

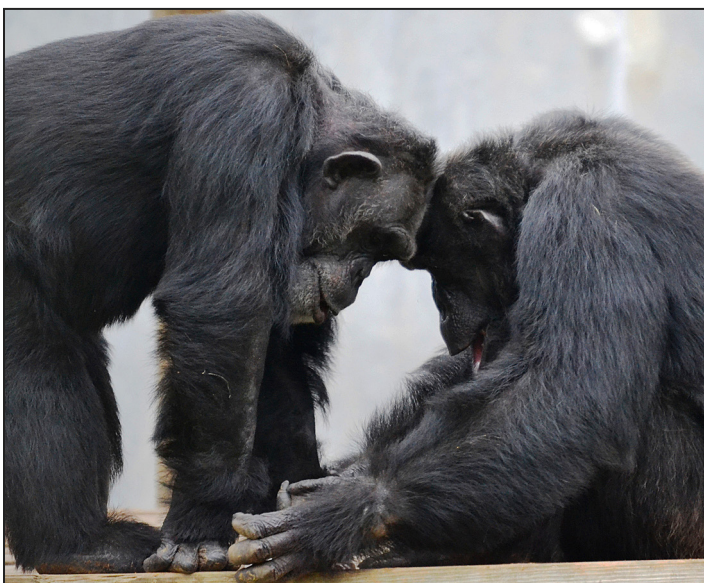
Delaware Valley Eagle Alliance

NATURE'S NEWSLETTER

ONLINE EDITION

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www.dveaglealliance.org



CARING FOR WILDLIFE

ABOUT THIS ISSUE

by the Editor

The Delaware Valley Eagle Alliance is committed to raising awareness and understanding and to promote the conservation of our wildlife and the natural environment. Conservation and preservation is a challenge that touches us all. Through our online newsletter, Nature's Newsletter, we strive to facilitate the free access and exchange of information of critical issues in the world today; to educate, inspire and empower all to take part and take action to enable all life to exist and prosper on Earth.

This issue of Nature's Newsletter features articles by or about individuals and organizations who provide for, take care of, and/or rehabilitate wildlife. We applaud their efforts, dedication and passion, and hope you are as inspired as we are by their work and successes.

Yoke Bauer DiGiorgio

FRONT COVER PHOTOGRAPHY

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Left Center Provided by Mackenzie Hall, NJDEP
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Bottom Center.. © Turtle Back Zoo

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WILDLIFE WELLNESS

at the Turtle Back Zoo

By Brint Spencer
(Director, Turtle Back Zoo)

From our smallest dart frog to the half-ton North American Bison, New Jersey Essex County Turtle Back Zoo offers a look at more than 100 different species of native and exotic animals from five continents. Granted accreditation by the AZA (Association of Zoos and Aquariums) for the first time in 2006, the Turtle Back Zoo is a special place where families can learn about animals and gain appreciation for nature.

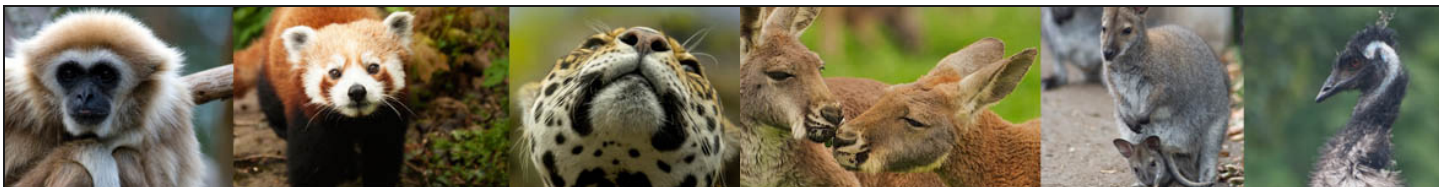
Our history began in 1962 when the Essex County Park Commission, awarded a \$400,000 contract to build a zoo on a 15.5 acre section of the county's South Mountain Reservation. It was to be a seasonal zoo designed for children. Exhibits were created based on Hans Christian Anderson's nursery rhyme themes and other children's stories. There were also farm animals and a miniature antique train ride that took visitors on a mile round trip ride through the zoo's surrounding woodlands.

The next year Turtle Back Zoo opened with a collection of 140 animals of 40 species. The zoo took its name from a rock formation located on the mountainside just east of the zoo. The Lenni-Lenape Native American tribe called this formation "Turtle Back Rock". The pattern on the rocks created by large basaltic crystals makes it appear that you are standing on the back of an enormous tortoise.

A Zoological Society was established in 1975 to promote the zoo and provide funding support. The Board of Park Commissioners that administered the zoo was replaced in 1978 by the Essex County Department of Parks, Recreation, and Cultural Affairs. The zoo completed a new master plan and began to replace the antiquated 1960's style cages with larger naturalistic habitats for its animals. In 2005 the zoo completed the new 1.8 million dollar Essex County Animal Hospital at Turtle Back Zoo. Since then the Zoo has opened a reptile center, exhibits for gibbons, jaguars, sea lions and in 2016 an African Savanna and renovated food café.

As the zoo has grown from those early days so has the

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WILDLIFE WELLNESS at the Turtle Back Zoo

commitment to the welfare of animals in our care. In 2005 the zoo opened a new animal hospital to meet the medical needs of the collection. The hospital is divided into three areas. The veterinary space includes a treatment room for animal exams, a separate surgical area for those animals that require surgery, a lab for doing in house exams and a necropsy room for post mortem exams. Last year the Zoological Society of New Jersey provided the funds to update our old film x-ray processor with a new digital x-ray machine.

Animal holding rooms allow for all incoming animals to go through a quarantine period before being introduced to the zoo's collection. These rooms have different types of housing and are designed to accommodate almost any animal the zoo brings in. The final area includes offices for the veterinary staff and animal records.

Our commitment to animal welfare extends well beyond the hospital and is a key component in how we design our exhibits. This year the zoo will be opening a new African savanna exhibit featuring giraffe, antelope and ostrich. Many features were added to this project for the comfort and safety of our new residents. The heating system has redundant boilers to maintain consistent temperature control. This is a high efficiency system that can turn over 100% of the air while losing minimal heat. Because of the height of the building's interior a separate subfloor heating system was added so the floor temperature does not drop. A back-up generator will run the building in the event of a power failure. There are three different substrates for the giraffe to walk on including a large arena area

covered with 8' of crushed stone to wear their hooves and allow their ankles to move naturally. Windows are placed at "giraffe height" so they can look outside during the winter and windows on each side of the building can be opened to allow fresh air in. All the giraffe feeders can be raised or lowered to allow the giraffe to feed at a natural height yet still allow the keepers to clean them each day.

In addition to the exotic animals that the zoo exhibits we also provide homes for some animals that are unable to survive in the wild due to injuries or other issues. The zoo's two bald eagles are good examples. The female has an injured wing that does allow her to straighten it and fly properly. The male is blind in one eye and has a head injury that causes him to also have difficulty flying. Neither of these birds would survive in the wild but serve as animal ambassadors at the zoo giving the visitor an up close look at the majesty of our national bird. Molted feathers from our eagles are collected and sent to the National Eagle Repository near Denver CO. Feathers collected there are distributed to Native Americans who have permits to possess eagle feathers for religious and cultural purposes.

Two of our sea lions are also non releasable and have found a home here at the zoo. An increasing number of sea lion pups are "stranding" at the age when they wean. These pups often have a difficult time finding food and become malnourished and dehydrated. They are brought to rehab facilities where they are nursed back to health and released. Pups are marked for identification before being released so they can be tracked. If a pup strands three times, it is deemed

non releasable and may find a home in an approved zoo or aquarium. This was the case with our two and they were moved here.

Our responsibility to the collection also has a long range component and we are responsible in which animals we breed and when. Many of our animal species are part of the AZA Species Survival Plan (SSP). These SSP species are carefully monitored to maintain genetic diversity in the N. American population through controlled breeding. We know who the parents, grand-parents, great grand-parents, etc. for all of these animals are and how each animal is related. Recommendations for breeding are made by a management group who look at the relatedness of individuals and the available space in US zoos. We recently got a recommendation to move one of our female jaguars to a Texas zoo for breeding and we kept her sister here. An appropriate male for her has arrived from California and once through quarantine will be moved to the exhibit.

The Turtle Back Zoo is committed to providing an enriching recreational experience that fosters excellence in wildlife education and wildlife conservation, so that present and future generations are inspired to understand, appreciate and protect the fragile interdependence of all living things. Come by and visit our animals.

For more information please go to:
www.turtlebackzoo.com



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Photo Courtesy of Chimp Haven

Jordon and Chicken love to play and relax with each other at the top of the structure in their enclosure. Jordon is the alpha male in his group of 12. He enjoys sitting next to Chicken during his training sessions to watch and also have to opportunity to earn some treats. Chicken is a very quiet chimp but absolutely loves to train and earn rewards from his care givers.

CHIMP HAVEN, the National Chimpanzee Sanctuary

By Cathy Willis Spraetz
(President and CEO, Chimp Haven)

Nestled in the northwest corridor of Louisiana, Chimp Haven is a hidden jewel. Surrounded by hiking and horse trails of the Eddie D. Jones Nature Park, it sits on 200 acres of prime forested real estate and is the home to almost 200 chimpanzees. Founded in 1995 by an alliance of professionals from research, animal welfare and the pharmaceutical industry, Chimp Haven is a species-specific facility designed to provide humane, cost-effective social housing for chimpanzees that are retired from biomedical research, the pet trade and the entertainment industry. In 2000, the CHIMP Act (Chimpanzee Health Improvement Maintenance Protection) was signed into law, establishing the Federal Sanctuary System and Chimp Haven was awarded the federal contract and became the National Chimpanzee Sanctuary.

Genetically, chimpanzees are more closely related to humans than any other species. Because of their physical and social similarities, chimpanzees have been an attractive animal model for many researchers. In the 1980s, the US government launched an intensive breeding program. The resulting offspring were the intended research subjects for hepatitis and HIV studies; however, with new research models and developing technologies, the use of chimpanzees in human disease research began to decline in the 1990s.

In 2005, the first two chimpanzee residents, Rita and Teresa, came to live at Chimp Haven. In 2007, the Chimp Haven is Home Act was passed. This law closed a loophole in the CHIMP Act and prohibited chimpanzees retired from

biomedical research to be returned to laboratories. In 2013 the National Institutes of Health (NIH) announced the decision to retire virtually all federally owned chimpanzees, other than a reserve of 50 in the event they were needed in research. Remarkably, NIH, in 2015, announced that there was no longer a need for this reserve colony and as such, all federally owned chimpanzees were eligible for retirement. Additionally in 2015, the US Fish and Wildlife Service changed the designation of captive chimpanzees from "threatened" to "endangered". Both of these decisions pave the way for more than 300 additional chimpanzees to make their way to Chimp Haven in the future. Currently there are more than 40 employees who are responsible for the overall care of the more than 200 chimpanzees at Chimp Haven. At least 50 more chimpanzees will be coming in 2016, and there are many more waiting.

We are thrilled that this great day has finally arrived. Many organizations and individuals have worked tirelessly to ensure these chimpanzees would have a new beginning in a sanctuary environment. Our dreams have finally been realized for these amazing animals. It's here that residents can thrive in large social groups, reside in spacious, outdoor habitats and live out their lives in a setting that offers them greater freedoms and self-determination.

People are always very curious about what to expect when they come to Chimp Haven for the first time. Standing at the front of a large habitat you quickly realize that the only barrier between you and your closest living relative is a water moat. But you can relax. Chimps don't like water and can't swim so you know you are safe. The first sounds you hear alert you to what's coming your way. Just around the bend, a number of chimpanzees are excitedly making their way to the simulated termite mound which is filled with a sticky but tasty concoction. One would never imagine while walking around along the edge of the moat that surrounds three large forested habitats chimpanzees are roaming just on the other side several feet away. These serene surroundings make up the perfect setting for Chimp Haven.

Chimp Haven is much more than just a retirement facility for chimpanzees. If you go behind the scenes you get an idea of just what goes on here every day of the year. At 7:00 AM the husbandry team arrives and begins the process of cleaning chimp housing, refreshing their bedding and feeding them their breakfast. But there's also time to greet and visit with the chimps, the best part of the day for staff. Chimp Haven has a strict "no touch" policy but most of the chimpanzees enjoy a good tickle with a long handled spoon, or enjoy the opportunity to have a reciprocal "spoon" grooming session with their caretaker. Next, the veterinary team is making rounds, handing out medications if needed, and checking on each resident. The behavior team is already at work creating the best and most novel enrichment for the chimps, whether it's giving them a novel food or banging on drums or playing violins. And we make sure that the chimps have ample opportunities to make tools, fish for ants, climb trees and wooden structures and

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CHIMP HAVEN, the National Chimpanzee Sanctuary

forage for food; all behaviors that typically occur in the wild.

In addition to caring for retired chimpanzees, Chimp Haven also has a wide array of educational programs that serve people across the country including both onsite and distance learning, classroom instruction, observational and behavioral research opportunities, internships and six visitor days each year for the general public.

The cost to care for one chimpanzee is expensive and ranges from \$18,000 to \$20,000 per year. The majority of the chimpanzees who reside here are owned by the federal government, which reimburses Chimp Haven for 75% of the cost of caring for them. That means that Chimp Haven is responsible for the other 25% or approximately \$4,500 per chimpanzee per year. Chimp Haven relies heavily on public support to bridge this gap.

As Chimp Haven prepares for new residents, its landscape is changing. The sound of construction rings throughout the sanctuary and serves as encouragement to continue the great work that is being done to bring each of these incredible animals to their forever home.

To help Chimp Haven raise crucial funds and/or visit the Sanctuary, please visit www.chimphaven.org.

Practicing Medicine Outside of the Box

One benefit for chimpanzees living at Chimp Haven is the extraordinary veterinary care that is provided for each of its residents. Veterinary staff members often work with local and national specialists and medical companies to offer treatments to improve the chimpanzees' quality of life.

Recently, Chimp Haven partnered with LiteCure, LLC to begin the trial of a new form of therapy for the chimpanzees. The Companion Therapy Laser is an FDA approved device which has been used in small animal and equine medicine for over a decade. Its benefits include: offering an alternative to drugs for alleviating pain; increasing blood supply to compromised tissue; and accelerating the healing process.

"Noninvasive medical treatment is important as it enhances the comfort and well-being of our residents," Chimp Haven Veterinarian Dr. Corrine Brown said. "I believe this new treatment could be especially useful in cases of arthritic relief in our geriatric patients and may also expedite the healing of wounds and incision sites."

Chimp Haven veterinary staff has already used the new tool on its first patient. Pam received an injury to her finger during an altercation within her group. Many times, a chimpanzee in this situation would have to be sedated to effectively evaluate and treat the wound. However, Pam has learned to present her finger through the mesh for laser therapy. *"We are pleased with the rapid healing of Pam's finger," Brown said. "We will continue to use this device and document outcomes. We are appreciative to LiteCure for helping us provide superlative care to the residents at Chimp Haven."*



Photo Courtesy of Chimp Haven

Gigi and Polly (Top) – These two elderly girls who are wild born, have been friends since 1969. They enjoy making their nighttime nests very close to each other. Polly is rather feisty, with salt and pepper hair and is borderline diabetic. Gigi is slender with beautiful dark hair. They often engage in positive reinforcement training sessions together. Polly is not quite as interested in it as Gigi, but with friend Gigi's encouragement, she gets through it.

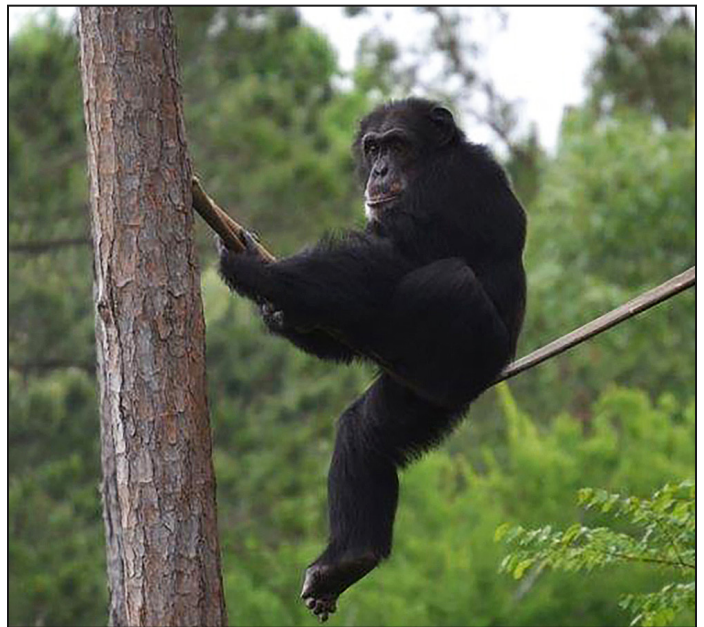


Photo Courtesy of Chimp Haven

Henry (Bottom) - Chimp Haven's only former pet, Henry (born approximately 1/1/1985), was found inside the garage where his owner kept him locked in deplorable conditions for 15 years. He was severely underweight and almost completely bald due to malnutrition. Today, he is healthy and has overcome many of the struggles that coincide with transitioning from life as a pet to greater freedoms that Chimp Haven can provide. Not only has Henry adjusted well to living among other chimps, he has achieved alpha status within his family. Henry enjoys the habitats and can often be found at the top of a tree, giving him the vantage point he needs to overlook the sanctuary.



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Rescuing and Rehabilitating Orphan Baby Elephants

By Melissa Sciacca

(Executive Director, US Friends of the David Sheldrick Wildlife Trust)

The David Sheldrick Wildlife Trust was born from one family's passion for Kenya and its wilderness. The Trust was established in 1977 by Dr. Dame Daphne Sheldrick in memory of her late husband and the founding Warden of Tsavo National Park, David Sheldrick MBE. David and Daphne's work to protect wildlife in Kenya began in the early 1950's. Their Tsavo home soon became a haven for orphaned animals, with the first elephant and rhino orphans arriving in 1952. As the wildlife's situation worsened (poaching, drought, human-wildlife conflict, and habitat destruction) the number of orphans needing help grew significantly. Daphne worked years to perfect the milk formula and complex husbandry necessary to successfully raise and rehabilitate an orphaned elephant.

Today, the DSWT has evolved into a multidimensional organization whose teams work on the ground and in the air to care for, watch over and save from harm all of Kenya's wildlife. Each of the Trust's 6 conservation programs is an integral part that works together as a whole

to carry out the Trust's mission, which is accomplished through the Orphan's Project, Anti-Poaching Teams, Mobile Vet Units, Aerial Surveillance, Saving Habitats, and Community Outreach. Still largely overseen by Daphne Sheldrick, the day-to-day operations are now run by Angela Sheldrick, daughter of David and Daphne, who has been managing the Trust's activities for over a decade. Growing up in Tsavo and later in the Nairobi National Park, Angela has been part of the Trust's vision from the start, supported by her husband Robert Carr-Hartley and their two boys Taru and Roan.

The DSWT is best known for its hand-rearing of baby elephants who have been separated from their family as a result of poaching, human-wildlife conflict, illness, and more. This is accomplished through steadfast dedication as these young elephants have suffered physically and emotionally and will be in the Trust's care for up to 10 years. To date the DSWT has successfully rescued and raised over 190 elephants and has seen

many of those elephants reintegrate back into the wild herds of Tsavo, and several have gone on to have wild born calves of their own. However the DSWT's job does not end here – the anti-poaching teams, medical units and pilots continue to ensure these ex-orphans and the wild herds are kept safe and given the future they deserve. The DSWT continues to work with communities to secure and manage wild habitats and educate the people of Kenya about the value of their natural resources.

THE ORPHANS' PROJECT The Infant Nursery Stage

Rescued orphaned infant elephants arrive at the Trust's "Nairobi Elephant Nursery" severely traumatized by the events that have caused the separation from their mother and family. The infant inevitably enters a period of deep grieving for its lost loved ones, which can last for months. During this critical period survival hangs in the balance and not all calves can be persuaded to make the effort to try to live. The Nursery offers a secure base and a loving environment to nurture these orphans at a time of greatest need.

A calf's very existence in the wild depends upon its mother's milk for the first two years of life. Over the years and through trial and error, Daphne Sheldrick was able to develop the milk formula needed for successfully rearing a new-born elephant through its first very fragile few months. This special formula must also be combined with the correct intensive and hands-on husbandry, which involves a "human family" (the Keepers) who replace the lost elephant family and stay with the orphans in the Nursery 24 hours a day, sleeping with the infants during the night on a rotational basis. The Keepers work on rotation to avoid a calf becoming too attached to any one person and pining when that person has to take time off. This "family aspect" is so important to a baby elephant, who is emotionally very fragile. The Trust's Keepers handle their "adopted" infant with gentle

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Rescuing and Rehabilitating Orphan Baby Elephants

patience and love, feeding the baby on demand, little and often, which is vital to the survival of the calf. Elephants are tactile and highly social animals, so the human “family” is always encouraged to be in physical contact with the babies as much as possible, talking to them and demonstrating genuine heartfelt affection, as would their elephant family.

Gradually the calf will settle into a 3-hourly feeding routine throughout the day and night, with the Keepers always present to represent the orphan’s lost family. The orphan must be watched at all times and their Keepers must protect them with blankets when cold, rainwear when wet and sunscreen and an umbrella when exposed to sun during the first 2 months of life. Infant elephants are also difficult feeders and the Keepers need endless patience to encourage the calf to take sufficient milk to sustain their life and help them to thrive. The first molars erupt between 1 and 4 months. This teething can trigger fever and diarrhea which can be life threatening, plunging the calf into rapid physical decline through dehydration. Throughout, the Keepers are always present to provide the best care possible and all the medical attention they need.

Like human children, baby elephants need toys and stimulation. Being highly intelligent, with a giant memory, distractions of all sorts must be built into their daily routine. The Keepers take the orphans on walks in varied surroundings with unlimited access to nature’s toys such as sticks and stones, plus artificial playthings such as rubber tubes and balls.

Elephants like all wild animals have instinctive natural needs. Wild babies need freedom and exposure to a natural environment in order for instinct to become honed and equip them with the strength they need to reintegrate into the wild. Discipline establishes the boundaries of acceptable behavior around humans. This must be meted out gently and with sensitivity, and only after the calf has settled down and understands tone of voice and the accusing wagging of a finger. It is essential however, to make a big show of forgiveness later on, so that the calf understands that it was unpopular not because it is not loved, but rather for a wrongdoing. With elephants, one reaps what one sows, and how the animal will react in the company of humans when grown is dependent upon how it was handled and treated by humans when young.

The third and fourth milk dependent years are weaning years, when both the quantity and frequency of milk feeds is gradually reduced as the calf ingests larger quantities of vegetation. Elephants need a varied diet comprised of several different plants as well as the bark of trees which contain the minerals and trace elements needed to build and strengthen such huge bones. This plant selection is



© David Sheldrick Wildlife Trust

instinctive within the genetic memory given at birth and not something that has to be taught by a human.

The Reintroduction Process

When the Nursery orphans are thriving and are psychologically and physically stable for relocation, they are transferred to either the Voi or Ithumba Stockades inside Tsavo East National Park or the Umani Springs Stockade inside the Kibwezi Forest. Tsavo East National Park encompasses an area of 8,000 square miles containing Kenya’s largest single population of elephants, which currently stands at approximately 12,000. It is in this magnificent environment where most of our hand-reared orphans will ultimately live. This is the only park in Kenya that offers them the space they need for a quality of life that elephants so desperately need. (The Umani Springs Stockade inside the Kibwezi Forest is equipped for those orphans who have been compromised physically due to injuries or ailments making them ill.)

The orphans are translocated along with their Keepers, who rotate between the Nursery and the other rehabilitation units so that the elephants know their Keepers and the Keepers know the elephants. On arrival they are welcomed warmly and instantly accepted into the still-dependent group of larger orphans who have preceded them through the Nursery. During this key stage they will begin the gradual process of reintegration back into the wild elephant community, with days spent walking with the Keepers in the bush, encountering the scent of wild herds. After their days in the bush, they then re-join their Keepers to return to communal Night Stockades where they can be protected against attack by predators while still vulnerable.

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Rescuing and Rehabilitating Orphan Baby Elephants

The length of time it will take for an orphaned elephant to become a “wild” elephant, comfortable among a wild herd is influenced by various factors, including the age that the elephant was orphaned, its unique personality and the friends that they have made. But gradually the orphans will begin to fraternize more with other elephants, eventually preferring the company of elephants over that of humans.

While on their daily sojourns in the bush the orphaned elephants are welcomed into wild herds, allowed to play with wild age mates and tolerated as long as they behave normally and well. It is common for ex-orphans now living wild to return and take one of the Stockade based “Juniors” off for a trial night-out in the wild. Also, it is not uncommon for the aspiring graduate to feel daunted and insecure without human protection during the hours of darkness. If so, he or she is escorted back to the Stockades during the night (usually by a couple of the ex-orphaned bulls) and handed back to the Keepers again to return to the security of the

Stockades.

The choice when to make the transition into the wild herds rests with each and every individual orphan. The bulls are typically more independent than the females, who tend to remain together as a “family”, before deciding to go wild as a group. No orphan is ever simply “tipped out”, each one is gradually introduced through access and exposure. The time involved depends entirely upon the personality of each individual and also upon how well the elephant can recall its elephant family. All the orphans reared by the DSWT however, are “elephants” again and integrated into the wild community by the age of ten. Once “wild” many orphans still keep in touch with the Stockade, returning from time to time to visit and also when in need of help, confident that their human family will be there for them when they do.

The DSWT is proud to have saved over 190 orphaned elephant calves, which would otherwise have perished. More importantly, every one of these orphans can look forward to a life

in the wild, living free in Tsavo East National Park protected by their new extended ex-orphan family and friends amongst the wild herds.

For more information, or to foster one of the many elephants in our care, visit us at:

www.sheldrickwildlifetrust.org

U.S. Friends of the David Sheldrick Wildlife Trust (USF), a Section 501(c)(3) public charity, directly supports the programs and initiatives of the DSWT through financial support, educational outreach and public awareness initiatives that promote wildlife conservation in Kenya.

Elephants are Amazing

Elephants are long-lived and exhibit a high degree of social complexity; they have a large social network.

Elephants have very large and complex brains and unusually good memory. They accumulate and retain social and ecological knowledge, remembering the scents and voices of scores of other individuals and places for decades.

The behavior of elephants both in the wild and in captivity suggests that elephants are able to use their long-term memories to “keep score” and to extract “revenge” for wrongs done.

Elephants can discriminate between the bones of elephants and those of other animals, and they respond to the bones of elephants with special contemplation.

Elephants produce a wide range of vocalizations to communicate with other elephants over long-distances (using many frequencies below the level of human hearing).

African elephants refer to different threats with specific alarm calls. They know which human voices represents threats, and can warn each other.

In a distressed situation, elephants help their friends feel better by trumpeting sympathetic noises and using their trunks to touch and give comfort.

Elephants have an extraordinary sense of smell, said to be more discriminating than that of a bloodhound.

RESOURCE:www.elephantvoices.org

BATS, WHAT WILL THE FUTURE HOLD?

By MacKenzie Hall

Biologist, NJ Department of Environmental Protection, Division of Fish and Wildlife Endangered and Nongame Species Program

Bats are a fascinating, adaptable, and widespread group of animals, not to mention one of the most beneficial to people. Whether you live on a farm, in the forest, or in a city, bats are around, keeping a low profile by clinging to darkness. In the daytime they roost in narrow nooks and crevices where other animals won't see or can't reach. They may be inside a tree cavity, beneath loose bark, or tucked behind the shutters of a house. Of course, the night sky is where bats are most at home. Stare overhead a while at dusk and there's a good chance you'll see one, flapping and swooping in manic patterns as it echo-tracks and snatches bugs from the air.

Yet most people don't stare at the sky, and we certainly can't see in the dark. So compared to the more watchable, predictable neighborhood wildlife, most folks really have no idea what bats are up to. We're not even totally confident they don't want to drink our blood or nest in our hair (what if?!). When it comes to close encounters between people and bats, somehow we learned to run for the tennis racket instead of simply opening a window.

I see that changing, though. I got into bat conservation in 2008, a year or so after White-nose Syndrome first appeared in a New York State cave and just months before the disease hit New Jersey. White-nose is a nasty killer, caused by a fungus (*Pseudogymnoascus destructans*, or Pd) that attacks bats during their delicate winter hibernation below ground. The fungus literally eats into their skin, leaving the bats dehydrated, starved, and tattered. More than 6 million North American bats have died in just ten years, and the disease is still spreading. If there's a silver lining, it's that White-nose has really snapped people out of their flying mammal phobia. Suddenly the spooky little creatures of the night are merely mortal, and in need of some help.

That help has come in many forms. The US Fish and Wildlife Service has invested about \$50 million so far into the White-nose Syndrome response, including funding for research projects all across the country (and beyond) to better understand the pathogenesis of this disease. Brilliant people are working on a slew of natural anti-fungal treatments using bacteria, yeasts, micoviruses, and even Ultraviolet light.

Last May, researchers from the U.S. Forest Service and Georgia State University broke through when they released 75 healthy Little Brown Bats from a cave in Missouri. The bats had started off the winter with White-nose Syndrome but were experimentally treated with the off-gases of a common soil bacterium, *Rhodococcus rhodochrous*. The



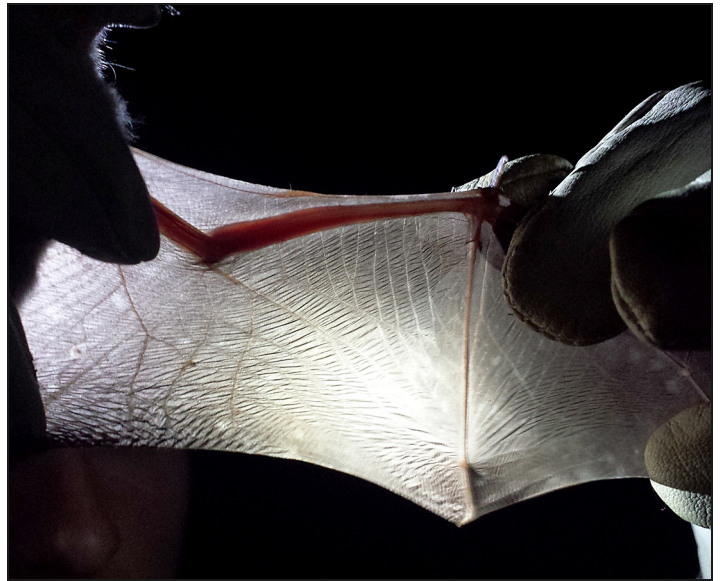
Photographs by MacKenzie Hall (Top and Center), Phil Woolridge (Bottom)

TOP - Big Brown Bats peer down from inside a bat house. This bat house was built by Eagle Scouts and placed behind an historic building in Hunterdon County. To attract a maternity colony (mother bats and their young), bat houses should be mounted in a sunny spot at least 15 feet above ground.

CENTER - Researcher holding a banded Big Brown Bat against the darkening sky. Faring better than most others in the region, Big Brown Bat numbers may even be higher now than before White-nose Syndrome hit.

BOTTOM - Bats can squeeze into openings as narrow as a pencil. A Big Brown Bat colony has enjoyed their summer home in this church's attic for decades.

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Photographs by Mackenzie Hall

LEFT - A biologist from BATS Research Center (PA) searches an old mine tunnel for hibernating bats. RIGHT - Biologist inspecting a bat's wings for scar tissue left by White-nose Syndrome.

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BATS, WHAT WILL THE FUTURE HOLD?

idea came from an entirely different use for this bacterium: keeping bananas from getting moldy. (How's that for scientific cross-over?) The research team is still testing this treatment and figuring out how to dispense it to wild bats in deep dark places.

Treatments like this one aren't necessarily cures. They certainly breathe a little hope back into the cause, though, and might actually buy bats some time along the tide-line of White-nose Syndrome. But what about after the disease sweeps through? What will the future hold in the northeast, for example, where 98% of our common cave bats are already gone?

To answer that, some researchers are looking closely at what the fortunate few survivors have in common. It turns out that bigger, fatter bats fare better against White-nose Syndrome than smaller, skinnier ones. This is one reason why Big Brown Bats (*Eptesicus fuscus*) are still doing quite well, while right next to them the Little Brown Bats (*Myotis lucifugus*) are all but wiped out. Recent studies show that those smaller bats are already adapting to life with Pd by simply putting on more weight before winter. Bats are also seen clustering into colder, drier spots within hibernacula where the fungus doesn't do as well. Either these bats are making lucky choices or they are learning.

Whether there's a genetic element to survival remains to be seen. We now know that Pd is an accidental "transplant" from Eurasia, where bats appear resistant to it. Scientists at Bucknell University are trying to figure out which genes (out of the roughly 180 million in a bat's wing) are involved in White-nose Syndrome's deadly effects, and which ones might offer resistance. That information could open the

door to treatments using gene silencing or other controls.

On the state agency level, our team has been monitoring bats regularly for many years and is tracking their decline from White-nose and other threats. A recent status review of New Jersey's mammals concluded that four bat species affected by White-nose Syndrome should be listed as "Endangered" under New Jersey's Endangered and Nongame Species Conservation Act. The rest of our bats - a few migratory tree bat species and those lucky Big Browns - merit "Special Concern" status as a cautionary measure. When the new listings take effect, they'll give our Department better leverage to protect and recover bats moving forward.

We're also working to fill in the gaps about Northern Long-eared Bats (*Myotis septentrionalis*) since they were listed as a federally Threatened Species last spring. Northerns were common and widespread before White-nose Syndrome hit, but not very easy to study...and now they're one of the rarest bats in the land. So we're taking some creative approaches to track them down. Last summer we (and our fleet of free student laborers) spent two months trying to net and radio-track Northern Long-eared Bats through the forests. We burned through a thousand man-hours and caught four of the sought-after bats. Then in January, I took a leap and reached out to the State Rabies Lab, asking them to please keep an eye out for this important little species. So far the Lab has already received four of them - all from buildings over winter. (None were rabid, by the way.)

This last point underscores one big lingering tension between bats and people: When bats get into buildings,

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Photographs by Mackenzie Hall

LEFT - A Northern Long-eared Bat observed in the Hibernia Mine, NJ (fall 2015). RIGHT - Biologist follows the “beep” of a radio signal to track a Northern Long-eared mother bat and her pup in the NJ Pinelands last summer.

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BATS, WHAT WILL THE FUTURE HOLD?

they pose a risk. But we do have an opportunity to handle things the right way rather than just pounding the panic button. Rabies is a valid concern, although a slim percentage of bats will ever contract the disease. If a bat is flying around in your living room and there's no chance that someone was bitten, then the open window trick can actually work well (just stay in the room, crouch down, and watch until the bat flies out. It does not want to drink your blood or nest in your hair). Cases that are less cut-and-dry can be talked through with your local health department or animal control officer.

If you're concerned about a colony of bats in your attic, that's a different process, and a nuisance wildlife control specialist should be called out to have a look. “Eviction” should be non-lethal, properly done, and seasonally timed so as not to trap bats or their flightless pups inside the structure. You can find lots of helpful, local info on the Conserve Wildlife Foundation of NJ's [“Bats in Buildings”](#) webpage.

At the end of the day, it's up to all of us to save the bats. We need more kids hanging bat houses in the park and people volunteering for summer bat surveys. More appreciation for how incredible bats are, and how greatly our ecosystems and economies need them. More thought to protecting the habitats they need to thrive. And definitely more staring up at the sky, even when it's too dark to see.

ADDITIONAL RESOURCES

<http://www.njfishandwildlife.com/ensphome.htm>
<http://www.conservewildlifenj.org/>
www.batcon.org

MORE ABOUT BATS

There are more than 1,300 species of bats worldwide. Bats are critical to the health of natural ecosystems and globally play an essential role in pollination, tropical reforestation and pest management.

From deserts to rainforests, nectar-feeding bats are critical pollinators for a wide variety of plants of great economic and ecological value. In North American deserts, giant cacti and agave depend on bats for pollination, while tropical bats pollinate incredible numbers of plants. Bats are so effective at dispersing seeds into ravaged forestlands that they've been called the “farmers of the tropics.”

Pregnant or nursing bats of some species will consume up to their body weight in insects each night. They are believed to save US farmers an average of \$23 billion annually in reduced crop damage and lower pesticide use.

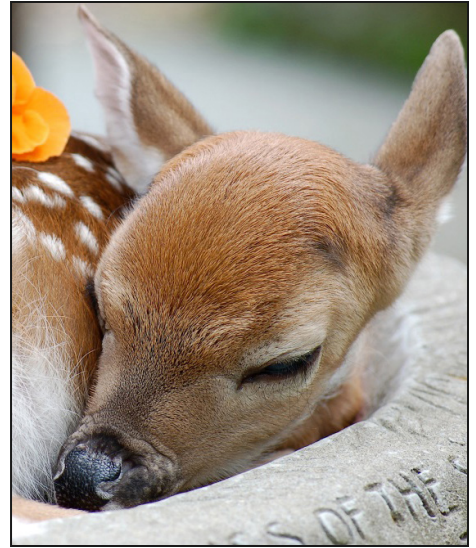
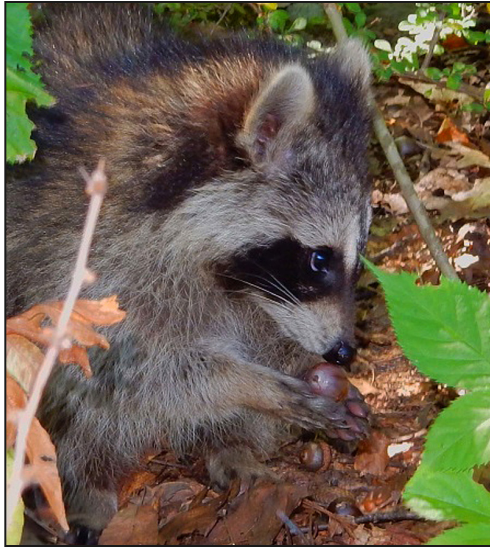
In addition to being to see as well as other mammals, most bats also use a unique biological sonar system called echolocation, which lets them navigate and hunt fast-flying insects in total darkness. A bat emits beep-like sounds into its path, then collects and analyzes the echoes that come bouncing back. Using sound alone, bats can see everything but color and detect obstacles as fine as a human hair.

Out of the over 1,300 bat species, there are only three that feed on blood (vampire bats) and only one targets mammals. They don't suck blood, they lap it like kittens with milk. All vampire bats are limited to Latin America.

Bat populations are declining around the globe - largely the result of loss of habitat due to human activity.

DID YOU KNOW?

A powerful anticoagulant found in vampire bat saliva, which they use to keep blood from clotting, has been developed into a medication that helps prevent strokes in humans.



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WILDLIFE REHABILITATION from the MAMMAL SIDE

By Kelly Simonetti
(Director Antler Ridge Wildlife Sanctuary)

Mammal Wildlife Rehabilitation in New Jersey is a challenging task. The State of New Jersey and its conservation agencies are being pulled in many directions with very little financial support from the state or federal government when it comes to mammals. It seems that many of our native mammals, such as squirrels, chipmunks, rabbits, raccoons, opossums, raccoon's skunks fox and deer seem to get a bad reputation as nuisance and adding most recently bears and coyotes. It is understandable if an animal is classified under threatened and endangered species, it receives the most attention for example the bob cat.

That leaves organizations like Antler Ridge Wildlife Sanctuary, a 100% volunteer non-profit organization with a little over 50 volunteers to care for these animals. Loss of habitat and urban sprawl is the reason wildlife rehabilitation in New Jersey is so important. 90% of the animals admitted to the sanctuary are a result of human conflict.

To help understand the role Antler Ridge Wildlife Sanctuary plays in wildlife rehabilitation and conservation here is a typical day

in early spring with wildlife mothers are giving birth and navigating our backyards, highway crossings and foraging for food. The phone calls come in at 8am, I was racking leaves and my dog found a nest of rabbits, I see a raccoon out during the day near my garbage, a bear is sleeping in the tree or a fawn in along my drive way by my bushes, "what do I do?" Many of these calls are a result of a mother looking for food during the night or making a nest in a quiet area. The most important thing is to try to leave it alone and allow the mother to reunite with the baby and move it along. Wild mothers never abandon their babies, they may temporarily leave them in a location, because the infant is tired and needs to rest or at the time it seems to be a safe place, especially at night when there are no cars or people around. The wild mother might not know it's in the middle of a large commercial park as for on the weekends it's quiet and safe but come Monday morning it's a completely different environment. Wild animals don't know weekends verses week days. In cases where it is not possible to allow the mother to reunite and relocate, wildlife rehabilitation is the next step. Infants and young animals are admitted to

Antler Ridge Wildlife sanctuary when all efforts have been exhausted. It can take up to 18 weeks to rehabilitate certain species and release them back to the wild. Each species requires its own formula and diet; this is the most expensive part of wildlife rehabilitation. An example of the cost to rehabilitate one fawn, they are fed 12 oz, a feeding 3x a day = cost of \$10.00 per day/fawn. A fawn is in care for approximately 90 days, that \$900.00 per fawn to rehabilitate.

We care for over 1000 animals a year between March and November. Antler Ridge Wildlife Sanctuary is one of two licensed locations to care for Bob Cats, these animals require specialty caging and handling. The bob cat being an apex hunter and on the threatened and endangered species list, they require fast triage and release. Bob cats have a specific territory for hunting and mating. When an injured animal is removed from its location there is a high probability a competitor will move in quickly and claim that area. For that reason it important to return the animal quickly to prevent territorial conflict. Any bob cat brought to the facility will be ear tagged and a DNA sample will be

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WILDLIFE REHABILITATION from the MAMMAL SIDE

collected for the state data base.

Antler Ridge is also one of two rehabilitators in the state of NJ who is licensed to rehabilitate black bear cubs. As with bob cast brought to the facility, black bears are also ear tagged and a DNA sample collected for the state data base. Every year is different and you can never tell what Mother Nature is going to dish out. In 2015 we received the only cub to be rehabilitated in the year. It was released in November of that year and was well prepared for the life of a black bear in the wild.

Earlier this year, we received a call of a cub that had fallen 50 feet down a cliff from its den into the edge of a lake. The mother was in the Den and could be hear moving about, it was decided to wait in the hopes the mother would come out and retrieve the cub. After 12 hours of contestant crying and with dark approaching it was decided to retrieve the cub and assess overnight. The cub was in good shape just a little cold and wet. It was kept in a incubator over night to keep warm. We consulted with the New Jersey Division of Fish and Wildlife and it was decided to return the cub to the den with the intention the mother would take the cub back. There are never any guarantees when it comes to wildlife. And so we joined the State Bear Team biologists back to the den and watch as they "tossed" the cub back to the mother who was peering out from the den. It was noticed there were 2 other cubs in the den with her. As everyone held their breath the mother reached out and scooped the cub to her and began to smell and then lick it and retrieved deep into the den. What a relief she accepted her cub back. Wild mothers have a strong instinct to protect their cubs and this mom needed to be reminded to be more careful. In wildlife rehabilitation this is the best outcome when an infant is reunited with the mother as it will have the best chance for survival.

Antler Ridge Wildlife Sanctuary is dedicated to the rehabilitation and release of wildlife and relies on contributions and donations for it mission - a special effort supported by very special people who care about the big picture. It's important to maintain areas for wildlife to live without having to adapt to urban sprawl, allowing for contiguous land tracks to be preserved or create land bridges for migration paths can help decrease the conflict. Allowing for more natural landscapes with native plants for animals to live and forage can help support the wildlife in your community.

Antler Ridge Wildlife Sanctuary provides the same dedicated care for a squirrel as it does for a bob cat or a black bear. They all matter to the big picture of conservation and wildlife protection.

For more information: www.antler-ridge.com



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© Yoke Bauer DiGiorgio, Photographer

VETERINARY CARE FOR WILD PONIES

By Charlie Cameron
(D.V.M. Eastern Shore Animal Care)

The Chincoteague Wild Pony is actually a small horse. Their average height is around 14.2 hands which would make them a pony by English standards and a horse by Western standards. Most of them have a gentle nature. Thus the combination of their size and disposition make them ideal for a young rider transitioning from a pony to a horse.

We became involved with the care of the Chincoteague Wild Pony Herd in the Spring of 1990 when the Chincoteague Volunteer Fire Department (CVFD) employed us to develop a practical maintenance program for this wild horse herd. We have been in charge of the preventative care maintenance program since then. This includes vaccinating the Herd annually for Eastern and Western Encephalitis, Tetanus and West Nile Virus (EWTWN) and Rabies in the spring and we deworm the herd with a drench in both the spring and fall. In the spring we also draw blood samples from the entire herd and submit these samples to a diagnostic lab for the Coggins Test which is a test for Equine Infectious Anemia (EIA), an incurable equine disease spread from horse to horse by biting insects. We accomplish all of this work by running the ponies down a chute.

The CVFD's volunteer riders known as the "Saltwater Cowboys" play an important role in herd maintenance and frankly it could not be done without their help.

During the last full week in July, the herd is rounded up for an annual event called the "Pony Penning Week". This is when the foals are put up for auction and it includes a swim in which the herd is swum from where they live, Assateague Island, across to Chincoteague Island where the pony sale takes place. We are there for the entire week; available for any emergency which might occur with either the herd or the riders' horses.

The Chincoteague Wild Pony Herd consists of two separate herds on Assateague Island, the "Northern Herd" which is the larger and the "Southern Herd". The herds are brought together on the Monday of the week of the swim which is on Wednesday. On Tuesday, the day before the swim, we cull out the ponies which are not fit to make the swim. This mostly consists of ponies that are either too young or too old. During the swim we are in boats to monitor the herd. We check them over after they make landfall. Occasionally there are minor wounds which require our attention. On Thursday, the day of the sale, we estimate the

ages of the foals to be auctioned and issue signed health certificates for each auctioned foal certifying that the herd was tested to be free of EIA. We are available to answer any questions that the new owners may have regarding the care of their foals. Some of the auctioned foals will be going to states that require a negative Coggins Test regardless of their age and we are available to draw the blood samples and submit for testing.

Over the course of the year we are occasionally called out for emergencies such as foaling issues and wound care. A medical issue which is unusual in Equine medicine but fairly common with the Pony Herd has been hypocalcemia, sometimes referred to as "milk fever", in mares with nursing foals. This often has occurred during the week of the Pony Penning. When it happens, it is a medical emergency which requires immediate attention. This condition is reversed by administering calcium gluconate intravenously. Because of the frequency of this problem, we did a study of the mares with the guidance of Dr. Julia McCann of Virginia Tech. One spring we submitted blood samples from three groups of mares: 1. young mares (less than 5 years old), 2. adult mares in prime (6 to 12 years old) and 3. older mares (greater than 12 years old). The results showed that all groups had slight hypocalcemia or were borderline. As a result of these findings, the CVFD started putting out calcium enhanced mineral blocks donated by Southern States and feeding alfalfa which is calcium rich during Pony Penning Week. Since we have been doing this the number of cases has greatly decreased.

Over the years I have gained a great deal of admiration for these hardy little horses. Some have become legend with the public. It has been my honor to have worked with them as well as the Saltwater Cowboys.

ADDITIONAL RESOURCES:
www.esanimalhospital.com
<http://www.chincoteague.com/ponies.html>



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More About the Wild Ponies of Assateague Island

Wild ponies have inhabited Assateague Island for over 400 years. Evidence strongly suggests that they are the descendants of the survivors of a Spanish galleon which wrecked off the coast of Assateague. This story, which has been passed from generation to generation on Chincoteague Island, is stronger than fiction. There have been a remarkable number of shipwrecks along the mid Atlantic coastline. Before modern navigation, ships used lighthouses and the stars to navigate at night. This worked well until a bad storm came up or heavy fog set in, which impaired visibility. Ships sailed off course and hit sandbars along the coast. The large number of shipwrecks, together with the fact that it was very common for ships to be transporting ponies to the Colonies or South America, makes it very likely that ponies originally got to Assateague from a shipwreck.

The Chincoteague Pony (as they are now called) became an official registered breed in 1994. The average height of a Chincoteague Pony is between 12 and 13 hands (any horse that stands less than 14 hands is considered a pony). Chincoteague Ponies are stocky, with short legs, thick manes, and large, round bellies.

Assateague Island is a harsh environment for the ponies and their diet is limited. They have adapted to the limited diet over the hundreds of years they have lived on Assateague, primarily eating the salt water cord grass that grows in the dunes and marshes. They eat almost all day just to get enough nutrition from this diet to sustain themselves and twice as much water (fresh, or brackish, water in the ponds and low lying areas of Assateague Island) as a normal horse. This is why their bellies appear so bloated.

Two herds of wild ponies make their home on Assateague Island, separated by a fence at the Maryland-Virginia line. The ponies congregate in small groups, called "bands". Each band has one dominate stallion and the rest are mares that the stallion breeds with.

While they appear tame, they are wild, and Park Rangers urge visitors not to feed or pet the ponies. The Maryland herd is managed by the National Park Service. The Virginia herd is owned by the Chincoteague Volunteer Fire Company. Each year the Chincoteague Volunteer Fire Company purchases a grazing permit from the National Fish & Wildlife Service. This permit allows the Fire Company to maintain a herd of approximately 150 adult ponies on Assateague Island.

The Fire Company controls the size of the herd by auctioning off most of the foals at the annual Chincoteague Volunteer Firemen's Carnival and Pony Auction in July. Approximately 75 percent of the mature mares have foals each year; approximately 70 new foals are born every spring, on the Virginia side of Assateague Island. Tens of thousands of spectators come to watch the annual wild pony swim each year from Assateague Island to Chincoteague Island and enjoy the Chincoteague Volunteer Firemen's Carnival and Pony Auction.

DISCOVERING NATURE



2014 Photographs By: © Steven Schwartz (Top); © Scott Rando (Bottom)

UPCOMING: Upper Delaware BioBlitz

The upcoming Upper Delaware BioBlitz is planned for June 24th and 25th at the Ten Mile River Scout Camp in Tusten Township, New York.

So what is a BioBlitz? A BioBlitz is an event where biology experts and volunteers gather to collect, identify, and catalogue every living thing on a defined property in a 24 hour period. Nine teams will be formed to focus on particular categories of life: aquatic insects; birds; plants; fish; mushrooms and molds; reptiles and amphibians; insects, worms, snails; mammals; and mosses and lichens.

In returning to the site of the 2014 Upper Delaware BioBlitz, we will be looking to reconfirm some of the extraordinary findings, discover species that we didn't find before, celebrate this unique biodiversity, and tie the event into the celebration of the 100th anniversary of the National Park Service (NPS).

BioBlitz is designed to increase the public's awareness of the variety of life in their immediate neighborhood and the ecosystem services these various species provide to improve the quality of their lives. The Saturday of the BioBlitz is open to the public through outreach to local schools and families.

BioBlitz is sponsored by the Upper Delaware Scenic and Recreational River unit of the NPS and the Delaware Highlands Conservancy, and supported by the Greater NY Council of the Boy Scouts of America, who own and manage Ten Mile River Scout Camp. For more information:

<https://www.facebook.com/UpperDelawareBioBlitz>
<http://www.upperdelawarebioblitz.com/>

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; our mission: to increase awareness, understanding and promote conservation of our wildlife and the natural environment.

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 essential to enabling all life to exist and prosper on Earth.

We are dedicated in our focus to bring awareness through our publications, educational programs and events and projects.

*John A. DiGiorgio, Chairman and President
Richard Crandall, Director and Vice President
Yoke B. DiGiorgio, Director and Treasurer
Debra Reimer, Secretary*

ABOUT OUR PROGRAMS AND EVENTS

We work with communities and other organizations on wildlife and environmental programs and events. Our focus, education and entertainment, is accomplished by providing enhanced programs with new speakers and presentations and providing all attending, young and old, opportunities to see and experience new and interesting programs.

ABOUT OUR PROJECTS

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.

SUPPORT

The Delaware Valley Eagle Alliance grew out of a grassroots effort of individuals who want to help protect our wildlife and habitat. Our organization depends on responsible citizens and organizations who share our concern for the environment. Our educational publications, documentaries, programs and events would not be possible without the generosity of our sponsors and supporters.

For more information about having a project, program or event and/or to make a tax deductible donation contact:

***Yoke Bauer DiGiorgio at yokedvea@gmail.com
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