosts an annual Civil War living history weekend—usually in October.

Additional public sites

Several other state parks host notable Civil War-related sites as well, including Cunningham Falls (Catoctin Furnace), Chapman (Mount Aventine Mansion), Gunpowder Falls (Jerusalem Mill and Monkton Station) and Susquehanna (Rock Run Historic Area).

Jerusalem Mill hosts a Civil War event every summer—usually noting Confederate Colonel Harry Gilmer's Raid of 1864. A new state park in Dorchester County at Church Creek, dedicated to commemorating the story of Harriet Tubman, is scheduled to open in March. ■

dnr.maryland.gov/publiclands

Robert Bailey formerly worked as a historian with Maryland Park Service and is now the assistant manager at Palmer, Rocks and Susquehanna state parks.



Thomas Viaduct at Patapsco Valley

THOMAS SCLIPOTTI



Reenactors at Fort Frederick

DEPARTMENT PHOTO



Fort Frederick

DEPARTMENT PHOTO



Harry Gilmer's Raid reenactors

JOSHUA ELLER



Tubman reenactors at future park site

LORI LIVINGSTON

Animal Tracks

Identifying tracks in the snow

By Dorie Coleman



When visitors think of Maryland, they tend to picture a small state split by the Chesapeake Bay with mountains to the left and flat marshes to the right. They may also imagine a densely-populated state smack dab in the middle of the great Northeast Corridor, home to the urbanized belt running between Baltimore and Washington, D.C.—not necessarily an environment favorable to the wanderings of wildlife. But if you venture out on a cold winter's day and set out on a course just beyond the back fences of suburban backyards, you are likely to find evidence of some of the state's quieter residents without much effort at all, especially if the ground is covered in snow.

While home to 6 million people, wild animals of many shapes and sizes live among us, right under our noses. So you don't have to go far to find animals in action. And I'm betting you're just a little curious to know who and what has been on the move in your neighborhood while you weren't looking. From tiny mice, moles and voles all the way up to deer and bears, Maryland's native animal species each leave telltale signs behind.

Getting started

Let's start with some basic tracking principles. A print is a single foot while a track more commonly refers to a series of prints that reveal the animal's size and gait.

Perfect prints are rarely found and they can be deceptive, especially when there is deep or melting snow involved. With this in mind, look at the nature of the impression: Are there claw marks? How about pads and toes, and how many of each? What is the distance between prints?

Next, step back and assess your surroundings: What types of habitats are nearby? Is the animal

headed toward a wood line or a waterway? Is the terrain rutted with burrows or ditches? What species are you pretty certain live in your area?

Working outward from your own front door, start with your domestic animal pet types: dogs and cats. If you're a pet owner, the first tracks you spot are likely theirs. Both feature four toes and prominent heel pads. While easy to confuse, the most obvious distinguishing feature is that cats do not show claw imprints while dogs and foxes usually do show toenail marks.

In fact, felines are among the only mammals that do not leave claw marks, as they always retract their claws while walking. Domestic cats can be found everywhere, even in places surprisingly far from people. They also tend to direct register, meaning their hind feet land in the front tracks when moving in snow, helping them conserve energy. Domesticated dogs do not register and their tracks often wander irregularly as they pick up random scents. A dog's triangular heel pads tend to be fairly small (about the size of three of their toes) while cat's heel pads tend to be larger (about the size of four toes).

Compact critters

You may find prints featuring a different number of toes on front and back paws. Small prints usually belong to squirrels and chipmunks, while very small prints are almost always mice or voles. Slightly larger but similar prints belong to groundhogs.

Rabbits and squirrels make a clump of four tracks in the snow, a space, then another clump of tracks. The large tracks are the hind feet, the small are the front. They are two of the most commonly seen after snowfall and feature 1 foot slightly ahead of the other. Rabbits have small, round toes and fur-covered feet, whereas squirrels have long fingers. In squirrel tracks, you may



CHRISTINE BOLTZ



EASTERN GREY SQUIRREL



DIANNE FARLEY



COTTONTAIL RABBIT



MELISSA MCCENEL



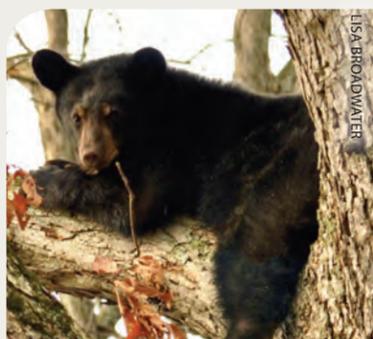
AMERICAN BEAVER



LORRI BRAMBLE



WHITE-TAILED DEER



LISA BROADWATER



BLACK BEAR



Tracks photos courtesy of Virginia State Parks and the U.S. Fish & Wildlife Service

see the individual toes and they often end at the base of a tree. Both of these animals are hoppers, and the front feet go down and the larger hind hop over the front. This is known as the bounding pattern, and each group of four tracks tends to form a long, thin rectangle. Squirrels have a wide and blocky bounding pattern when compared to rabbits.

Beyond the backyard

When venturing near neighborhood creeks and streams you are likely to find evidence of walkers. (No, not zombies.) Animals with five toes come in a variety of sizes. Small prints are almost always shrews or weasels. Medium-sized (2- to 4-inch) prints may be beavers, opossums, otters or raccoons. Five-toed prints larger than 5-6 inches likely belong to bears—commonplace in western Maryland. (While commonly believed all bears hibernate throughout the winter, in truth they do move around within their home territories.)

Strolling along the water's edge, you may find the front footprints of raccoons, resembling those of tiny human hands. Opossums similarly have five bony fingers spread very widely. Thumb-like big toes on their hind feet leave unique prints unlike that of any other mammal in Maryland.

Other animals active in these low, wet areas include beaver, muskrat and if you're lucky, otter. Beavers have large, webbed-hind feet that leave unmistakable prints. Of course, if you are in an area frequented by beavers, you are bound to see other recognizable signs such as chewed trees. The narrow hind foot of muskrats helps distinguish their prints. Otter tracks consist of five toes, claws and a C-shaped palm pad. However, sometimes only four toes show. You may also see evidence of otter slides, their preferred method of movement in the snow.

Anywhere in Maryland, you are more than likely going to see deer tracks. Normally easy to identify, deer make two heart-shaped, near-symmetrical prints, sometimes rounded and sometimes tapered. However, since they register, their hind feet tend to step on top of their front tracks leaving distorted and confusing marks. Hoof tracks are easy to see when the snow is packed. In deep snow, they are more spread out and marks from dewclaws are visible in the backs of the tracks.

Keep watch

As our small state continues to welcome an expanding population of wildlife to its charms and possibilities, residential growth will ensure that more and more of us will be living among both wild and not-so-wild animals.

Enjoy the fact that these four-legged residents are quietly moving among us. So at the next crisp, winter day with a picturesque blanket of snow, head on outside (shoveling can wait) to follow their comings and goings. ■

dnr.maryland.gov/wildlife

Dorie Coleman is the office manager at Tuckahoe State Park.

White-tailed deer

another perspective

by Jonathan McKnight

In the spring and summer, hikers with a discerning eye will observe in many of Maryland's forests a visual band of grey extending from the ground to about five feet high. Virtually every bud and leaf within reach has been consumed. DNR land managers call this the "browse line." What it represents is an ecosystem out of balance; the result of damage from too many deer in the forest.

Unless deer numbers are reduced, particularly in Maryland's suburban public land areas, these forests will ultimately be changed into a "grazed woodland," a forest without understory plants that support a diversity of life.

From a conservationist's perspective, this is the most compelling reason for

reducing Maryland's white-tailed deer population in many areas of the state.

An historical perspective

It is estimated that there are about twice the number of white-tailed deer in eastern North America as there were before the introduction of European agriculture. This is surprising, because

roughly 100 years ago, deer were nearly vanished from this region due to unregulated hunting. The enormous numbers of deer we have today — 300,000 in Maryland — are the product of a 20th century population recovery.

The white-tailed deer population has made this remarkable comeback largely because they are animals of the forest edge. Prior to large-scale agriculture, there were simply fewer places where deer could thrive.

Today, in Maryland's modern landscape, much of our deep forest interior has been replaced by landscaping, fields and hedgerows, which actually offer more food — bushes, weeds, grasses — and shelter to white-tailed deer. The enormous trees that characterized the old-growth forest shaded out the understory growth that deer prefer to feed upon. Furthermore, today's modified landscape offers no natural predators to deer populations, such as the grey wolf and mountain lion, which were eliminated from Maryland long ago.

Deer in a natural ecosystem

White-tailed deer have long been an important component of the Eastern North American landscape, evolving with all the other native plants and animals that make this region unique and beautiful. In a natural ecosystem, deer feed on a wide variety of available plants, and in turn fall prey to larger predators like bears, wolves and cougars. Their populations

fluctuate from year to year, affected by changing rainfall and temperature, gradual climate alterations and other long-term cycles of the forest.

During periods when the amount of food becomes extremely low, as the result of drought or an exceptionally cold winter, the deer population adjusts through starvation. Population expansions and contractions occur in a complex rhythm with predators and food sources that can last 100 years or more between rise and fall.

Through all of these changes, a kind of moving equilibrium is established among all species in the forest. When the factors that maintain that equilibrium are altered — as they have been in modern times by the clearing of forest for houses, businesses, farms and roads — that balance is lost. And while many forest animals and plants cannot survive in the altered landscapes, disappearing from all but the most remote areas, others survive and even thrive. Clearly, one of the champions among these adaptive species has been white-tailed deer.

Native flora and fauna threatened

Dense populations of deer are particularly damaging to native herbaceous plant species, such as Maryland's orchids and lilies, many of which are among our declining and rare species. These plants were always eaten by deer in wild ecosystems. However, because deer populations were lower, individual plants al-

ways had a good chance of completing their short growth and reproduction cycles before either dying or becoming a snack to a wandering white-tail. In a landscape with an overabundance of deer, delicate orchids and lilies, and all of the associated plants, insects and fungi that depend upon them, have little chance to escape the ravages of these hungry herbivores.

The threat to the ecosystem from this opportunistic species is intensifying. Not only are deer predictably ravaging the preserves and parks sandwiched in our suburban areas, damage is even extending to the state's few remaining truly natural areas. Maryland's forgotten corners, where fragments of our original natural ecosystems survive, are becoming imperiled. Delicate woodland and wetland habitats that have survived for thousands of years as part of the undisturbed forest are now being trampled and devoured by deer.

The ultimate danger that deer pose to these wild places may come from their unwitting alliance with another threat to North America's vanishing native ecosystems: exotic species. Exotic species are plants and animals that have been imported, purposefully or by accident, from foreign countries. Once introduced, these species thrive in the absence of natural predators and out-compete native flora and fauna.

Deer overpopulation increases the threat of exotic species to Maryland's biodiversity. Deer often prefer eating native plants and will ignore the less tasty

exotics, thus allowing the invading plant to overwhelm a grazed habitat. Overused deer trails, which cause soil disturbance, provide another avenue for exotic species — that often prefer disturbed habitat — to become established deep in the woods. And those exotic plants that deer eat in the disturbed areas are later deposited through the deer's scat or from its coat as the animal moves through intact native ecosystems.

Managing the white-tail

Spotting a white-tailed deer leaping gracefully through the woods is an exhilarating experience for hunters and non-hunters alike. The deeply held values and emotions, however, that deer inspire can make managing this valued resident of the forest a tremendous challenge for DNR land managers.

From a conservation perspective, however, it would be irresponsible for DNR to do nothing to reduce deer populations. Understanding that these decisions are often difficult, the Department is placing greater emphasis on community-based planning to develop local deer management strategies. Our goal is to initiate a more open public dialogue that will result in a shared understanding of how we can manage and live in harmony with white-tailed deer, while continuing to enjoy their magical presence in our world. ♦

Jonathan McKnight coordinates all activities of DNR's Wildlife & Heritage Division in the Southern Region.



White-tailed deer

Management today across diverse landscapes

By Brian Eyler

White-tailed deer

Much has happened with deer management in Maryland during the nearly 20 years since *White-tailed deer: Another perspective* first appeared in the *Natural Resource* magazine. At the time the article was written, deer were rapidly increasing in number and the problems associated with overpopulation were escalating.

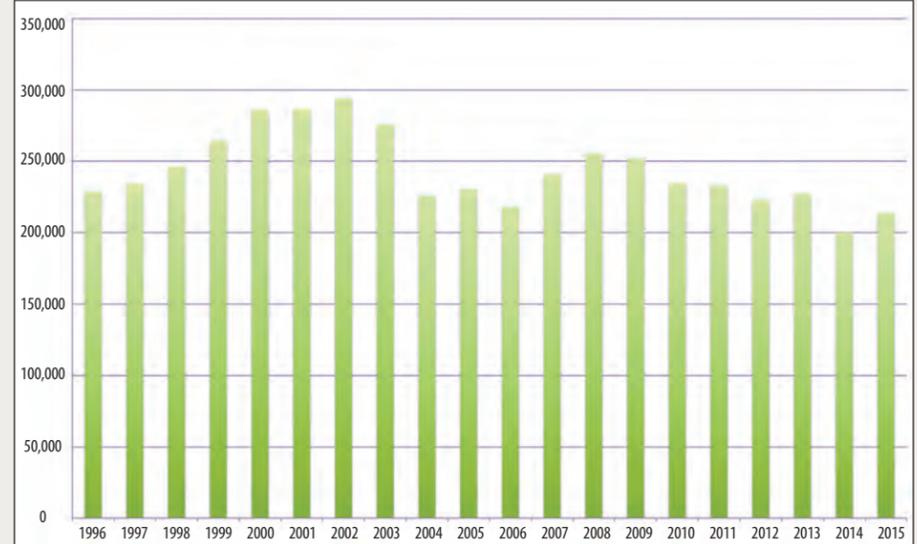
The first 10-Year Deer Management Plan was adopted in 1998, establishing the framework for how the Department of Natural Resources would approach the task in a state as diverse as Maryland. One step was the significant liberalization of the

hunting seasons and bag limits, particularly for females, since they influence population numbers the greatest. This effectively stalled growth in the early 2000s, and numbers declined by 30 percent thereafter.

Today, the herd remains relatively healthy and varies from being at or near desired levels in some rural areas to continuing to be too high in other parts of the state.

Achieving a sustainable population has not been easy and reducing it to a level that eliminates conflicts with both the environment and the public continues to be a challenge in areas where populations are still too high.

POPULATION ESTIMATE



White-tailed deer especially have demonstrated they are very adaptable animals. They thrive in varying urban, suburban and agricultural landscapes. In fact, such areas provide more favorable habitat than the aging forests found in the western part of the state. Many sportsmen who once traveled to Garrett or Allegany counties to hunt now remain closer to home, where deer populations are often higher.

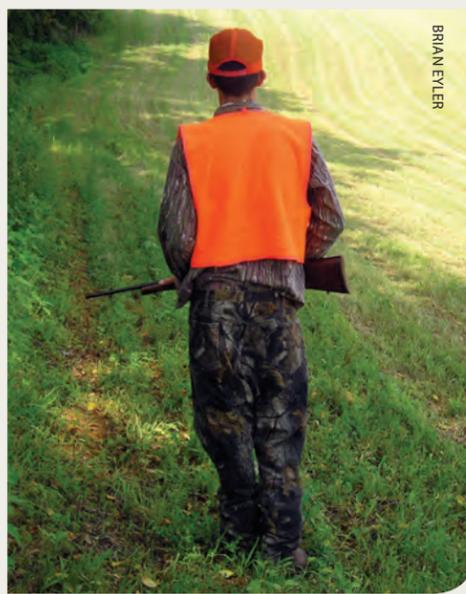
Dwindling hunters

Fewer hunters in the woods and limited access to land give deer a competitive edge. Hunting remains the most effective management tool, and no other method exists that can remove 80,000-100,000 deer from the Maryland landscape annually.

Unfortunately, there are approximately half as many deer hunters now as when they peaked in the late 1980s. While the number of licenses has been relatively stable over the past decade, the level is at a minimum for effective management.

Additionally, most hunters do not harvest nearly as many deer as the bag limits allow, mainly because there are far more deer than they can make use of and other interests and daily responsibilities take away from hunting.

Department staff conducts extensive education and outreach programs designed to recruit new hunters and retain existing ones. A series of beginner classes take



Hunter

place across the state, and the Becoming an Outdoors Woman program offers deer hunting as one of their workshops.

No trespassing

Gaining access to lands that hold deer is even more critical and often more problematic. Suburban growth and restrictive management have created abundant refuge areas for deer where few controls on the population exist. These areas provide a constant supply of deer.

The department employs a full time biologist whose primary duties are to work with these communities on how to best manage the species, which often includes trying to identify refuge areas and opening them to some form of limited hunting.

Unfortunately, current hunts, particularly on private lands, do not reach a great enough intensity to effectively control deer numbers in all areas. Many could use more hunters on more days, willing to take more deer.

Regarding hunts on public lands controlled by the state, efforts include further extending seasons, increasing bag limits and promoting public access.

Likewise, counties such as Anne Arundel, Howard and Montgomery have made great strides in developing successful man-

agement programs on the public properties they own.

Opportunities

Providing additional hunting opportunities, primarily in the form of Sunday hunting and the use of crossbows, has also proven effective in aiding with population control.

Many hunters only have the weekends to hunt, and affording them the opportunity to deer hunt on select Sundays essentially doubles their chances.

Likewise, crossbows entice new hunters into the archery season and revive archery hunting for those aging hunters no longer able to use a vertical bow.

Nonlethal management

While the department relies heavily on lethal management techniques to control deer numbers, nonlethal measures are occasionally recommended when hunting is not an option. In some instances, fencing of smaller areas can be effective, as can be audio or chemical deterrents. Nonlethal

options are most effective on small scales, and can require significant effort and resources. In most cases, they also do not fully solve the problem, but instead drive deer to another location.

The department continues to support extensive research on deer contraception and sterilization, in both tightly controlled and real-world situations.

It is likely that these techniques will be most useful on smaller scales, perhaps when combined with lethal management. The goal remains to find ways to address the population in more developed landscapes.

Turning the corner

The past 20 years have seen an aggressive approach to managing deer in Maryland, and while they are still very abundant in many areas, there are encouraging signs of progress.

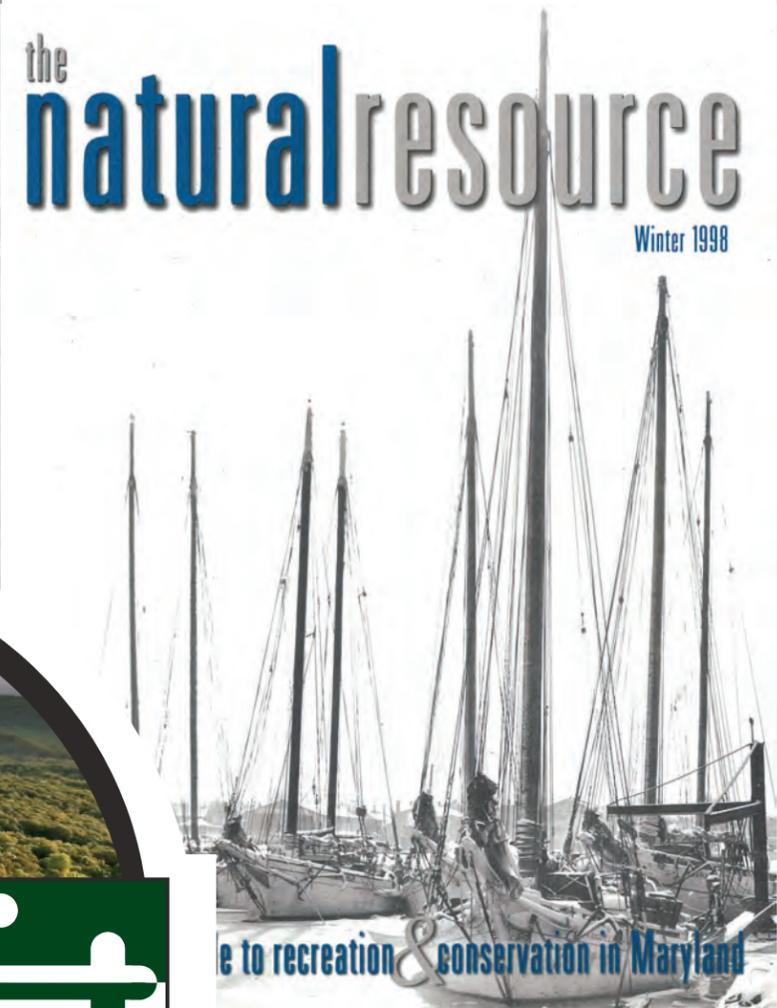
The annual deer harvest has slowed significantly in recent years, and survey data suggest hunters are expending more effort to harvest the same number of animals. Both indicate the population has been measurably reduced.

The department will continue to manage deer closely and modify its approach as needed. While we aren't out of the woods just yet, the next 20 years

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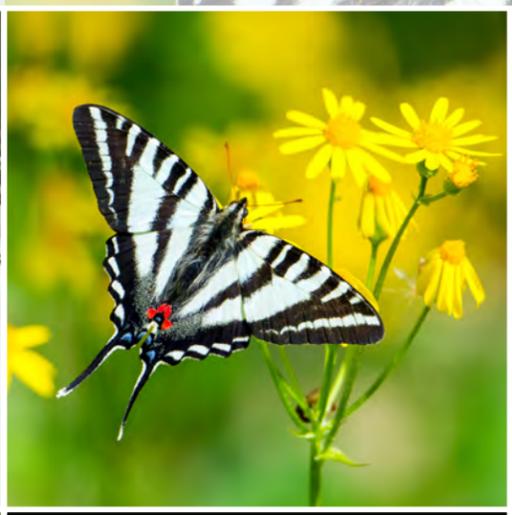
Brian Eyler is the deer project leader with the department's Wildlife and Heritage Service.





2016 PHOTO CONTEST winners

20 YEARS of conservation & recreation



ON THE COVER

Then & Now: A look back at the past 20 years

IN THIS ISSUE...

- Photo contest results
- Historic sites
- State fishing records



FIRST PLACE *Robin in Holly Tree*
by Chris Edwards in Annapolis

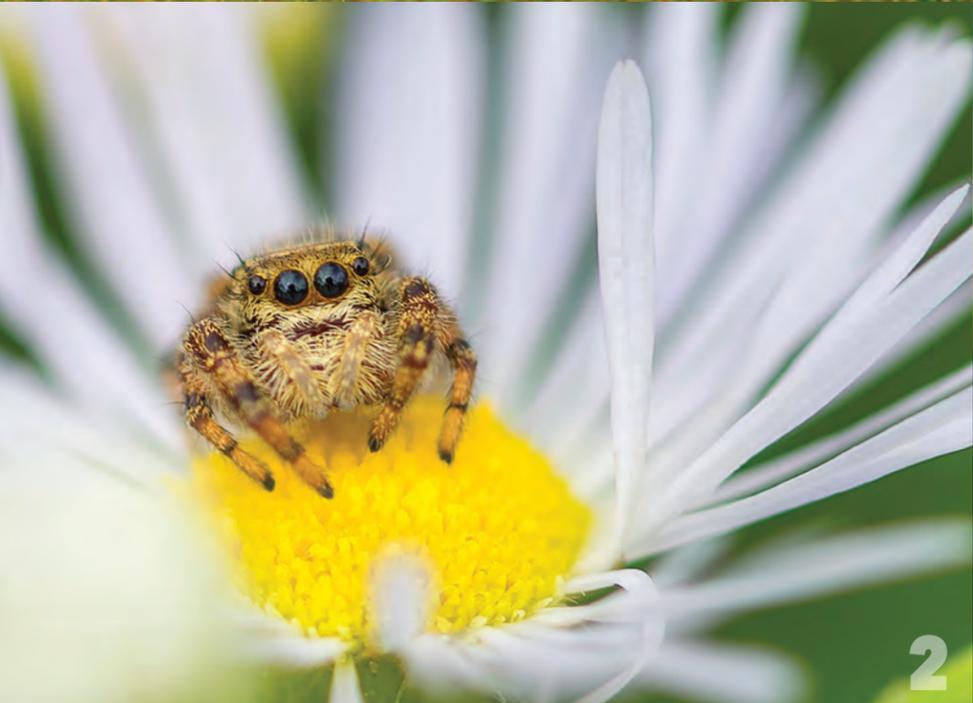
SECOND PLACE *In the Mist*
by Cindy Stegle in Frederick

THIRD PLACE *Casselman River Bridge*
by Katie Mosteller in Grantsville

FIRST PLACE *Colors of Spring*
by Tim Ray at Great Falls

SECOND PLACE *Royal Guard*
by Duane Tucker in Columbia

THIRD PLACE *Bloodroot*
by Martha Johnston in Baltimore



FIRST PLACE AND GRAND PRIZE WINNER
Snowy Egrets Sparring
by Mitch Adolph at Assateague State Park

SECOND PLACE *Jumping Spider on Fleabane*
by Larry Helms in Adamstown

THIRD PLACE *Brown Pelican Chicks in Nest*
by Mitch Adolph on the Chesapeake Bay

FIRST PLACE *Blue on a Lid*
by Joe Subolefsky on the Chester River

SECOND PLACE *Morning Requiem*
by Santosh Shanmuga in Cambridge

THIRD PLACE *Fall in Western Maryland*
by Pamela Brumbley in Oakland



FAN FAVORITE Bald Eagle with Shad by Stephen Hayes at Conowingo Dam

A NOTE...

Each year, it seems, our contest grows bigger and better. We considered more than 1,400 photos submitted by nearly 245 talented photographers in 2016.

With a fresh approach, we selected first, second and third place winners according to season rather than the subject matter of our traditional categories: birds, flora, insects, nature in action, outdoor recreation, scenic landscapes and wildlife. While the decisions were difficult and carefully made, we hope you agree that the selected images are nothing short of stunning!

We also left one choice up to our loyal Facebook followers @MarylandDNR. For the second year in a row, the image you see above gained the close-majority of "likes."

Stay tuned for details regarding the 2017 contest, and in the meantime, keep capturing Maryland's spectacular natural beauty!

—LAUREN MITCHELL
CONTEST MANAGER

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FROM THE FIELD

By Anna Lucente-Hoffmann



Powell Hatchery



**MARSHALL BROWN
COLD WATER PRODUCTION MANAGER**

He's an angler, hunter and general outdoorsman but for a living, he raises babies—baby fish that is. Marshall Brown and his team care for hundreds of thousands of trout each and every year in the state's hatcheries, where eggs are raised through adulthood in order to stock waters throughout Maryland. Without stocking, some fish species might become depleted while others may not be able to thrive due to seasonal temperature variations.

Brown's work cycle starts anew every fall, when multitudes of tiny eggs are delivered from Montana, Tennessee, Washington state and many others to his hatcheries: Bear Creek, Cushwalls, Mettiki and Powell. His first task is to disinfect the eggs and set them up in incubators, where they take 7-10 days to hatch. For a sense of perspective, more than 500,000 eggs hatch annually just at Powell!

After three weeks, they're moved into circular hatch trays, where they start swimming and eating independently. This is

the truly crucial time, just like caring for babies. Brown and his colleagues check water quality samples and feed them a special formula of fishmeal: a precise mix of proteins, fats, vitamins and minerals. By minimizing stress, the team hopes to keep the babies healthy so they can grow into full-size robust fish.

Though it doesn't happen often, sometimes the little ones don't make it to adulthood. The worst loss Brown remembers occurred in 1996, when significant precipitation—including 2 feet of snow followed by a quick melt—caused major flooding at the Powell Hatchery. He recalls scores of tiny fish either lying dead in the grass or being washed away into nearby Beaver Creek, where they were likely eaten by bigger fish. "It was just so disheartening," Brown says, "to have given them so much care and to have them all lost by a force of nature."

Usually, however, most of the fingerlings in his care grow into vigorous adults, ready for placement in streams and lakes

throughout the state, which aids recreational fishing and boosts local economies through tourism. The state typically stocks about 400,000 brown and golden trout every spring and fall. Happy to do just that, Brown remarks, "We do this for [the anglers]. They buy their fish stamps, we want to supply the best fish we can. That's where we get our satisfaction. Providing excellent customer service is our reward."

Brown began his career 27 years ago at the warm water Unicorn Lake Hatchery as a fisheries technician. He later transferred to Powell, was promoted to facility manager and worked his way up to his current position managing the state's cold water fish production.

Brown and his wife have four children and two grandchildren. They live just north of Hancock. ■

dnr.maryland.gov/fisheries

Anna Lucente-Hoffmann is the department's senior communications manager.



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Thank goodness for the first snow. It is a reminder — no matter how old you become and how much you see, things can still be new if you are willing to believe they still matter.

-CANDACE BUSHNELL