

D V E A

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WILDLIFE AND THE ENVIRONMENT

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*The Delaware Valley Eagle Alliance*

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## DISCOVERING NATURE



**THE ELUSIVE GREAT GREY**  
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*The Delaware Valley Eagle Alliance*





*When Henry arrived at the sanctuary in 2009, he preferred to spend time alone. While he still likes climbing high and checking out the view, he's now doing very well in his group with Sarah Anne and Donovan.*

*© Photograph provided by Chimp Haven*

## A LIFE AT SANCTUARY

### Effort To Retire Chimpanzees From Research Continues

by Rana Smith

*President and Chief Executive Officer / Chimp Haven*

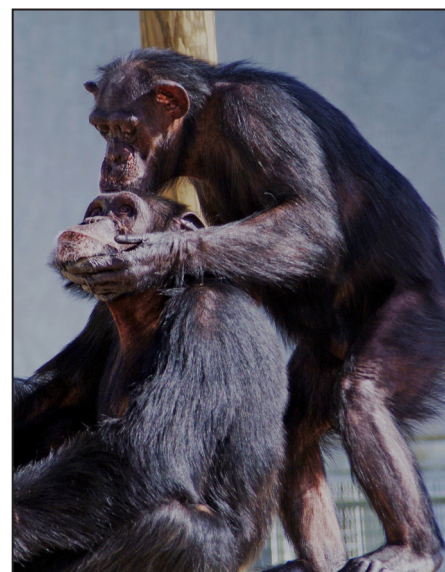
When Henry first came to Chimp Haven in 2009, he didn't know what to think of his new chimp friends. Kept as a pet in a garage for more than 15 years, Henry had never experienced life with other chimps. Rain or shine, he would climb up to the high platforms in his enclosure and gaze out all around him, choosing to spend much of his time alone. During this time, Chimp Haven's oldest resident, Sarah Anne, seemed to sense that Henry needed some kindness. At 59 years old, Sarah Anne doesn't always have much patience for the other chimps in her group, but when staff made the morning breakfast rounds, Sarah Anne would collect food and make the climb up to the structure where Henry sat, making sure he got his share.

Today, Henry has settled in to his new life, thanks in large part to the

guidance and understanding of the other chimps in his group at Chimp Haven. Earlier this year Henry was spotted initiating play with his group alpha, Donovan. It was the first-time staff had witnessed Henry initiate a play session with another chimp, and a joyful day for everyone at the sanctuary.

Their endearing "bromance" has continued throughout the year and Henry seems to have finally found his place. His is one of the many remarkable stories that unfold when chimpanzees like Henry, Sarah Anne, and Donovan are introduced to life at Chimp Haven, where everything we do is designed to allow them to live like chimps, complete with the large, rich social groups they would experience in the wild.

As the world's largest chimpanzee



*© Photograph provided by Chimp Haven  
Sarah Anne reassures Henry with a "kiss" on the head.*

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## A LIFE AT SANCTUARY Effort To Retire Chimpanzees From Research Continues



*Sabrina and Ashely arrived at the sanctuary together in 2013 from a research facility in Louisiana. They're close friends, and Sabrina often shows Ashely love by bringing her some of their snacks to share.*

© Photograph provided by Chimp Haven

sanctuary, Chimp Haven is home to more than 260 chimpanzees, most of whom are retired from biomedical research. Although the National Institutes of Health (NIH) ended biomedical research on chimpanzees in 2015, there are still more than 200 chimpanzees in research facilities, waiting for their turn to come to sanctuary. Chimp Haven is committed to working with the federal government and research facilities to transfer the remaining chimpanzees as quickly and safely as possible, but there are currently many challenges in getting them here.

Some research facilities advocate that chimpanzees should retire in place at the research facilities where they currently reside, while another facility has delayed the transport of more than 50 chimps they have deemed too fragile to transport. We feel strongly that all chimps deserve sanctuary retirement and we certainly don't want to leave any behind unnecessarily.

To address this issue, in spring 2018, the NIH established a working group comprised of veterinarians, chimpanzee behaviorists, medical doctors, and other highly regarded professionals to assess the safety of relocating former

research chimpanzees from research facilities to sanctuary. Once they made their recommendations, the NIH received more than 4,000 comments from the public. NIH Director Dr. Francis Collins reviewed these comments and announced the agency's decisions regarding chimpanzee transfer to sanctuary, which you can read / download via links below:

- Dr. Collin's Statement
- Full NIH Working Group Report

Chimp Haven is pleased overall with the NIH's response and decisions related to the working group's recommendations for retiring chimpanzees to the federal sanctuary system. It is our shared goal to retire as many former research chimpanzees to sanctuary as possible, and to do so as expeditiously as possible, always with the chimpanzee's health and welfare as the highest priority. Despite attempts from some research facilities to advocate for retirement in place, the NIH report underscores the importance of retiring all NIH-owned and supported chimpanzees to sanctuary whenever possible.

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## A LIFE AT SANCTUARY Effort To Retire Chimpanzees From Research Continues

We are currently collaborating with the NIH and research facilities in an effort to standardize how all facilities assess and categorize chimpanzee health and behavior when determining whether they are eligible for transfer to sanctuary. We believe using a standardized approach and categorization system across facilities will help increase transparency, minimize bias and make transfer decisions a bit less subjective so that we can provide lifetime sanctuary care to the hundreds of chimpanzees who deserve it.

In 2018, Chimp Haven welcomed 42 chimpanzees to sanctuary and more are scheduled to arrive this year. To that end, we continue to make great progress on a \$20 million-dollar expansion that will help us make space for the chimpanzees remaining in research facilities. Construction is currently underway for three new multi-acre forested habitats where the chimps can climb trees and forage for food, two large open-air corrals with climbing structures that offer incredible views of the sanctuary and surrounding forest, a much-needed commissary for food storage and diet prep, two vet suites that will help keep our chimps healthy and thriving, indoor bedrooms for the chimps, and staff work space. We're midway through the expansion which is slated to be complete in early 2020.

Early last year, when Hope arrived at Chimp Haven from a research facility in New Mexico, she quickly became one of the sanctuary's favorite personalities. Sweet and outgoing with the perfect amount of sass, she's earned a reputation as her group's "official greeter" of new chimps. Each time a new chimp is introduced to her group, Hope waltzes right up and gives them a big hug. Like Sarah Anne did with Henry, she seems to sense that everyone needs a little reassurance sometimes. Time and time again we see personalities and confidence blossom as bonds, friendships, and social ties are formed within groups.

Every time we witness a now-famous "Hope hug," we can't help but imagine what she might be telling the newbie with her big embrace. We like to think she's letting them know they're home, and that it's all going to be okay.



**Chimp Haven** was founded in 1995 to respond to the need for long term chimpanzee care. The need for care extended to those chimpanzees no longer used in biomedical research, the entertainment industry or the pet trade. Located 22 miles southwest of Shreveport, La., in the Eddie D. Jones Nature Park in Keithville, La., Chimp Haven serves as The National Chimpanzee Sanctuary.

For more information: [www.chimphaven.org](http://www.chimphaven.org)



© Photographs provided by Chimp Haven

**TOP:** One of our newer arrivals, Marie, has recently become 59-year-old Sarah Anne's BFF and protector. She (and all of the Chimp Haven staff) treat Sarah Anne like the queen she is! **CENTER:** Hope arrived in 2018 and quickly became one of the sanctuary's favorite personalities. Her unique look is due to alopecia (likely genetic) which she receives extra fluids and ointments for. She's a happy girl who's full of personality. **BOTTOM:** Hope reassures Corney with a hug during group introductions.





*Photograph provided by PEEC*

# SNOW FLEAS

## CONTRIBUTORS TO THE ECOSYSTEM

by George Johnson

*Weekend Workshop Manager / Volunteer Coordinator  
Pocono Environmental Education Center (PEEC)*

As a bug guy, the winter period usually isn't that exciting. All of the really cool and interesting insect friends are either hibernating, dead, or pupating. It's not until the weather warms up that the little critters start emerging, and one of the tell-tell signs that winter is almost over is when we get to see the tiny snow fleas start hopping around.

I know what you're thinking, "SNOW FLEAS! GET THEM OFF! GET THEM OFF!" While they may share the same name, they are not actually related to the horrible biting fleas you can find on dogs and cats. In fact, according to the scientific world, snow fleas aren't technically insects either. They actually fall under a separate category of arthropods known as Springtails because they have a special tail adaptation, called a furcula, which they use to jump and hop around. At first glance however, they got the name snow fleas because of the way they act and look.

Each little flea is only a couple millimeters long and they tend to hop around a lot. To the untrained eye, they do actually look a lot like actual fleas.

Toward the end of winter, they start reappearing and can be found pretty easily if you look closely enough. Against the snow, they tend to stand out and appear to be little specks of black that are jumping around. It also helps that these

guys and girls gather together in gigantic groups, with numbers getting as high as 200,000 individuals! That's a lot of snow fleas. So if you can find one, then chances are you'll find plenty more.

One thing that I get asked about all the time is how they are able to withstand the snow and cold. Most other insects in this region wouldn't last very long under these same conditions, but snow fleas do just fine. Any normal insect would end up freezing.

For snow fleas, however, the answer lies within their miniscule bodies. Snow fleas have developed an amazing adaptation to keep their bodies moving and unfrozen. Basically, they create a special protein in their body that acts as an anti-freeze agent. The protein interacts with the water molecules within their bodies in a way that prevents the molecules from rearranging into ice crystals during the freezing process. So they are able to hop around as normal even during below freezing conditions.

These cute little ones often get a hard time because of their name, but they are actually extremely beneficial to the forest ecosystem and home gardens. Snow fleas are decomposers and eat dead and decaying plant material.

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## SNOW FLEAS

### CONTRIBUTORS TO THE ECOSYSTEM



*Photograph provided by PEEC*

The leaves that fall during autumn are all munched on by snow fleas. A dead tree comes down, snow fleas help eat it up. They are nature's recyclers that break down loose plant material and then add nutrients back into the soil for the plants to use. Without those nutrients, then plants in your local forest would have a very hard time growing.

Planning a trip to the Pocono Environmental Education Center? Make sure to keep an eye out now on our trails for these little guys. ***Pretty soon they'll be back in full force!***

#### MORE ABOUT SNOW FLEAS / SPRINGTAILS

They probably look like bits of dirt at first glance, but they are actually tiny soil animals known as snow fleas. Officially, they are called springtails and are not actually fleas (or even technically insects).

On any given summer day, hundreds of thousands of springtails can populate one cubic meter of top soil; at 1-2 mm, they largely go unnoticed by people. In the winter, however, two species of dark blue springtails—*Hypogastrura harveyi* and *Hypogastrura nivicol*—can be easily spotted against the white backdrop of snow.

Wingless and incapable of flying, they move by walking, and also by jumping. But unlike other famous jumping arthropods (like grasshoppers or jumping spiders), snow fleas don't use their legs to jump. Snow fleas catapult themselves into the air by releasing a spring-like mechanism called a furcula, a sort of tail that's folded underneath its body, ready for action. (Thus the name springtail.) When the furcula releases, the snow flea is launched several inches, a considerable distance for such a tiny bug. It's an effective way to flee potential predators quickly, although they have no way to steer.

#### RESOURCE:

<https://www.thoughtco.com/what-are-snow-fleas-4153089>



*Photographs provided by PEEC*

#### Pocono Environmental Education Center (PEEC)

PEEC, a private 501(c)(3) non-profit organization, is one of the most respected and recognized residential environmental education centers in the northeastern United States. It has served the education community and has been the education partner of the National Park Service in the Delaware Water Gap National Recreation Area for over forty years.

PEEC advances environmental education, sustainable living, and appreciation for nature through hands-on experience in a national park - the 77,000 acre Delaware Water Gap National Recreation Area, along the Delaware River

PEEC is located within driving distance of New York City and Philadelphia. An estimated 24,000 people visit PEEC annually.

**FOR MORE INFORMATION:** <http://www.peec.org/>





Color-marked Ipswich sparrow at Chincoteague Island National Wildlife Refuge.

© Kevin Holcomb and Teta Kain, Photographers



The CENTER for  
CONSERVATION  
BIOLOGY

# CCB COLLABORATION

## IPSWICH SPARROWS WINTER ECOLOGY STUDY

by Fletcher Smith / Sydney Bliss

Research Biologist, Center Conservation Biology / M.Sc candidate, Dalhousie University

Ipswich sparrows spend their lives on the wild edge where the Atlantic Ocean meets land.

The entire population breeds on one small sandy island (the aptly named Sable Island) off the coast of Canada, and in migration and in winter they occupy sandy coastal habitat. These sparrows have evolved in this constantly changing environment, their plumage blending in perfectly with the open sand and tones of mid-winter vegetation. The dunes in which Ipswich spend their winters are susceptible to high-intensity nor'easters that strip seeds from plants and flatten or rearrange entire swaths of habitat. Heavy snow storms on the outer coast can bury most of the available seed crop. Severe cold temperatures on the northern end of their winter range likely cause some degree of facultative migration to warmer climes. **But still these birds persist, and the degree to which they have adapted to this harsh environment is nothing short of amazing.**

The dynamic nature of the dune/ocean interface makes for dramatic changes in annual occupancy. For instance, during the Center for Conservation Biology' (CCB's) surveys of Metompkin Island in 2012 and 2016 we found over 20 birds/km of beach. To put that density into perspective, the seminal winter survey work conducted by Stobo and McLaren in 1971 found peak densities in the mid-Atlantic

### THE CENTER FOR CONSERVATION BIOLOGY (CCB)

CCB is a research group within The College of William and Mary and the Virginia Commonwealth University; a group of professionals, students, and citizens dedicated to the vision that the natural environment is an important part of our quality of life. All of our research and operating costs come from gifts, grant awards, and contracts.

For more information: <http://www.ccbbirds.org>

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## CCB COLLABORATION IPSWICH SPARROWS WINTER ECOLOGY STUDY

of 3 birds/km. This winter, with the dune habitat remaining unchanged to the human eye on Metompkin Island, we only recorded 1 bird/km. The annual variation in habitat used is likely summed up in one word: food.

The birds likely have site fidelity between years if the seed base doesn't change much, but our counts on Metompkin Island this past winter likely reflect a crash in dune grass seed production since our 2016 survey. The focus of our surveys during the winter of 2017-2018 was to determine the density and distribution of the sparrows across the mid-Atlantic from Delaware to North Carolina. We surveyed approximately 237 total kilometers of dune habitat throughout the field season from January through mid-March. We found a range of densities of the sparrows across the landscape, with the highest densities unsurprisingly recorded in wild natural dunes.

We plan on expanding these surveys during the upcoming winter to better understand the distribution of sparrows across the winter range.

To better understand the processes that affect Ipswich Sparrow population size, researchers have begun a long-term study of the population using mark-re-sight techniques. To mark the sparrows, birds are affixed with unique combinations of colored leg bands. To date, 639 sparrows have been banded on Sable Island, Canada breeding grounds and on Delmarva Peninsula, USA wintering grounds. Sparrows will continue to be banded at these locations over the next several years and re-sighting surveys (i.e. finding the birds after banding) will occur in multiple locations along the eastern seaboard.

The history and location of birds that are re-sighted can be used to make inferences about the demography of the marked population. For instance, researchers will be able to determine which life cycle stages (breeding, migration, or overwintering) incur the highest mortality in the population, estimate population size, and understand how various ecological factors affect population size.

The difficulties associated with following individual animals have long been a barrier to studying migrations. With the recent miniaturization of radio-transmitters, plus an extensive array of telemetry receivers in eastern North America (Motus Wildlife Tracking System), it is now possible to track small songbirds from start-to-finish during migrations. To better understand Ipswich sparrow migration, we affixed sparrows with radio transmitters on the Delmarva Peninsula in winter 2018. These small transmitters weigh 0.7 g and are attached to sparrows using a backpack-style harness. Using the Motus array, these sparrows were tracked thousands of kilometers from the Delmarva Peninsula to Sable Island during spring migration.



TOP / CENTER: © Fletcher Smith, Photographer  
BOTTOM: © Chance Hines, Photographer

**TOP:** The sun sets on the dunes of Delaware. This outer fringe habitat bears the brunt of massive winter storms. **CENTER:** Laura Duval, Sydney Bliss, and Lucas Berrigan process captured sparrows. **BOTTOM:** Image of a radio transmitter attached to bird.

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## CCB COLLABORATION IPSWICH SPARROWS WINTER ECOLOGY STUDY



*Color-marked Ipswich sparrow hides in the dune grasses.*

© Laura Duval, Photographer

Data from these transmitters will help us understand the migration of these birds, including what routes they take to Sable Island, where and for how long they stop to rest along the way, how long the journey takes, and constitutes the most dangerous legs of migration. Further, researchers can identify key areas that support migrating sparrows for management and conservation.

The 2017-2018 winter work was conducted with the help of many partners, land managers, and funding agencies, including - the National Park Service, U.S. Fish and Wildlife Service, Dalhousie University, Acadia University, Delaware State Parks (Cape Henlopen, Delaware Seashore, and Fenwick Island), Delaware Department of Natural Resources Division of Fish & Wildlife, Virginia Department of Conservation and Recreation, The Nature Conservancy, Maryland Department of Natural Resources, Virginia Department of Game and Inland Fisheries, the North Carolina National Estuarine Research Reserve, and the North Carolina Wildlife Resources Commission.

Ned Brinkley, Zak Poulton, and Courtney Check all contributed significant volunteer time and effort in support of this study.



© Chance Hines, Photographer

*The field crew celebrates the last transmitter deployment of the season at Cape Henlopen State Park (from left to right: Lucas Berrigan, Sydney Bliss, Chance Hines, Laura Duval, and Fletcher Smith).*



# NEWS FROM THE *Hudson River Estuary Program*

New York's Department of Environmental Conservation (DEC) has had a long association with youth conservation programs. Beginning in the 1930s with the Civilian Conservation Corps (CCC) a work relief program part of the New Deal legislation, that gave millions of young men employment on environmental projects during the Great Depression / and continues today, with several AmeriCorps programs managed by the Student Conservation Association (SCA).

Established 61 years ago, SCA's mission is to build the next generation of conservation leaders and inspire lifelong stewardship of the environment and communities by engaging young people in hands-on service to the land. <https://www.thesca.org/serve/sca-and-ameri-corps>

The New York Hudson Valley region is home to more than 2.5 million residents, in addition to the 8 million residents of New York City. Created in 1999, the Hudson Valley AmeriCorps Program is dedicated to recognizing, preserving, and interpreting the nationally significant historical, cultural, and natural resources of New York's Hudson Valley. <https://www.thesca.org/serve/program/hudson-valley-corps>

The SCA Hudson Valley AmeriCorps program provides ten-month internships across the Hudson Valley region, spanning multiple conservation disciplines. Members serve at sites across the state, working one-on-one alongside conservation professionals at state agencies and nonprofit organizations. For example, at the NYS DEC's Hudson River Estuary Program and National Estuarine Research Reserve, SCA members measure culverts, conduct school programs in classrooms and in the field, teach people how to fish during I Fish NY clinics, plant trees and shrubs along riverbanks, and help monitor tidal marshes."

## **ABOUT SIX NEXT GENERATION ENVIRONMENTAL LEADERS:**

**TOP:** Ashawna Abbott, Aidan Mabey, and Martice Smith (left to right) all caught the conservation spark as high school students counting "glass" eels in local tributaries for the American Eel Research Project ( <http://www.dec.ny.gov/lands/49580.html> ). As educators for the Estuary Program, they became mentors and teachers in those same high schools. Ashawna led public canoe and seining programs, collecting fish and river insects. Aidan managed more than 500 volunteers sampling for juvenile eels from Staten Island to Troy. Martice taught lessons to students ranging in age from kindergarten through college, and taught "fishing" during I Fish NY free clinics.

**TOP CENTER:** Erin Lefkowitz measures bridge and culvert capacity for flood flows and aquatic life, conducting field assessments of culverts and bridges where roads cross streams ( <http://www.dec.ny.gov/lands/99489.html> ). This work helps identify where structural collapse, build-up of debris, or other problems create flood risks and form barriers to movement by fish. Erin also participates in community outreach efforts and assists the "Trees for Tribes" program ( <https://www.dec.ny.gov/animals/113412.html> ).

**BOTTOM CENTER:** Alex Crutze measures a shrub planted several years ago at a "Trees for Tribes" site several years ago ( <http://www.dec.ny.gov/lands/43668.html> ). Monitoring plant survival rates, health and size, sources of damage, and maintenance needs ensures that "Trees for Tribes" is creating healthy streamside buffers to habitat.

**BOTTOM:** Russell Barbera measures tidal marsh migration as part of his work with the Hudson River National Estuarine Research Reserve ( <https://www.hrner.org/> ) and updated sustainable shorelines case studies for Esopus Meadows Preserve and Water Trail and Haverstraw Bay Park ( included taking photos and collecting data during site visits to document shoreline changes). He has also co-hosted 2 webinars for the Sustainable Shorelines Webinar Series ( <https://www.hrner.org/hudson-river-sustainable-shorelines> ).



© Photographs provided by NYS DEC

## **For More Information:**

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**and Hudson River National Estuarine Research Reserve**





Footage from a camera trap project, Interstate 64, Virginia.

© Photograph provided by Bridget Donaldson, Virginia Transportation Research Council

# ROADS AND WILDLIFE

## Working to Reduce the Human / Wildlife Conflict

by Maggie Ernest Johnson

*Former / Eastern Wildway Coordinator and Landscape Conservationist / Wildlands Network.  
Current / Adaptation Program Manager / Association of Fish and Wildlife Agencies*

It's hard to think of any built infrastructure as simultaneously beneficial and damaging as roads. While roads have gifted so many benefits to society, they have also devastated our natural environment. With over 40 million miles connecting town to city to farm, we have laid enough pavement to circle the earth 1,600 times. Our societies have grown exponentially because of the ability to transport people and goods that an extensive road network provides, but, of course, this has come at the cost of our wild neighbors. An estimated one million vertebrates are killed each day on roads in just the U.S. Extrapolating that to the rest of the planet results in a dizzying number that leaves one feeling sick and disgusted to be a member of the human race.

I remember one early summer evening not too long ago when I was leaving my parent's home, the air thick with humidity. The tire of my car caught an Eastern American Toad

in one full, crushing splat. My heart sank as the ecological guilt and grief crept in. My mother tried to console me by relating the time she struck a pigeon with her car. She was so traumatized by the experience that she had to pull over and cry. We all have similar stories, unfortunately, but too often we shrug and wonder rhetorically, what can be done? We go on with our lives, but the collisions continue. From Monarch butterflies to black bears, box turtles to moose, wildlife-vehicle collisions have become accepted as a thing we don't like, but a thing we won't change.

The implications of not doing something, however, are increasingly dire. Some wildlife populations have become so low in number that just a few collisions with cars puts their very existence in jeopardy. Consider the Florida panther or red wolf, two apex species highlighted in the

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## ROADS AND WILDLIFE Working to Reduce the Human / Wildlife Conflict



*Timber rattlesnake road kill.*

© Ron Sutherland, Photographer

2008 Report to Congress, which cites road mortality as one of the major threats to their survival. They are joined by 19 additional species, all considered threatened or endangered under the United States Endangered Species Act, with road mortality as a primary threat to survival. (This is not to say that common species are immune either. The overabundance of white-tailed deer has led to significant vehicle collisions, costing hundreds of human lives, thousands of injuries, millions of dollars in damages, and an untold number of deer deaths each year.)

Beyond the direct mortality that wildlife-vehicle collisions cause, we must also consider the loss, degradation, and fragmentation of habitat that undoubtedly contributes to the world's current extinction crisis. Consider this figure again: there are 40 million miles of major roads across our planet. Think of the innumerable ecosystems and microhabitats that have been wiped out by this colossal development—or, think of the nests, food, and other resources that vanished for an animal whose home is now a major freeway. That loss of habitat is felt by every individual in the ecosystem. If they are lucky, they are large or mobile enough to move on to more suitable habitat nearby; if they are too small or not mobile enough, it may be the end of that population or species forever.

Even when an animal may end up on the “lucky” side of road development, their habitat is still inevitably altered and degraded, whether by runoff polluting nearby waterways, tailpipe emissions polluting the air, or trash, debris, heavy metals, and other chemicals that are flung to the road and then carried to the nearest habitat.

Moreover, the noise and light pollution that accompanies roads is literally changing species behavior. In a 2017 study by researchers at George Mason University, just outside of the Washington, D.C. metropolis, they found

that the Eastern wood peewee, a common songbird, would actually get louder when traffic was heavy in order to communicate. Imagine sitting alongside a highway with a good friend and trying to have a meaningful conversation. After much yelling, I can only imagine the inevitable frustration and miscommunication. This would then be especially disruptive for songbirds and other species if your communication were tied to warning calls or mating rituals. Without effective communication, your very survival is at risk.

But then what happens to the animal on the “unlucky” side of road development? Where the food, shelter, mates, or other resources necessary to their survival means crossing that big, busy road? For many species, large connected landscapes are critical to meeting all of their many survival needs. Animals don't know or care for our political boundaries. More and more we are finding that habitat fragmentation puts these species' survival at risk.

Consider the pronghorn, a bastion of the American West. Each winter, pronghorn make a grueling 150-mile migration



*Pronghorn*

© Photograph provided by Tom Koerner; USFWS

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## ROADS AND WILDLIFE Working to Reduce the Human / Wildlife Conflict



Footage from a camera trap project, Interstate 64, Virginia.

© Photograph provided by Bridget Donaldson, Virginia Transportation Research Council

from Wyoming's Upper Green River Basin to Grand Teton National Park. This migration is important to their survival; without it they would not be able to find feeding grounds to carry them through harsh winters. Unfortunately, though, roads and other barriers like fences and cities, block pronghorn from making this critical migration. Consequently, this species' future remains uncertain.

Like it or not, roads are part of our everyday lives. Whether we are going to school or work, picking up groceries, or heading out to find our favorite park, getting into a car and onto the roadway is mostly unavoidable. While the costs of transportation are clear, it's hard to know what to do when roads are so inextricably linked to so many aspects of our lives. Just a shrug and rhetorical, what can be done? In reality, there is so much that can and should be done.

This is where the emerging field of road ecology comes into play. Road ecology seeks to understand and address the environmental impacts of transportation on wildlife. By conducting thorough research on how road networks impact wildlife, we can design effective mitigation on existing roads, such as implementing fencing to guide wildlife toward underpasses and overpasses or incorporating wildlife-friendly strategies into new road plans. Road ecology is an essential approach to co-existence and one that is deeply rooted in the principles of conservation biology and landscape ecology.

At Wildlands Network, we focus on mitigation strategies that not only make roads safer for life—both wild and

human—but also help reconnect wildlands fragmented by extensive road systems. These mitigation strategies are proven to reduce wildlife-vehicle collisions, sometimes up to 80-90%, improve landscape connectivity, and save lives and money. Wildlands Network works collaboratively to identify research gaps, conduct analyses of state road networks, convene partners, and guide efforts to establish wildlife-friendly mitigation measures on road projects, new and old.

For example, we've developed detailed reports identifying priority areas for mitigation measures in Arizona and North Carolina. By identifying road segments with the highest potential for wildlife-road conflict, we can target time and resources where they can be most effective.

We have also been working hard on field projects in Sonora, Mexico and Durham, North Carolina. In Mexico, we identified culverts and bridges along Highway 2 that may play an important role for animal movement, such as the jaguar. Soon, in collaboration with local landowners and transportation authorities, we will deploy wildlife cameras to collect baseline data and to identify areas most in need of mitigation. In North Carolina, we are evaluating the success of a wildlife underpass designed for wildlife movement through an important riparian corridor. This data will help local transportation departments understand design elements of wildlife crossings that are most effective to replicate.

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## ROADS AND WILDLIFE Working to Reduce the Human / Wildlife Conflict



Elk

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In addition, we are kick-starting a new field project in Great Smoky Mountains National Park, where we will track where elk cross major roadways. Since 2001, when elk were reintroduced to North Carolina after being extirpated from the state, elk numbers have risen steadily, with an estimated 150-200 now roaming the national park and surrounding areas. Park officials estimate there are already 3-7 elk-vehicle collisions each year. As the population grows and disperses, it is likely these collisions will happen more frequently and across a broader area in the mountains. The damage inflicted by these collisions is often catastrophic. Our research will help identify where exactly the elk are crossing roads so that effective mitigation strategies can be implemented, thereby protecting drivers, elk, and a variety of other wildlife across the landscape.

Finally, we provide information and expertise to partners working on the ground, like those along Utah's Interstate 80. We also convene stakeholders to work together, like the newly formed Virginia Safe Wildlife Corridors Collaborative. These partnerships help bring the many voices concerned about roads and wildlife together to identify new, innovative ways of tackling these very complex problems.

### How can you help?

While roads present a dire crisis for our natural world, there are ways you can help. Whether that means stopping an unnecessary new road from being built, switching to public transportation or using your own two feet, raising money to build a wildlife crossing on a collision hotspot, or not throwing that apple core out the window (and attracting

animals to the roadside), roads are not a completely intractable problem. They are a complex one, yes, but one that can be ameliorated with creative thinking.

So, the next time you're out driving in the car, the open road smooth and clear ahead of you, take some time to notice that green forest flanking each side of you. Take the time to consider the consequences of what the construction of that road meant for your wild neighbors, for your sense of place, and for the kind of world the next generation will inherit because of it.

Splat. Squish. Crack. Thump. Thwack. Bam. **There is much to be done.**

### More Information About Wildlands Network:

<https://wildlandsnetwork.org/>

### More Information About Assoc. Fish & Wildlife Agencies:

<https://www.fishwildlife.org>

**NOTE: "Roads and Wildlife" initially appeared in *Inside Ecology* and we are so pleased that *Nature's Newsletter* was afforded the opportunity to share it with our readers.**

### ABOUT INSIDE ECOLOGY

An online magazine for ecologists, conservationists and wildlife professionals which provides a dynamic platform for people to exchange ideas, promote discussion and supply information to those with a 'professional' interest in the natural world.

**More Information:** <https://insideecology.com>





**LEFT:** Our group of travelers. **RIGHT:** Elephants taking a mud bath.

© Photographs provided by Humane Society of the U.S.

# REFLECTING ON THE ILLEGAL IVORY AND HORN MARKETS

by Kristen Tullo

*Pennsylvania State Director / The Humane Society of the United States*

In 2017, Pennsylvania residents expressed their concern for animal welfare by encouraging the legislature to pass Libre's Law, which is considered the most comprehensive animal protection legislation overhaul in our state's history. On the heels of that victory, many Pennsylvania animal advocates are now turning their attention to saving wildlife from extinction.

I recently joined some of those advocates on a safari trip to Africa, where we experienced firsthand the majesty of elephants and the compassion of those who are saving their lives. The adventure was remarkable and served to increase our utmost respect for the magnificent wildlife and their selfless caregivers.

We met Benjamin, a "chosen one" at Tsavo East Ithumba Camp in Kenya, Africa. After graduating from University of Nairobi Mombasa Campus 18 years ago, Benjamin inquired with *The David Sheldrick Wildlife Trust* (DSWT) about becoming a keeper. DSWT informed Benjamin that the elephants interview the keepers for a month, and if you are not tender-hearted, you are not chosen. The elephants interviewed Benjamin, found him to be tender-hearted, and he was chosen.

Our group of travelers were full of gratitude to meet the keepers at DSWT in Umani Springs Kibwezi Forest, Kenya, and learn about the care they give to orphaned elephants who, because of injuries they sustained from poaching or medical health issues, make it more difficult and may take them longer to be reintegrated back into the wild. These majestic creatures can be seen grazing on the plains,

drinking from a watering hole alongside other wildlife, and bathing in dust to protect their skin from the hot African sun – elephants love their mud baths! The hope, of course, is reintegration whenever possible, but this depends on the severity of their injuries.

Perhaps you were taught somewhere along the way that elephants are a strong matriarchal society, and that the expression "an elephant never forgets" is actually rooted in some truth. There are moving stories of elephant leaders sacrificing themselves to spare their young. Elephants have shown elaborate displays of sophisticated emotion, including compassion, celebration, mourning, and comprehension.

We are thankful for advocate groups such as DSWT and *Elephant Aware Masai Mara* who fight vigilantly for the rights of these animals to live out their lives in a natural environment without the threat of poachers and trophy hunters.

On the legislative front, groups like *Africa Network for Animal Welfare* are influencing policy, empowering communities, advocating, and changing attitudes to promote the humane treatment of all animals.

We hope, however, that when it comes to animal welfare advocacy back home, PA will consider the magnitude of what we are fighting against, and what the world will lose if the destruction of these magnificent animals by the wildlife trade continues at its current pace. Time is not on our side.

**Continued on page 17**



## REFLECTING ON THE ILLEGAL IVORY AND HORN MARKETS



© Photographs provided by Humane Society of the U.S.  
*Kristen Tullo, foster parent and Enkesha, who was orphaned when her family was killed by poachers.*

While the elephants and rhinos are slaughtered in Africa and Asia, we must recognize our own role in stimulating the ivory trade. Despite recent federal regulatory changes that have been effective at decreasing the market for ivory in the United States, federal officials have noted that illegal ivory continues to be imported and sold here. The local impact really hit home in 2014 when a Philadelphia art dealer pleaded guilty to smuggling African elephant ivory that was being carved and stained to appear older. Federal prosecutors stated it was the largest seizure of ivory in the U.S.

It's not only the elephants and rhinos that are suffering and dying as a result of the illegal ivory and horn markets. The threats to humans are real. According to the International Ranger Federation, 871 wildlife rangers lost their lives in the line of duty since 2009. Since 2009, 871 wildlife rangers lost their lives in the line of duty since 2009, many in clashes with poachers. Source: <https://phys.org/news/2018-07-wildlife-rangers-died-duty-year.html>

We must also consider the plight of the elephants and rhinos. These wild animals are already endangered and threatened species. The savanna elephant population has declined by 144,000 – that's 30% of the population – since 2007, primarily from poaching. In 2015, 1,305 African rhinos were killed, and only 29,000 rhinos remain in the wild worldwide.

Elephants and rhinos are killed by unconscionable methods. They are chased by helicopters, gunned down (sometimes with military-grade weapons), and poisoned. Because the tusks and horns are embedded in the skull, their heads are hacked and mutilated to extract the full tusk or horn. Babies are killed to collect a tiny stubble of tusk or horn. Remaining orphans, unable to fend for themselves, often perish.

There are opportunities to help the injured and orphaned elephants and rhinos. Through the DSWT I am the foster parent of Enkesha, who was orphaned when her family was killed by poachers. She was found in Kenya, only a year old, with a snare

almost severing her tiny trunk. But now, thanks to the love and care of DSWT, Enkesha is happy, infection free, and her trunk is almost fully healed. You, too, can join the herd. Become a foster parent at DSWT to help ensure that their lifesaving work continues to protect elephants.

Pennsylvania can and must do its part to help remedy this dire situation. We must enact an ivory and rhino horn sales ban because intrastate commerce – trade occurring within the state – is generally untouched by federal laws and regulations. The U.S. Fish and Wildlife Service has stated that the legal ivory trade serves as a cover for the illegal ivory trade. The sale of mammoth ivory is unrestricted and difficult to distinguish from elephant ivory, thus increasing enforcement burdens. And new ivory products are commonly misrepresented or altered to look like old ivory.

On February 24, 2017, a bi-partisan bill to finally end the ivory trade in Pennsylvania, sponsored by Representatives Madeleine Dean and

### **The Humane Society of the U.S.**

(HSUS) is the nation's largest and most effective animal protection organization. HSUS and its affiliates provide hands-on care and services to more than 100,000 animals each year, and professionalize the field through education and training for local organizations.

*Did you know that The HSUS operates 5-animal care centers, providing direct care to thousands of animals every year? HSUS is a leading animal advocacy organization, seeking a humane world for people and animals alike. They are driving transformational change in the U.S. and around the world by combating large-scale cruelties such as puppy mills, animal fighting, factory farming, seal slaughter, horse cruelty, captive hunts and the wildlife trade.*

**For more information:**

<http://www.humanesociety.org/>

**Continued on page 18**



## REFLECTING ON THE ILLEGAL IVORY AND HORN MARKETS

Tarah Toohil, was granted a committee hearing. Despite overwhelming support from Pennsylvania residents and the Philadelphia Zoo, opposition from those who trade in ivory prevented a vote on the bill. We will not be deterred, and will ensure that the bill is reintroduced in early 2019.

And while the United States has a major role in the trade in elephant and rhino parts, we are also the largest importer of giraffe trophies. American trophy hunters import an average of more than one giraffe per day. This can't go on; there are fewer giraffes than elephants now in the wild, and if we are to protect these gentle and beautiful animals from going extinct, we need to act quickly to keep them out of the sights of trophy hunters and poachers. And in addition to giraffes, elephants, and rhinos, proposed legislation should also prohibit the sale, purchase, offer for sale, or possession with intent to sell, of parts or products of hippos, mammoths, narwhals, walruses, whales, sharks, rays, sea turtles, tigers, lions, leopards, cheetahs, jaguars, and pangolins.

The black-market wildlife trade jeopardizes the survival of these species. Legislation may not solve the poaching crisis today, but it gets us closer to that end goal by closing the loop at home in the Commonwealth and bolstering federal restrictions already in place.

Not by coincidence, elephants are considered a “keystone species,” meaning the ecosystem to which they contribute cannot survive without their presence. And Pennsylvania is called the “Keystone State” for the vital role our state plays in the political, economic and social development of our nation. History is what makes us, but the future is what defines us – what do you want the future to look like? What legacy do you want to leave?

### How can you help protect wildlife?

- Never purchase ivory products. They are often carved into jewelry and trinkets that are marketed as antiques. It's difficult to visually determine the age of the ivory in an item and enforce current laws around carved or worked ivory.
- Take the time to contact your state legislators and ask them to support legislation to end wildlife trafficking.
- Protect the future of these species with a donation to your favorite wildlife protection organization.

On behalf of the Humane Society of the U.S. and my travel “Rafikis,” or friends, I would like to thank you for learning about this issue. New Jersey has already instituted an ivory and rhino horn sales ban in their state, along with California, Oregon, Washington, Hawaii, New York, New Hampshire, Nevada and Illinois. Let's make Pennsylvania the next state to take a step towards saving wildlife for our children and future generations!

*Until next time, Kenya...Tuko Pamoja: “We Are Together”!*



© Photographs provided by Humane Society of the U.S.

### MORE ABOUT LIBRE'S LAW:

<http://www.senatoralloway.com/wp-content/uploads/sites/46/2017/09/sb08-articles.pdf>

### ADDITIONAL RESOURCES:

**David Sheldrick Wildlife Trust -**

<https://www.sheldrickwildlifetrust.org/>

**The Elephant Aware Blog -**

<https://elephantawareblog.wordpress.com/about/>

**Africa Network for Animal Welfare -** <https://anaw.org/>

**Victor Gordon Ivory Trafficking Investigation -** <https://news.nationalgeographic.com/news/2014/06/140604-victor-gordon-ivory-trafficking-philadelphia-operation-scratchoff-usf-ws-forest-elephants-gabon/>





**LEFT:** Beluga Whale Brain **RIGHT:** Human Brain

© Images provided by The Whale Sanctuary Project

# The World's Most Intelligent Species?

by Lori Marino, Ph.D.

*President, The Whale Sanctuary Project*

Cetaceans - whales, dolphins and porpoises - have intrigued the public and scientific communities for decades. We've known for a long time that whales and dolphins are intelligent and socially complex animals with large brains that are organized differently from our own. And we've known that the neocortex of a whale or dolphin brain has more folds than ours (part of the cerebral cortex involved in higher-order brain functions such as sensory perception, cognition, generation of motor commands, spatial reasoning and language). All those folds mean that the surface area is greater and therefore may have more units to process information.

Little is known however, about how their brains function, especially when compared with their terrestrial relatives. The cetacean brain has been relatively inaccessible because of its size, difficulties in obtaining fresh specimens and the welfare considerations that rule out invasive recordings or tracer studies.

But the advent of neuroimaging, especially MRI, has provided a new set of possibilities for understanding cetacean brain organization in non-invasive ways. So recently, when we used this special imaging technique to study the brain of a dolphin (who had died naturally), we were astonished by what we learned.

While we humans and most other animals have a single pathway from the inner ear up to the first "stopover" for

auditory information coming into the brain, it turns out that dolphins have two! (And orcas, although we commonly refer to them as whales, are the largest species of dolphin.)

This could mean that they process echolocation echoes in one region of the brain and whistles and other sounds in another. But we're still trying to understand how these two kinds of sound information come together.

Another research team has found that the part of the brain in orcas that's involved in problem-solving and social- and self-awareness is proportionally larger than in humans. This could suggest they have a more complex sense of self than we do – so they may experience life both as an individual and as a member of their pod. And this kind of mental life might require a lot more processing of information than is the case with humans.

There is still much to clarify about these findings - how they compare with brain auditory systems in other taxonomic groups and how they contribute to a fuller understanding of central auditory processing in cetaceans. But it does raise the question: Are we humans the most intelligent species on the planet?

***Clearly, evolution has found a way to create more than one kind of complex intelligence.***

**For More Information:**  
<https://whalesanctuaryproject.org/>



Continued from page 2

## DISCOVERING NATURE

### THE ELUSIVE GREAT GREY



© John A. DiGiorgio, Photographer

#### IMAGINE OUR SURPRISE!

It was a chilly September morning and my husband, John and I were in Yellowstone National Park. As the last rays of sunlight edged up along the hillside, we spotted a large dark form pressed close to the side of a nearby evergreen tree. Up to up to 33 inches tall with a wingspan of 5 feet, **the elusive Great Grey Owl (*Strix nebulosa*) is the largest owl species in North America.**

Their size makes it difficult for them to maneuver well in dense forests. So to hunt efficiently they need meadows and other spaces often created by fire. The skies lightened. We observed the Great Gray pounce and snatch up a small rodent, probably a vole their favorite food, and fly into the woods. Able to live at least 10 years, Great Greats don't begin nesting until they are 2-4 years old. Females remain with the young for several weeks after they fledge. After that, they leave the area and the male is left to care for the chicks alone for the next 9-10 weeks. We could hear a series of deep, resonant whoo calls coming from the woods and so we investigated.

There were two Great Grays – a large one, obviously a male, feeding a smaller juvenile.

#### DID YOU KNOW?

- An owl can turn its head up to 270 degrees.
- Adult owls carry food in their bills to their young (versus eagles who carry food in their talons).
- An owl's eyes are relatively large, with some species having eyes that are larger than those of humans.

## THE DELAWARE VALLEY EAGLE ALLIANCE

*working towards the conservation of  
our wildlife and natural resources*

#### ABOUT US

*The Delaware Valley Eagle Alliance is a 501 (C)(3) not-for-profit organization with a mission to increase awareness, understanding and promote conservation of our wildlife and the natural environment. We accomplish this through our publications, projects and programs.*

*We believe that raising awareness and understanding will change attitudes toward conservation and our natural resources. We are committed to this because we believe that it is essential to enabling all life to exist and prosper on Earth.*

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Richard Crandall, Director and Vice President  
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#### PROJECTS AND PROGRAMS

*We are available to work closely with biologists and conservation groups to document ecological and wildlife research on rare, sensitive and endangered wildlife and environmental issues. We collaborate with communities and other organizations to develop and organize wildlife and environmental educational and entertaining programs.*

#### SUPPORT

*The Delaware Valley Eagle Alliance depends on individuals and organizations who share our concern for wildlife and the environment. Our publications, projects and programs would not be possible without the generosity of our supporters and sponsors.*

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