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The Delaware Valley Eagle Alliance

INSIDE THIS ISSUE

- 2** **EMPOWERING YOUTH / Around the World**
- 3** **MONKEYS OF SOUTH TEXAS**
by Tim Ajax
- 5** **WHY HONEY BEES?**
by Grai St. Clair Rice
- 11** **ELEPHANT PROTECTION / a 21st Century Approach**
by Adam M. Roberts / M. Dane Waters
- 14** **SHINING A LIGHT ON CONSERVATION**
by Ashleigh Scully
- 17** **MIGRATORY BIRD TREATY ACT / Reversing Terms of Enforcement**
by Bryan D. Watts
- 19** **HIGHLY SOCIAL LEAF CUTTER ANT**
- 21** **THE BUUNY BLOG / Bunny, its Cold Outside!**
by Barbara Russo
- 22** **LEAD POISONING / By Ammunition**
by Giselle Chazotte Smisko
- 24** **DISCOVERING NATURE / Adirondack Moose Study**
- 24** **About the Delaware Valley Eagle Alliance**

FRONT COVER PHOTOGRAPHY

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EMPOWERING YOUTH AROUND THE WORLD

EarthEcho International is a nonprofit 501c3 organization founded by siblings Philippe and Alexandra Cousteau in honor of their father Philippe Cousteau Sr., son of the legendary explorer Jacques Yves Cousteau. Philippe Sr.'s belief in "a world where every single child can breathe fresh air, drink clean water, and walk on green grass under a blue sky" reflects EarthEcho's mission to inspire young people worldwide to act now for a sustainable future.

EarthEcho International empowers youth around the world through dynamic platforms that inspire action and positive change. Using 21st century tools and interactive resources, they are equipped to identify and solve environmental challenges starting in their own communities. Programs include:

Youth Leadership Council (YLC): Young environmental leaders are equipped with resources to develop programs and outreach to change the world.

EarthEcho Expeditions: Motivates environmental champions through the thrill of adventure and the creation of STEM (Science / Technology / Engineering / Math) content for educators and learners.

EarthEcho Water Challenge: Builds public awareness and involvement in protecting water resources by engaging citizens to conduct basic monitoring of their local waterbodies.

EarthEcho STEMExplore: Provides insight from and connections to leaders in STEM fields to educate youth on career possibilities.

For More Information: <http://earthecho.org/>

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The Delaware Valley Eagle Alliance depends on individuals and organizations who share our concern for wildlife and the environment.

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Delaware Valley Eagle Alliance



TOP: Young snow monkey; **INSERT:** Titled - "Morning Monkey Moon."

© Tim Ajaz, Born Free USA

MONKEYS OF SOUTH TEXAS

by Tim Ajaz

Sanctuary Director, Born Free USA

Deep in the mesquite and bushland of south Texas resides a sanctuary caring for some very unusual wild animals. The Born Free USA Primate Sanctuary provides year-round care for nearly 550 primates of varying species including seven species of macaque monkeys, three species of baboons, and several species of vervets.

Though the sanctuary has been a part of the Born Free USA family since 2007, it has an interesting history extending back to early 1972 when 150 Japanese macaques (more commonly known as "snow monkeys") were transported from Japan and settled on a ranch in Encinal, Texas.

The translocation was an effort to save a troop of monkeys who were threatened with extermination after the main troop split and troop "A" moved out of the forests of Arashiyama and into the outskirts of Kyoto where human conflicts ensued. Additionally, primatologists involved in behavioral studies at the time were intensely curious as to how the monkeys would interact with and adapt to a completely novel environment. In the wild, snow monkeys inhabit the southern three main islands of Japan and are the northernmost non-human primates in the world. Some parts of their territory may be snow-bound for up to three

months and the monkeys have adapted ways to manage the extreme cold, including mass huddling to conserve body heat and utilizing hot springs where they exist. Clearly, moving from the cold and mountainous areas of Japan to the arid, hot south Texas scrubland represented quite a challenge.

After a few stressful years where mortality rates were relatively high, the monkeys settled in and began to adapt to the new environment. While they were being supplementally fed, the monkeys started to experiment with different native flora and learned what was good to eat and what to avoid. Beans (actually seed pods) from the honey mesquite, berries from the spiny hackberry, tuna (the fruiting portion of the plant) from prickly pear cactus, and other succulents found their way on to the menu and the population began to thrive.

In addition to relearning dietary preferences, the monkeys also had to deal with local predators. In Japan, wild dogs may prey on the macaques, so they quickly learned to avoid coyotes, but rattlesnakes and solitary ambush predators like the bobcat took longer to adjust to. Showing just how adaptable the monkeys are, they developed new alarm

Continued on page 4

Continued from page 3

MONKEYS OF SOUTH TEXAS

calls for some of the predators. When scientists recorded the calls and then played them for their wild relatives in Japan, there was almost no reaction, demonstrating that the south Texas monkeys had essentially created new “words.”

Just as the troop was starting to expand its population, the rancher died suddenly and the monkeys needed a new home. A graduate student working with the monkeys at the time was able to get them transferred to a new location on a ranch near Dilley, Texas. At this time, several methods of containing the monkeys were explored and experimented with but the intelligent primates routinely figured out ways to escape their enclosures. By this point, the troop had become firmly rooted in the local landscape and its population increased quickly so that, by the mid-1990s, there were close to 500 of the Japanese primates in the area.

But, not all was perfect with the situation: though the monkeys attracted research teams from around the world (and particularly students from Canada), money and support were hard to come by, and the monkeys still needed supplemental feeding to keep them strong and viable. As a result, babies were taken from their mothers and sold to zoos and research facilities to help pay the feeding bill and other related expenses. Birth control was not utilized and the population continued to increase, creating even more stress on finances.

Soon, the “South Texas Primate Observatory” (also known as Arashiyama West) changed its name to the South Texas Snow Monkey Sanctuary and incorporated as a non-profit organization. In 1995, the sanctuary completed the purchase of 186 acres and moved to its current location south of Dilley, Texas in 1997. While birth control was beginning to be implemented and the monkeys were safe from exploitation, financial challenges persisted. In 1999, Animal Protection Institute took over operations, allowing for much-needed improvements to take place. Then, in 2007, Born Free USA merged with Animal Protection Institute, at which time the name was changed to the Born Free USA Primate Sanctuary.

Over the years, the sanctuary added new enclosures, living space for staff, and more infrastructure to support the large number of primates on the property. While still caring for the descendants of the wild troop from Arashiyama, the sanctuary now focuses considerable effort and resources to the care of primates victimized by the pet trade or retired from research.

For these residents, their arrival at the sanctuary provides – often for the very first time in their lives – the ability to feel earth and grass underfoot and to enjoy stimulation out of doors and in the company of their own kind.



Snow monkeys at the primate sanctuary.

© Tim Ajaz, Born Free USA

Continued on page 5

Continued from page 4

MONKEYS OF SOUTH TEXAS

Unfortunately, due to their unnatural captive upbringing and extensive socialization with humans, they are not able to be introduced to the wild populations. They often exhibit abnormal behavior and have developed compensatory mechanisms to deal with the previously high levels of stress, such as rocking, spinning, and arm-biting. So, the focus is on establishing cohesive pairs or small groups so that they can engage in instinctual and beneficial behavior such as grooming, lounging, and exploring.

Some monkeys adapt quite rapidly and display somewhat normal social skills while others, especially those from the pet trade, may take months, a year, or even longer to learn how to cohabit with another monkey. Regardless of how long it may take, we continue to try different combinations and settings until a suitable match is found. To witness the transformation that takes place once a monkey bonds with another is one of the most rewarding experiences for sanctuary staff.

Gilbert, Ted, India, Zach, and Justin make up one of the more interesting groups at the sanctuary. All of them are victims of the exotic pet trade and arrived at the sanctuary individually, with all but Ted having been confiscated by law enforcement after biting someone. This group of five is comprised of four different macaque species: rhesus, Japanese, pig-tailed, and long-tailed. Despite their differences, they have managed to form a strong, cohesive group that exhibits a wide range of both normal and abnormal behaviors.

At any given time, they may be seen sitting quietly, watching the world around them, grooming each other's dense fur, playing chase across the enclosure, or (and quite often, too) one or more may attempt to lure staff into a false sense of security and then pounce and try to grab a shoe or glove through the fence. The latter behavior may seem cute but the monkeys are quite serious about it. They have no fear of humans and no small amount of residual frustration due to their abnormal upbringing. Monkeys are engaging and very cute when infants but, as they mature, they begin to exhibit their natural tendencies to climb the social ladder. In a human household, this typically results in physically aggressive behavior that poses a danger to the family, their pets, and the surrounding community, should the monkey escape.

Still, when Gilbert dons a blanket and chases Ted like an angry ghost, it can be hard to keep a straight face.

Elvis is an olive baboon, and when he was only six months old, the cuteness had worn off and the woman who was attempting to rear him began looking around for a new home after her husband threatened to shoot the youngster. So, Elvis was gathered up, separated from his human mother, and sent to live with a friend in another state. Elvis'



© Tim Ajaz, Born Free USA

TOP: Gilbert dons a blanket and chases Ted; **CENTER:** India; **BOTTOM:** Baby Elvis at 6-mos old.

Continued on page 6

MONKEYS OF SOUTH TEXAS



© Tim Ajaz, Born Free USA

Only a few months apart in age, young Buddy and Elvis were perfect companions for each other. As they grew, they became close and their natural behaviors became ever more pronounced as they chased, bounced, leapt, and tumbled their way across the enclosure.

living condition improved somewhat but he was forced into a dark carrier each night because he was already becoming too unruly in the household. The separations were hard on Elvis. In the wild, he would have spent almost every moment of every day with his mother. She would have never confined him to a cage or denied him her care. But, when allowed their freedom in human households, even young monkeys become highly destructive and can be a danger to themselves and others. They can open just about anything a human can and are capable of climbing places that human children could never get to. Nothing is truly out of reach or protected when a monkey roams the house and everything in sight is tasted and chewed on.

Elvis grew larger and began exhibiting more of his wild behavior each day. When law enforcement officials became aware of Elvis' presence in the community, the owners were notified that they would either have to surrender little Elvis, move somewhere else with him, or face stiff fines. Already not sure what they were going to do as he continued to grow, they surrendered him to the Mesker Park Zoo in Indiana, which promptly contacted the Born Free USA Primate Sanctuary to see if we might have room for him.

Elvis was keyed up from the moment he arrived and though we took him out to his new enclosure every day, and staff members spent every free moment with him, he still was extremely anxious and would scream and bark any time a

human male came near.

Shanay Dickey, our sanctuary manager, took over primary care of young Elvis. With her previous experience rehabilitating orphaned baboons in Africa, she was the perfect human match to help him through this intensely confusing period of his life. Slowly, he began to calm and settle into his new life at the sanctuary but he remained sensitive to any sharp, unexpected sounds or gestures, which would throw him into a fit of screaming.

Fortunately for Elvis, we were soon contacted regarding another young baboon who was bred for the pet trade and in desperate need of a home after the purchaser backed out of the sale. Though Buddy is a few months older than Elvis, he made the perfect companion. Together, they began leaning on each other for emotional support and Shanay was able to step back, her work mostly done.

As the two grew in size and in closeness, their natural behaviors became ever more pronounced as they chased, bounced, leapt, and tumbled their way across the enclosure. For the first time in each of their young lives, they were able to express their curiosity, physical prowess, and desire to play, and in the process, burn off the incredible energy their young bodies developed.

In 2014, both Buddy and Elvis were introduced to nine

Continued on page 7

MONKEYS OF SOUTH TEXAS



© Tim Ajaz, Born Free USA

TOP: Baboon enclosure (Dane, now a young adult, is playing trampoline on the shade sail in the enclosure); **INSERT (Left):** Elvis now a young adult; **INSERT (Right):** Buddy now a young adult.

female baboons who were retired from research the previous year, and the ladies took over the important duties of providing support and discipline to the rambunctious boys. Soon, Dane, another rescued baboon who was being kept in a basement in Wisconsin, was added to the mix and the three males became inseparable.

Now young adults, Buddy, Elvis, Dane, and their group roam and play in a large $\frac{3}{4}$ -acre open-topped enclosure where they are able to express their natural instincts and be as close to wild baboons as possible.

Each day, sanctuary team members clean enclosures, prepare diets, dispense medications, and distribute high-quality food items. In addition to providing necessary care, staff members focus on monitoring behavior and social interactions while making sure that the highly intelligent primates are provided enrichment and stimulating experiences to guarantee a high quality of life under the south Texas sun.

BORN FREE USA: Keep Wildlife in the Wild

Born Free USA is a national animal advocacy nonprofit 501(c) (3) organization, with a mission to end the suffering of wild animals in captivity, rescue individual animals in need, protect wildlife (including highly endangered species) in their natural habitats, and encourage compassionate conservation globally. Inspired by the Academy Award-winning film *Born Free*, the organization works locally, nationally, and internationally on the conservation frontlines, in communities, classrooms, courtrooms, and the halls of Congress to end wild animal cruelty and suffering, and protect threatened wildlife.

ABOUT THE PRIMATE SANCTUARY

A division of Born Free USA, the Primate Sanctuary, accredited by the Global Federation of Animal Sanctuaries, strives to provide conditions in which the captive populations of macaques, baboons, and vervets are allowed to live out the remainder of their lives with extensive freedom of movement, choice of food, and choice of companions, in accordance with their social nature. Due to the focus placed on meeting the needs of the sanctuary residents, the sanctuary currently is not open to the public.

For more information: www.bornfreeusa.org



© Grai St. Clair Rice / HoneybeeLives

WHY HONEYBEES?

by Grai St. Clair Rice

Co-Founder, HoneybeeLives, Organic Beekeeper, Author, and Photographer

Imagine opening a hive of honeybees, as if gently opening a beating heart full of sweetness and life. All your senses focus on the now of hearing, feeling, seeing, smelling and awe for this gift of nature. Tending honeybees in a gentle, educated manner takes us out of the rush of our busy lives and into a state of focusing on nurturing.

There is a long history of human civilization with honeybees. Stretching from early honey hunters, to the dawn of agriculture in Babylon and Egypt, to evocative religious symbolism across many cultures, and now to our contemporary dependence on honeybees for commercial pollination.

Today, the vast movement of migratory beekeepers trucking billions of honeybees around the country to meet an intense demand for pollination is completely unnatural. Massive tracks of agricultural lands are in mono-crop production mode with honeybees as the abused lifeline.

When honeybee colony losses hit mainstream media just over a decade ago, it was the economic impact of rising

food prices that set the alarms off and brought concern for honeybee health into the public eye. Subsequent funding for research has developed new in-depth knowledge about the remarkable honeybee, although agribusiness practices of pesticide and fungicide use is unlikely to change easily. Commercial hive management has improved to some degree since then, although massive colony losses are still chronic and devastating, especially after the almond pollination that takes place every February in California. News of these losses rarely make it to mainstream media anymore, as if it is all taken in stride.

The true value of the public consciousness that has emerged from this crisis is a burgeoning trend in backyard beekeeping. People are drawn to honeybees for myriad reasons, including being inspired with a greater sense of responsibility and connection to nature. Even people who do not wish to be beekeepers can still learn and support pollinators with their landscape choices, and how they chose to spend their money.

Continued on page 9

WHY HONEYBEES?



LEFT: Chris Harp shows the extended frames HoneybeeLives uses for the brood box (where the baby bees are) at a watershed festival. **RIGHT:** Chris Harp teaching a small "hands-on" class at the HoneybeeLives Apiary in New Paltz, New York.

The true joy is the experience of beekeeping itself since it stirs the intellect and the spirit. It can feel like a journey that changes every year, offering side trips into biology and botany, and can engage carpentry and problem solving skills along the way. The guides and teachers one chooses makes a difference in the approach taken to honeybee care. Tending honeybees for the good of the bee - not the ease of the beekeeper - and learning to respect their instincts and their beautiful, complex society will set the journey on a path of deep discovery. If you take the time to listen to the bees, they will be your best teachers.

A moveable-frame hive was patented by Rev Lorenzo Langstroth in 1852. This style of hive has become the standard in the United States. It allows for the removal and inspection of frames from within a hive, both for tending honeybee health and for harvesting their extra honey for human consumption. This invention allowed an intimacy with honeybees not previously possible.

Looking into the body of the hive transformed the experience of beekeeping into one that allows our intimate care to inform our knowledge of the rhythm and lifecycles of the colony. A honeybee colony is a vibrant super-organism with each bee working for the good of the whole. It turns out that these tiny insects can feed our bodies, our souls, and our imaginations, as well as engage an altruistic appreciation of community.

When our beekeeping students ask me how much work it takes to be a beekeeper, I respond: "If it feels like work, you shouldn't do it." The rewards far exceed the tasks required. It comes as no surprise that there is a formidable list of beekeepers among civilization's greatest thinkers.

Beekeeping is not brain surgery, however the golden days of beekeeping are behind us and tending hives requires more vigilance than in the past. The reality is that diseases and pests spread rapidly with migratory beekeeping, and loss of available forage has had a negative impact on honeybee nutrition, and pollinators in general. The need to monitor and inspect honeybee health is an integral part of individual hive management, and properly educated beekeepers are vital to the overall health of honeybees.

In February 2015, a new style of hive was introduced thru a crowd-sourced Indiegogo campaign. The Flow-Hive campaign quickly reached over \$4 Million, and had people from every walk of life talking about this intriguing hive. The premise is that honey can be dispensed from the hive by turning a crank on the outside, which separates honeycomb on the inside, so that honey flows into jars without disturbing the bees. Hmmmmmm.....

The popularity of this hive as been met with deep concerns within the beekeeping community. On an instinctual, holistic level, it is heart wrenching to see a hive of honeybees turned into a dispenser of honey. Their lives and value are far greater than this arrangement merits. On a practical level, if bee-havers don't have enough education or interest to properly tend their honeybees, then eventual hive deaths can threaten the larger community of honeybees and beekeepers with potentially deadly, unchecked bee diseases.

A deep connection to nature and landscape had a powerful impact on the founding of our country, as discussed in the 2011 book "Founding Gardeners" by Andrea Wulf. Our first four presidents drew inspiration from the American

Continued on page 10

Continued from page 9

WHY HONEYBEES?

landscape and the gardens they tended, which is reflected in their visions for a democratic society. The act of beekeeping takes us a step further towards embracing these ideals and the values we hold dear, and gives us pause to consider what our individual role will be in the future of nurturing the nature surrounding us.

Reverence has a way of elevating our daily experience. A honeybee makes 1/12 of a teaspoon of honey in her short lifetime. This honey is stored in the hive for use by her sisters to survive the following winter. In the process of collecting nectar, to be made into honey, she also collects and disperses pollen transferring this vital life force which transforms a flower into seeds for the future, often by way of a fruit or vegetable, which acts as the womb for the seeds.

Honeybees are considered the best pollinators in that they are single-source foragers and remain faithful to one kind of flower per trip, and sometimes even per day. Honeybees are one of the myriad species of pollinators that keep evolution ticking forward on our fecund planet. Without pollinators we would devolve, yet most of us pay little attention to the tiny insects that grace our lives. When you see a honeybee on a flower she is at the end of her life, since foraging is her final task.

As humans, what we do in our daily lives impacts the world around us, and in turn the future health of our earth. We needn't be overwhelmed with this as if it is a burden, instead find the joy in nurturing our planet through planting good forage for pollinators and watching them work the flowers outside your window, understanding also that many lawn care products may be detrimental to beneficial insects of all sorts. Supporting small farms and local beekeepers is also a piece of the puzzle for environmental health, as is choosing organic-biodegradable household products and taking responsibility for your own actions.

If you do choose to become a beekeeper choosing a reverential approach to their care will enrich your life beyond measure.

The gift of the honeybees is a gift of life!

ABOUT HoneybeeLives

Chris Harp and Grai St. Clair Rice co-founded HoneybeeLives in 2005 to provide educational experiences and apiary services in the NY / CT / NJ area. ***HoneybeeLives teaches two-day winter weekend classes in Natural / Organic beekeeping with a Biodynamic influence in the Hudson Valley and in Brooklyn, and hands-on seasonal classes in the HoneybeeLives Apiary.*** They also give presentations to beekeepers, retirement communities, garden clubs, schools and the general public to raise the awareness of the lives of honeybees and how each of us can help them thrive through conscious choices. www.honeybeelives.org



© Grai St. Clair Rice / HoneybeeLives
TOP: Queen bee with nectar and pollen. **BOTTOM:** Swarm of bees hanging while they scout for a new home.



© Matt Petricone, Photographer

ABOUT Grai St. Clair Rice

A native of New York City, Grai loves the balance of city and country, and delights in nature within urban environments. Her love of honeybees and all the lessons they can teach us is something she shares with others through teaching, writing and photography. She lectures on gardening for honeybees and the unique aspects of honeybees for Beekeepers and the general public. She is currently developing presentations for schools and colleges, and working on two different books.

www.honeybeelives.org



Photograph provided by The Elephant Project

ELEPHANT PROTECTION

A 21st CENTURY APPROACH

by Adam M. Roberts / M. Dane Waters

Senior Advisor The Elephant Project / Founder and President The Elephant Project

Free market initiatives, a 21st century approach, could save thousands of elephants....

Elephants remain in trouble across the globe. By now everyone will be familiar with the plight of elephants globally. In Africa, the continent-wide ivory trade in the 1970s and 1980s decimated elephant populations, cutting the numbers across Africa from approximately 1.3 million to fewer than 600,000. Entire families were slaughtered for their coveted tusks, the African savannah littered with the withered carcasses of this majestic animal, unceremoniously destroyed to feed the ivory markets of Asia. Elephants were killed in massive quantities, their faces literally sawed off to extract the tusks.

In 1989, with the global prohibition on commercial ivory trade instituted by the Parties to the Convention on International Trade in Endangered Species, commodification of elephant ivory slowed dramatically, prices per kilo of ivory tusks bottomed out and markets dried up, and elephant populations stabilized as it became taboo to own or purchase ivory.

Since the important 1989 decision, the assault on elephants has continued apace. In 1997, Botswana, Namibia, and Zimbabwe were granted the right by CITES Parties to sell off their ivory stockpiles (later South Africa followed), signaling to poachers and profiteers that ivory markets were open again. Terrorist outfits such as Al Shabab and the Janjaweed increasingly killed elephants across Africa and traded ivory for guns to ply their deadly trade. International crime syndicates professionalized commercial poaching operations and international ivory trade, defining clear routes of commerce. And now, even in

the U.S., once being a proud global conservation leader, can hunting trophies from Africa's elephants again enter the U.S. marketplace. Once a hunter brings a tusk into the country, there is practically no control over what happens to it – cut it, carve it, sell it fraudulently as an antique...

The bottom line is that elephants in Africa are not safe. The world needs an unequivocal global prohibition on trade in elephants, at least for the next twenty years, to give the species a chance to recover.

But Asia's elephants are similarly in peril. Their population numbers about one-tenth Africa's elephants. They are subjected to poaching for ivory as well, but also are captured live and beaten until they are broken for use in captivity around the world (zoos and circuses). They are killed after encounters with humans, increasingly inevitable as their habitat continues to dwindle. While Africa's elephants capture the world's imagination and global calls for action, Asia's elephants require protection, too.

Myanmar Case Study. Myanmar, formerly known as Burma, remains a volatile state. The country was in the news just a few years ago for a move toward democratic rule. But now the country is making headlines because thousands of the Rohingya people in the Rakhine State of Myanmar have brutally perished in sectarian violence and even more have become refugees trying to flee the country or are forced to languish in refugee camps.

Elephants in Myanmar are at risk as well. There are currently estimated to be an anemic national population of wild elephants in Myanmar of 1,400 to 2,000, but the

Continued on page 12

ELEPHANT PROTECTION A 21st CENTURY APPROACH



LEFT: A. Dane Waters and Advisory Board Member, Win Aung, with Burmese mahouts. Mahouts (elephant rider, trainer, or keeper) typically start as a boy in the family profession when assigned an elephant early in its life, and remain bonded to each other throughout their lives. **RIGHT:** A. Dane Waters with a Burmese timber elephant.

number, quite frankly, could be even lower. The number of elephants in Myanmar killed by poachers seems to be rising. More than 140 were killed from 2010 to 2017 but now they are averaging one kill a week.

Myanmar's elephants, revered for thousands of years and used in transportation and construction and logging are now increasingly susceptible to poaching in the wild. They are being killed by guns and by poison arrows. They are being killed not only for their ivory, but also their skins and teeth and hair. Skins are becoming more and more profitable as all elephants have skin, whereas in Asian elephants, only the males have tusks. The skin is used in traditional medicines, powdered and mixed into a paste applied to the skin or polished and formed into allegedly healing bracelets.

But there is also a tragic intersection between the Rohingya crisis and the Myanmar Asian elephant crisis. Rohingya refugees are forced to live in refugee camps that are in elephant habitat or along elephant migratory routes. This means that human-elephant conflict increases considerably, leading to loss of human and elephant life alike. Elephants trample humans in the camps, killing these poor, displaced people. Elephants have been killed by electrocution and landmines placed around the camps by security forces.

But even beyond the camps, wherever elephant habitat is destroyed by humans, conflict increases as interactions between humans and elephants increase. It's a deadly dynamic. Herds of five or more elephants reportedly destroy houses and crops. As elephant habitat shrinks, they are also more exposed to poachers.

The Government of Myanmar is not blind to the challenges. Recently, The Myanmar Elephant Conservation Plan has been released to highlight the strategy for saving the elephants for the next ten years, and a long-term 100-year vision for what Myanmar should look like with a safe and

healthy population of wild elephants.

The Plan explores how to protect wild elephants in the country; how to mitigate human-elephant conflict; how to increase wildlife law enforcement; how to fight the illegal trade in elephant ivory and other parts; and how to manage captive populations.

Saving captive elephants in need. Myanmar is home to the largest captive Asian elephant population in the world. Of the 5,520 elephants in captivity, 2,985 are owned by the government-run Myanmar Timber Enterprise (MTE), and 2,535 are privately owned. The number of captive elephants significantly exceeds the number of elephants in the wild in Myanmar.

In April 2014, the Myanmar government imposed a ban on exporting raw teak and timber allowing only the export of high-end finished timber products. This resulted in the MTE no longer leasing privately owned timber elephants for logging and caused thousands of elephants and mahouts to be unemployed. The MTE also retired almost all the government-owned timber elephants. Unfortunately, the MTE cannot continue subsidizing the care of their elephants since they no longer generate revenue from logging. If nothing is done to provide financial support for these elephants, the government-owned elephants will be put back to work logging (destroying the fragile ecosystem), be cruelly trained as performance animals and live a life of begging, or released into the wild to fend for themselves, which will most likely result in their death at the hands of poachers or from dangerous conflict with humans.

The Elephant Project, a global leader in innovative wildlife protection strategies, recently announced that it has formally petitioned the Government of the Republic of the Union of Myanmar to establish a unique elephant sanctuary program, providing for the relocation and lifetime care of a significant number of Asian elephants in the

Continued on page 13

ELEPHANT PROTECTION A 21st CENTURY APPROACH



© Photographs provided by The Elephant Project

country. This unprecedented effort will inject hundreds of millions of dollars into the Myanmar economy, creating a perpetual and powerful funding source for the sanctuary established to house and protect the country's private and government-owned timber elephant population. It is a win for the government, donors, the Burmese people, and most importantly the elephants.

The Letter of Intent submitted by The Elephant Project, proposes to establish an elephant sanctuary or a system of sanctuaries in Myanmar that would provide a fully-funded model for domestic elephant protection and long-term care. Specifically, The Elephant Project will develop significant residential and commercial real estate investment opportunities in the country to underwrite the costs of operations for the elephant sanctuary in perpetuity. This development would be located adjacent to the sanctuary and permit viewing of elephants for "ecotourism" and "voluntourism".

Through a public/private partnership, The Elephant Project and the Myanmar government will implement free and fair market solutions to help give timber elephants and their caretakers, or mahouts, a better future. Working with all relevant stakeholders, The Elephant Project will identify appropriate tracts of land to build a world class commercial and residential real estate development and sanctuary where elephants and elephant families can exhibit natural behaviors and act on all natural instincts, including access to natural food and water sources, natural environmental enrichments and conspecifics; enjoy a safe environment free from human conflict and protected from poachers; and access to veterinary services when such human intervention is in the best interest of the individual animal.

Additionally, The Elephant Project will embark on an ambitious regional relocation plan, working with the

Myanmar government to translocate a small number of government-owned timber elephants to other countries, such as Cambodia, that are equipped to provide suitable protected areas to house the species. In Cambodia, for instance, decades of war and millions of landmines have decimated the country's wildlife. The Elephant Project's efforts will provide elephants and a funding source to help ensure the long-term survival of Cambodia's elephants.

Imagine a million acres of protected areas, with one small section containing 100-200 homes and the rest filled with free-roaming, former captive logging camp elephants. With this model, commercial real-estate enterprise will underwrite the humane elephant care in perpetuity. In a world where threats to elephants and the people who live near them remain pervasive, creative win-win solutions are hard to come by. The Elephant Project, a replicable model that can be employed globally in any developing country elephant range state, could provide a humane solution to a serious conservation and animal welfare problem.

The Elephant Project's time has come!

ABOUT THE ELEPHANT PROJECT

A 501(c)(3) charitable organization dedicated to develop new ideas and solutions to address the threats to elephant survival. An innovative approach fosters new dynamic and humane economies to create sustainable revenue streams for elephant protection and related conservation efforts based on free market principles.

These revenue streams fund solutions that address the short and long-term needs of elephants, the communities in which they live, and their environment - fostering an environment where a protected elephant is worth more than a dead one.

<https://www.theelephantproject.net/>



Alaskan Brown Bear sow and cub, Lake Clark National Park, Alaska.

© Ashleigh Scully, Photographer

SHINING A LIGHT ON CONSERVATION

by Ashleigh Scully
Student and Wildlife Photographer

My name is Ashleigh Scully, and I am a 16 year-old wildlife photographer from New Jersey. I started photographing wildlife at the age of eight. Since then I've focused my photography on capturing intimate moments of wildlife behavior, and have dedicated my work to supporting and raising awareness to conservation causes. I am so honored to contribute to this newsletter!

On a trip to Alaska many years ago, I was inspired to photograph many of the coastal species that caught my eye - whales, brown bears, dolphins and bald eagles. I began my hobby with the simplest of gear, an Olympus point and shoot camera which was light and easy to use. I used it around our New Jersey yard to capture many of the smaller species that we find here - frogs, turtles and snakes. I was always experimenting with new angles, perspectives, and artsy ways to capture a shot from a scene that no one would expect. This is what helped develop my eye for composition. As I got older, I developed a serious interest in capturing images of larger subjects, especially the red foxes that we would see often in our yard. With a camera body donated by my mother, and a longer lens on loan, I started to take my photography to the next level.

As the years went by and I started to expand my interest in photography, I upgraded to a few different cameras.

My goal, however, never changed. I was always trying to create a scene that might inspire or create interest and compassion in a particular subject. For me, I grew up cherishing owls and canids. I don't know why exactly, other than red foxes and coyotes always reminded me of my dog, and owls were these mysterious raptors that no one ever expects to see. Photography gave me a window into



Ashleigh Scully

© Gerry Scully, Photographer

Continued on page 15

SHINING A LIGHT ON CONSERVATION



LEFT: Red Fox, Yellowstone National Park, Wyoming; **RIGHT:** Eastern Screech Owl, Morristown, NJ.

© Ashleigh Scully, Photographer

the world of these subjects, and with time and patience, I learned how to find them, and photograph them.

I used camouflage blinds for red foxes, often following their tracks or observing their behavior at certain times of the year, which gave me insight into how I could position myself for an image. My favorite time of year for foxes is the spring, when you may have a chance to photograph red fox kits. I always look for den sites near my house, and when found, I do everything I can to respect the parents and not disturb their important work. A blind has helped me do that. I've also photographed red foxes in Wyoming – in both Yellowstone and Grand Teton National Parks. I have had red fox photos displayed in both the Smithsonian Museum of Natural History in Washington, D.C., and in the London Museum of Natural History. This gives me hope that people around the world will be inspired to learn more about this amazing animal.

People are always surprised when I tell them I photograph owls. First of all, not many people have ever seen an owl, and secondly, they believe that owls are only out at night, and would therefore be impossible to photograph. To photograph an owl, you have to find one, and finding one takes three things - 1) knowledge, 2) patience and 3) more knowledge! Finding owls means you have to know where to look, and what signs may lead you to the elusive subject. Tree cavities may hold screech owls, pines along meadows may hold barred owls, and listening to calls at dusk may give you a clue about where a great horned owl likes to hunt. My favorite owl subject is the great gray owl, which I photograph often in Wyoming. This owl may hunt in the daytime more often than the previous three, and can be found out in open meadows, along fence rails, or roadsides. In all cases with owls, I never use a flash and instead focus on the dawn and dusk hours to locate and

photograph these raptors. Here in New Jersey, I especially enjoy looking for eastern screech owls on cold, sunny days as they warm themselves in tree cavities. This can make for a really beautiful photograph!

I am often asked what advice I can offer to younger photographers. Firstly, it doesn't matter what type of equipment you have. You could take your iPhone, a point and shoot camera, and even an iPad and still do the same things that I did. I used to go out all the time and take pictures of newts and salamanders with my old iPad. After you practice enough, you should start researching examples of composition. This means looking at a scene and picturing in your mind exactly how you want to frame it with your camera. You can use the "rule of thirds", leading lines, or framing using natural elements, for example. Once I got to this point, I was constantly looking at other photographers work, learning from their styles to try and develop my own.

From day one I knew I was going to shoot only wildlife. I do landscapes every now and then, but my passion has always been for wildlife. There are lots of options for a young photographer: wildlife photography, landscape photography, architectural photography, people, portrait, and so on. I suggest trying everything to see what your passion is, or what you have more interest in.

To help share my work, meet other photographers, and get myself out there, I joined a few websites. One was NatGeo Kids' MyShot, a website where young photographers could upload their work, share comments, thoughts, and rate your photos on a scale of 1-5. The best part was that the editors of NatGeo Kids would give you little awards like "cutest shot of the week" award. I met a lot of friends on

Continued on page 16

Continued from page 15

SHINING A LIGHT ON CONSERVATION

that website that I still talk to today! Another great website is Flickr. I used this one a lot and got more advice from adults on how to improve my style and composition.

My style is still currently developing, and it takes a long time to do so, but it only gets better from where you start. I'd say social media played a huge role in helping me develop photography skills. Getting feedback and opinions from other people is so important. However, attending workshops and joining a camera club were and still are some of the best decisions I've made. When I was around 12 or 13, I joined a local camera club, where they had competitions every week and a judge would come in and rate your images. They had categories for everything, including botany, insects and ice! They also gave their opinion anonymously, and other photographers added feedback too.

Another great way of learning for me was attending workshops from other photographers. It helped me expand my interests, get feedback from a professional, and it even got me to shoot landscapes. The best part about these workshops is you are out in the field photographing with a few other people, who you can also learn from, and I am glad to call many of them friends. Workshops are a great way to put yourself out there once you think your skills have reached a certain level. The next level in my opinion would be to start submitting to competitions. Whether they are small and local or international, it's a great way of exposing your work to others. Not only that, but once the winners are announced, you can see the winning images and learn from them and enter the next year. Also, if your school has any photography clubs, classes, or competitions, that's also a great way to connect with other kids who share the same interests in photograph as you!

Today, my photography focus is to shine a light on conservation issues. Each image can tell a powerful story, and my goal is to always leave a viewer wondering how they can learn more about a subject, its behavior, or its status in the world. Through this work, I have connected with many very smart and dedicated people, including those researching great gray owls and mountain lions, those rehabilitating injured raptors, and in general, those working to make positive changes in how the world perceives wildlife. This gives me great hope, and makes me believe that my photography can have an impact. As my friend and National Geographic photographer Cristina Mittermeier said to me, "Never turn down an opportunity to speak up for wildlife!"

My camera is a powerful tool, and our wildlife needs help. What better way to bring attention to our world's creatures than with a beautiful and moving photograph! I am really looking forward to seeing where this passion takes me next.



© Ashleigh Scully, Photographer

TOP: Great Horned Owl, Jackson Hole, Wyoming; **BOTTOM:** Black Bear cub, Great Smoky Mountains, Tennessee..

More About Ashleigh Scully

Ashleigh is the winner of many accolades, last year alone she won 5 awards including:

Wildlife Photographer of the Year, London Natural History Museum, 11-14 year-old Division (Winner)

Nature's Best Windland Smith Rice Int'l Photography Awards, Youth Division (Youth Wildlife Photographer of the Year)

Yellowstone Forever Photo Competition (Nature's Best and Yellowstone Park Foundation), Youth Wildlife (1st Place)

Audubon Magazine Photography Competition (Top 100)

<http://www.ashleighscullyphotography.com/>



© Bryan D. Watts, Photographer

Two northern gannets tangled in a long-line fishing rig. Fishing bycatch is a major source of mortality for seabirds along the coast of the United States and throughout the world. Under the new memo, there will be no liability for killing gannets or many other seabirds with fishing gear..

MIGRATORY BIRD TREATY ACT REVERSING TERMS OF ENFORCEMENT

by Bryan D. Watts

Director, Center for Conservation Biology

College of William and Mary / Virginia Commonwealth University

On December 22nd as the nation was gearing down for the festive Christmas holiday, the Department of Interior quietly released a memo redefining the terms of how the Migratory Bird Treaty Act (MBTA) will be enforced. This new interpretation will have far-reaching impacts on bird conservation throughout the United States and represents the culmination of a decades-long fight by lobbyists to undermine the Act. The action effectively removes (by interpretation) a key prohibition and constrains the USFWS from pursuing the original intent of the Act.

The MBTA (and its predecessors) has been the legal cornerstone of bird protection in the United States for more than 100 years. The Act represents the legal first-line-of-defense for more than 1,000 species and its mere existence and long history is a reflection of how our society has valued bird populations. By drawing a line in the sand defining acceptable conduct, the Act has educated generations of conservation-minded citizens and set a standard for corporate behavior. The memo released on 22 December shifts the line and by doing so represents

a sea-change in the value that our society places on bird populations.

Wildlife laws are often vague and include terms that are open to interpretation. From a practical standpoint, implementation of these laws requires that regulatory agencies formulate working definitions that may be used to clarify prohibited activities to telegraph intended prosecutorial boundaries. Changing the definitions effectively changes which behaviors will be prosecuted

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.

<http://www.ccbbirds.org>

Continued on page 18

MIGRATORY BIRD TREATY ACT REVERSING TERMS OF ENFORCEMENT



© Bryan D Watts, Photographer
A sample of more than 40 pounds (>1,000) of cedar waxwings killed along less than 100 meters (.06 miles) of Interstate 64 in Virginia. The birds were attracted to their deaths by fruiting shrubs planted in the median. The situation was resolved when the Virginia Department of Transportation agreed under threat of MBTA to remove the shrubs. Under the new interpretation of MBTA, the U.S. Fish and Wildlife Service would be impotent to request such removal.

under the law. The MBTA clearly states a prohibition on “killing” protected birds. Over the past several decades, the U.S. Fish and Wildlife Service (USFWS) has recognized killing to include “intended take” (e.g. shooting and capture) and “incidental take” (unintended killing) as prohibited behaviors under the Act.

In practice, the USFWS has long recognized two forms of “incidental take,” including accidental killing where the mortality could not have been reasonably anticipated or avoided and unintended killings where the mortality could have been reasonably anticipated and prevented. No one wants to prosecute every homeowner who has had a bird fly into a window or every driver who has hit a bird flying across the road, and no prosecutions of this type have been brought forth. However, situations where a party knowingly places large numbers of birds at risk of being killed should be avoided (see example below following the main story), and it is in the public’s interest to have legal deterrents to these activities. In the past, the USFWS has used the MBTA to work toward resolving these types of incidental takes to protect bird populations. The 22 December memorandum eliminates the legal avenue to find a reasonable solution.

The MBTA was passed during a time when very large numbers of birds were being taken for commercial enterprises for collections or to prevent perceived impacts to game or farm animals. However, the intent of the MBTA

was not merely to restrict recreational collecting and other activities, but instead to preserve bird populations in perpetuity. This new interpretation redefines “killing” as only including acts with the “intent” to kill birds. Birds that are killed during activities where the primary intent is other than to specifically kill birds are no longer subject to the Act. Bird populations belong to the public, and reasoned

ABOUT THE MIGRATORY BIRD TREATY

The Migratory Bird Treaty Act (MBTA) of 1918, is a United States federal law, first enacted in 1916 to protect migratory birds between the United States and Great Britain. The U.S. Fish and Wildlife Service has statutory authority and responsibility for enforcing the MBTA. The statute makes it unlawful to pursue, hunt, take, capture, kill, or sell birds listed therein as migratory birds without a waiver. The statute does not discriminate between live or dead birds, and also grants full protection to any bird parts including feathers, eggs, and nests. Over 800 species are currently on the list. Unlike the Endangered Species Act, the MBTA is relatively unknown to the general public.

ADDITIONAL RESOURCES:

<http://www.audubon.org/news/the-migratory-bird-treaty-act-explained>

<https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>

https://en.wikipedia.org/wiki/Migratory_Bird_Treaty_Act_of_1918

Continued on page 19

Continued from page 18

MIGRATORY BIRD TREATY ACT REVERSING TERMS OF ENFORCEMENT

measures should be taken to protect our shared heritage and not leaving them without a legal advocate.

I have worked in the bird conservation business long enough to have seen many, many examples of how the MBTA has been used reasonably and effectively to avoid unnecessary impacts to bird populations. In the majority of cases, birds could be protected with minimal impacts to business. One example from the past comes to mind.

In June of 1994, while surveying for piping plovers on the north end of Wallops Island in Virginia, I could see an unusually white wrack line in the distance as the tide ebbed out. The mystery was not resolved until I actually reached the line, examined the white objects, and realized that they were the bleached keels of red-throated loons. The line of keels stretched more than a mile to the north and represented 10,000+ loons. Sometime during the winter there had been a significant kill and the keels piled up by the surf were what remained. Later investigation revealed that the loons were bycatch from the nearshore gill netters, the same group that had been responsible for scores of sea turtles and bottlenose dolphins that had been washing up on the islands for years. The netters were not charged, but with full consideration of the implications of MBTA, they were convinced to move farther off shore beyond the normal foraging area of the loons.

Under this new interpretation the loons killed by gill netters would not be subject to any legal violation as the gill netters were there to catch fish, not birds. Yet since they had to remove the loons from nets, they had to be aware of the hazard they were creating for a federally protected species. But here killing the loons was a mere nuisance.

Removing any legal liability from parties who "incidentally" kill large numbers of protected birds, despite being able to avoid doing so, clearly does not reflect the original intent of this 100-year-old conservation law.

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

WHAT CAN YOU DO TO HELP?

Send a letter to your representatives in your state government, Congress and the administration urging them to uphold the MBTA and to oppose any legislation that would weaken the MBTA's ability to keep birds safe.

ADDITIONAL RESOURCES:

<https://www.govtrack.us/congress/members>

<https://www.house.gov/representatives/find-your-representative>

<https://www.house.gov/representatives>

https://www.senate.gov/general/contact_information/senators_cfm



© Bart Paxton, Photographer

Like all insects, leafcutter ants have a body comprised of three main parts - head, thorax and abdomen. The head is where the mouth and sensory organs are found - two long antennae and five eyes (two big, compound eyes on either side of their heads and three simple eyes on the tops of their heads). The thorax is where the legs and wings are joined to - each of the six legs have nine segments and two claws for gripping whatever the ant is climbing. The abdomen holds the digestive organs, including the crop, which can be used to store food for the colony.

THE HIGHLY SOCIAL LEAFCUTTER ANT

Next to humans, leafcutter ants (*Atta*, *Acromyrmex*) form the largest and most complex social groups on earth. Found in South and Central America, Mexico, and parts of the southern United States, leaf-cutter ants make up much of the biomass in the New World tropics. They support forest ecosystems by keeping soil turned and aerated and they recycle vegetation and soil nutrients.

Leaf-cutter ants are incredible workers. They do not eat the leaves they cut and carry to their nests. They collect leaves for their fungus gardens. It's the fungus they grow from the decomposing leaves that's their food.

A leaf-cutter ant colony is made of ants that fill different roles, such as workers and soldiers. Most of the ants in a colony are workers, but they often have different jobs, depending on their body size. The smallest ants, called minors, maintain the fungus garden and watch over eggs the queen ant has laid. The queen is the only reproductive

Continued on page 20

THE HIGHLY SOCIAL LEAFCUTTER ANT



© Bart Paxton, Photographer

Leafcutter ants stand out because they march along in single file while carrying big chunks of leaves, up to 50 times its own body weight. That's like one of us carrying a medium-sized van. These leaves are then used to grow a fungus for the ants to eat.

individual in the colony and when she dies the colony begins to fade.

Establishing a new colony isn't easy. Winged ants, both females and males, leave their nests in large numbers to take part in what's known as a "nuptial flight" or "revoada". A female and potential queen needs to mate with several males then return to the ground (loses her wings) and searches for a place to start her fungus garden and begin a future colony. Under 5% will succeed.

Colonies can live 10 to 15 years and contain up to eight million individuals. In addition to being home for the ants, the underground nests also house their fungus gardens, nurseries, trash chambers and other chambers. The central mound of their underground nests can grow to more than 98 feet across, with additional smaller, radiating mounds extending out.

In some parts of their range, leafcutter ants can be a serious agricultural pest - defoliating crops and damaging roads and farmland with their nest-making activities. Some can strip an entire citrus tree in less than 24 hours.

Leafcutter ants also hold an important place in the environment. They are essential in turning and aerating soil in all the ecosystems where they occur, sometimes even surpassing the work of earthworms. They help spread seeds for plants and are food for countless animals including giant anteaters and even humans. Many are pollinators and even more are decomposers, breaking down organic waste and creating healthy habitats.

RESOURCES:

https://en.wikipedia.org/wiki/Leafcutter_ant

<https://www.mnn.com/earth-matters/animals/blogs/crazy-facts-leaf-cutter-ants>

<http://animals.sandiegozoo.org/animals/ant>

<https://www.activewild.com/leafcutter-ant-facts-for-kids-and-adults/>

DID YOU KNOW? Ants release scents, called pheromones, from glands on their body which are read or received through the antennae of the other ants in the colony. Many different kinds of information can be communicated this way. A scent trail can be left on the ground to lead other workers to a food source. A scent can alert the colony to the presence of an intruder or danger. Dead ants have a scent that signals the cleanup workers to remove the body from the nest, keeping it clean and free of disease.

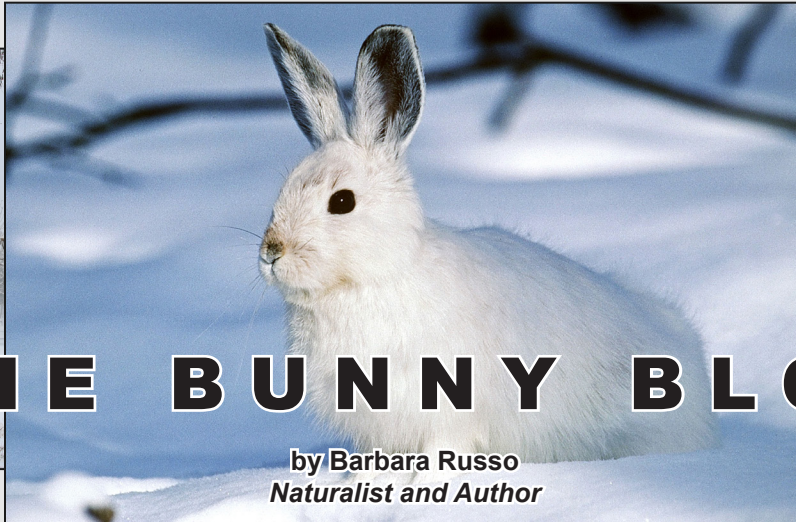
Leafcutter Ant Colonies Can Be Observed in Some Zoos in the US Including:

<http://zoo.sandiegozoo.org/animals/leafcutter-ant>

<https://www.houstonzoo.org/meet-the-animals/leafcutter-ant-cam/>

<https://www.centralpark.com/things-to-do/central-park-zoo/insects-arthropods/>

<http://cincinnati zoo.org/blog/animals/leaf-cutting-ant/>



THE BUNNY BLOG

by Barbara Russo
Naturalist and Author

Snowshoe hare in winter. © Photograph provided by New Hampshire Fish and Game Dept

BUNNY, IT'S COLD OUTSIDE!

Snowshoe hares feel right at home and thrive in the brisk weather many parts of the country are experiencing right now. One of more than 30 species of hare that live around the world, these real-life snow bunnies are native to North America, occurring throughout most of Canada, Alaska, the Rocky and Appalachian Mountains, even as far south as Tennessee.

We humans may have to bundle up in puffy coats, hats and gloves to stay warm, but the snowshoe hare (*Lepus americanus*) is born with what he needs to survive winter's harsh elements. He has a thick white coat and extra-large feet that help him move around in the snow. There's not too much Old Man Winter can throw this resilient lagomorph's way that he can't handle.

The snowshoe hare's fluffy coat does more than keep him warm and looking adorable. It changes color seasonally, providing excellent camouflage that helps keeps him safe from predators. It's a beautiful shade of white in winter, which allows him to blend into the snow, making himself not-so-obvious to, say, a lynx. Come spring and summer, his fur turns brown as snow melts and green shrubbery begins to appear again. He may not blend into the scenery as impressively as he does in the winter, but being very fast and agile, he still stands an excellent chance of escaping predators. According to [National Geographic](#) online, it could take about 10 weeks for the hare's coat to completely change color.

Now might be a good time to explain that snowshoe hares are not rabbits. The two are completely different species in the same family within the taxonomic order of Lagomorpha. Although they look very similar, there are some obvious differences between all hares and rabbits, including their size and how they are born. Generally, hares are larger. They are born fully furred and can see, ready to leave the nest rather quickly (yes, hares live in above-ground nests, not rabbit holes). Baby rabbits are born without fur, with eyes closed. They live with their mothers in burrows or nests longer than hares do.

By the way, baby rabbits are called kits; baby hares are leverets.

The snowshoe hare is listed as "Least Concern" by the

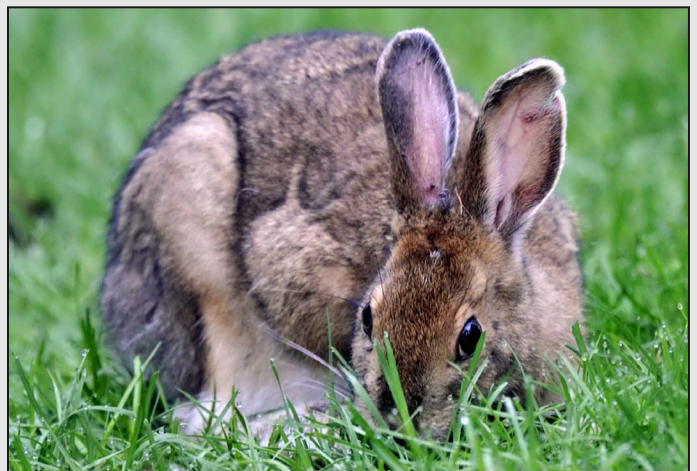
International Union for the Conservation of Nature, so it's not uncommon to spot them within their range, or at least evidence of them. Laurel Storm, who lives in northeastern Maine by the Canadian border, has seen the hares in her area a few times, but she mostly sees their footprints.

"The few times I have seen them were in late spring when their coats are starting to turn back to brown, and the white no longer camouflages them," Storm said. *"What I do see all the time are the tracks left in the snow when I walk the trails on our land."*

Canada resident, Josiane Sarrazin, would often see snowshoe hares when she lived in Val-des-Bois, a quaint, country town in Quebec. One even came right up to her, which is a rare for wild rabbits and hares to do.

"One used to come at our feet when we stood there," Sarrazin said. *"But if they hear something, they're gone so fast."*

So as winter continues, the snowshoe hare will continue to sport his pristine white fur until the weather starts to warm and the snow begins to melt. Then, the hares will turn brown, letting us know that spring is in the air and summer is around the corner.



Snowshoe hare in spring. © Photograph provided by New Hampshire Fish and Game Dept



© Photograph provided by Avian Wildlife Center

LEAD POISONING BY AMMUNITION

by Giselle Chazotte Smisko

Co-Director, Avian Wildlife Center, Naturalist, Photographer and Master Bird Bander

The bald eagle perched for days in the tree with one leg dangling. A trap had been set, but the bird stoically remained on its perch.

State officials contacted the Avian Wildlife Center to ask for assistance with the capture. My volunteer, Katie Besbris, and I arrived to see the adult eagle still in the tree in a backyard. As we hid from his view and discussed what options we could try, a neighbor approached the tree. The eagle started shifting nervously, spread his wings and took flight over the house. I watched in despair as it flew, with one leg hanging lifeless, out of sight. But thanks to alert crows mobbing the large predator, driving it back down close to the ground we pursued the eagle on foot.

Each time we got close, it flew again until finally, exhausted, we caught up to the bird and grabbed it. The chase and capture turned out to be the easy part of this eagle's rescue.

We took the eagle to The Raptor Trust where it was examined, x-rayed, and admitted. The radiograph showed the tibia in the leg was shattered

by a pellet. Fragments of the lead pellet were scattered in the tissues around the fracture. The injuries necessitated multiple surgeries; care was complicated, recovery slow and uncertain.

What became the most difficult issue to resolve was the lead poisoning from the pellets that spread through the eagle's body.

Sadly, this bald eagle was the not the exception when it comes to instances of lead poisoning in wildlife. Work by researchers and rehabilitators has shown that many animals suffer from lead toxicity. One of the principle sources is ammunition. Although there are still birds illegally shot like this eagle, many are poisoned when they are eating. Scavengers, including eagles, other hawks, and vultures will consume the ammunition when feeding on animal remains.

Lead bullets shot from a rifle are known to fragment on contact with tissues. If the bullet hits bone, the spread of fragments is more significant, penetrating tissues a distance from the wound. Testing

done by the Minnesota Department of Natural Resources research group showed tens to hundreds of fragments from one shot. (Human—Wildlife Interactions 4(2):257-265, Fall 2010 by MD Grund et al) The numerous pieces can be small, virtually undetectable, but potentially lethal when consumed.

The Center for Biological Diversity published a Lead Poisoning Index quoting statistics from various studies. It states over 130 species of mammals, birds, amphibians, and reptiles have been poisoned by lead ammunition. Of 100 free-flying California condors, 90 have suffered at least once from lead toxicity. More than half of loon deaths in New Hampshire in 20 years were attributed to lead. Minnesota documented at least 30 bald eagles die annually in the state from ingesting lead ammunition.

Neither are humans immune to the toxin. People consuming venison will unknowingly swallow the minute fragments. The website huntingwithnolead.org reports a

Continued on page 23

LEAD POISONING BY AMMUNITION



© Photograph provided by Avian Wildlife Center

study with processed venison from 30 different deer that was tested for lead. Out of the 234 packages of venison steaks and ground meat, one third had one or more metal fragments. Testing of the fragments showed 93% were lead.

The Centers for Disease Control and Prevention conducted tests on 736 people to compare blood levels in those who regularly consumed game meat to those who did not. Results showed lead levels in the former group were 50% higher than the latter. There is debate about what concentration, if any, could be considered a safe level in the blood, but minimizing exposure is always advised.

Lead is a neurotoxin that can have negative effects on the body at low levels. The CDC toxicity reports show children are more susceptible to damage from lead. Recommendations are that children and pregnant women should avoid consuming game meat to reduce risk from lead.

It is difficult to ascertain the full extent of lead's effect on wildlife. Animals can consume sub-lethal levels that can significantly impact their ability to survive. Noted effects of lead once absorbed into the blood

include anemia, decreased growth rate, slowing of digestion, neurologic changes that affect the animal's learning capacity, memory, depth perception, balance, and more. The animal's ability to feed, reproduce, resist disease, and protect itself from predation and other hazards are compromised.

There is a way to reduce the problem and it has been put into practice. When ammunition was shown to be a major factor in waterfowl mortality due to ingested lead, the use of lead shot was phased out for this group of birds with positive results. There are alternative ammunitions made with other metals, but there is resistance to change.

A ban on lead ammunition on U.S. Fish and Wildlife Refuges was quickly reversed with a change in administration. Education is key to understanding the issue and changing habits.

As for the bald eagle with the broken leg? After months of intensive care, repeated chelation treatments to lower the lead levels, and a will to survive the eagle returned to the wild.

It was a beautiful sight to see it soar free!

"NON-LEAD" RESOURCES:

<http://huntingwithnonlead.org/>
Hunters and wildlife biologists who recognize the common ground between hunting and wildlife conservation; are dedicated to promoting hunting and wildlife conservation through the use of non-lead ammunition and by providing accurate information and resources.

<https://www.fws.gov/midwest/refuges/Review%20and%20Assessment%20paper.pdf>

<https://www.wildlife.ca.gov/Hunting/Nonlead-Ammunition/Certified>

<http://www.huntingwithnonlead.org/ammoMain2015.html>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5161761/>

https://www.nwhc.usgs.gov/disease_information/lead_poisoning/

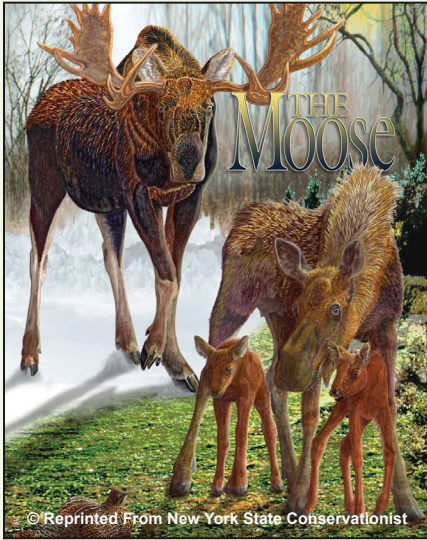
About the Avian Wildlife Center:

a wildlife rehabilitation center that treats all species of injured and orphaned wild birds with the goal of returning them healthy to the wild. The Center offers educational programs, provides an information resource, works on conservation projects and field research to better protect our native species.

The Center, a 501(c)(3) tax-exempt organization, is located in northwestern New Jersey and is funded through private donations.

www.avianwildlifecenter.org

DISCOVERING NATURE



http://www.dec.ny.gov/docs/wildlife_pdf/moose2.pdf

ADIRONDACK MOOSE STUDY

The moose (*Alces alces*) is the largest member of the deer family and the largest land mammal in New York State (NYS). Bulls weigh from 600 to 1,200 pounds and stand up to 6 feet tall at the shoulder. Cows weigh from 500 to 800 pounds. Only bulls grow antlers, beginning in Mar or Apr. The antlers, which regrow annually, may reach a width of more than 5 feet on mature bulls and are shed from Nov through Jan.

Moose entered NYS on a continuous basis in the 1980s, having been absent since the 1860s. NYS Department Environmental Conservation (DEC) collected sighting reports between 1980 and 1999 as an informal way of monitoring the species' progress.

DEC staff, in collaboration with other groups, are currently conducting aerial distance sampling for moose across the Adirondacks. During this multi-year research project, the team will obtain information on the status of NYS's moose population - it's health and factors that influence survival and reproduction. As part of the study, 12-moose were captured in the Adirondacks in Jan-2015, fitted with GPS radio collars, and released. Another 9-moose were captured in Jan-2016 and 5 more were captured in 2017. The movement of the moose are being remotely tracked. The goal of the Adirondack moose study is to create a moose management plan for NYS based on the data they collect. DEC, working with partners from SUNY College of Environmental Science and Forestry (ESF), estimated that there are roughly 400 moose in the Adirondack Region as of 2017.

DEC and its research partners are also seeking information from the public regarding moose sightings to provide data for this study. If you have seen a moose in NYS please complete and submit a moose sighting report found at:

https://docs.google.com/forms/d/e/1FAIpQLSesIB6t1Xf-sUPsLYSpiy58RAZYaiw499mErjw_sefZrxaXg/viewform

RESOURCES:

<http://www.dec.ny.gov/animals/6964.html>

http://www.dec.ny.gov/docs/wildlife_pdf/moose1.pdf (Moose Brochure)

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THE DELAWARE VALLEY EAGLE ALLIANCE

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

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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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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

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