

D V E A

# NATURE'S NEWSLETTER

ONLINE EDITION

Volume 14, Issue 1

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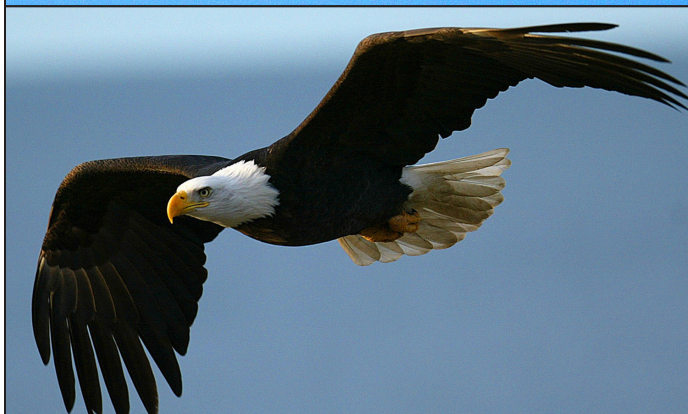
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## DISCOVERING NATURE



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## RAPTORTHON Kicking Off The Spring Migration

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The Delaware Valley Eagle Alliance







*Intern and interagency personnel processing a wolf (Winter, 2018).*

© Photograph provided by WMAT Mexican Wolf Program Photo Achieves

## **MEXICAN WOLF TRIBAL YOUTH CONSERVATION PROGRAM White Mountain Apache Tribe**

by Sara Eno

*Mexican Wolf Biologist / Interagency Field Team Leader / White Mountain Apache Tribe Game and Fish Dept*

### **INTRODUCTION by Yoke Bauer DiGiorgio DVEA Director / Naturalist / Filmmaker / Author**

The Mexican gray wolf (*Canis lupus baileyi*), commonly referred to as "El lobo", is the most endangered subspecies of wolf in the world.

There once were approximately 4,000 wolves in their historic range, which included central and northern Mexico and the southwestern United States. In May 1976, the species was listed on the Endangered Species List by U.S. Fish and Wildlife Service (USFWS). By the early 1980s, they were considered extinct in the wild with just a handful existing in zoos. Their demise, which began in the early 1900s, was the result of anti-predator campaigns in the U.S. and Mexico. The last 7 survivors in the wild were captured between 1977 and 1980, and bred in captivity.

In 1998 USFWS released 11 Mexican gray wolves (offspring of the original 7 survivors) back into the wild in Arizona as part of the newly established Mexican Gray Wolf Recovery Program (a multi-agency collaboration between USFWS, the Association of Zoos and Aquariums, the Arizona Game and Fish Department, the White Mountain Apache Tribe,

the USDA Forest Service, and the USDA Animal and Plant Health Inspection Service - Wildlife Services, as well as private organizations). Their numbers have grown slowly, and as of 2017, 113 Mexican gray wolves were living in the wild in Arizona and New Mexico (Source: U. S. Fish And Wildlife Service)

### **THE MEXICAN WOLF TRIBAL YOUTH CONSERVATION PROGRAM**

A small portion of the Mexican gray wolf population utilizes the White Mountain Apache Tribe (WMAT) Reservation. The WMAT Game and Fish Department, Mexican Wolf Program (Program), is responsible for monitoring and managing wolves on Tribal land.

For three years (2015, 2016, 2018), thus far, our Program hosted Mexican Wolf Tribal Youth Conservation Internships for White Mountain Apache Tribal Members. Our program was funded by a grant from Bureau of Indian Affairs and generous contributions from Defenders of Wildlife and Native American Fish and Wildlife Society. Through this exceptional opportunity, Tribal youth experienced success

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## MEXICAN WOLF TRIBAL YOUTH CONSERVATION PROGRAM



© Photographs provided by WMAT Mexican Wolf Program Photo Achieves

**LEFT TOP:** Intern setting trail camera (Summer, 2016); **LEFT BOTTOM:** Intern conducting radio telemetry (Summer, 2016); **RIGHT:** Intern handling wolf pup (Summer, 2018).

in learning and practicing work essential to recovering the endangered Mexican wolf. Youth trained and executed monitoring and management goals with WMAT professionals: Wolf Technicians and the Wolf Biologist/Interagency Field Team Leader. Interns gained exposure, skills, and appreciation for the natural world and natural resource careers. Many youth expressed interest in a natural resource career, upon entering their internship, and left with a greater sense of day to day operations within such careers. They gained a sense of camaraderie and importance of stewarding nature. Some left their internship aspiring to obtain employment in similar fields and/or seeking college degrees in the natural sciences. This program had immeasurable positive impacts on Tribal youth, affecting their individual futures and the future of their communities and lands.

Interns were trained and supervised by WMAT Wolf Technicians and WMAT Wolf Biologist. Interns participated in an orientation – exposing them to Mexican wolf history, recovery, and field skills. They participated in community education and outreach, as opportunity arose (i.e., Tribal schools, science camp, community meetings, and field

contacts). Field activities included: ground telemetry, triangulating wolves and obtaining visuals, utilizing GPS and compass for various activities, deploying and checking trail cameras, setting up food caches, setting and checking trap lines, collecting and entering data, using mapping programs, and keeping a daily journal of their experiences.

The WMAT Mexican Wolf Tribal Youth Conservation Program ran for 8-10 weeks in the summer and offers internships, on a case-by-case basis during other seasons.

Interns were provided with - stipend, boots, backpacks, water bottles, hats, gloves, shirts, note books, pens and pencils, lunch pails and ice packs. Daily lunches were provided by Arrowhead Café – a WMAT community/youth development initiative.

In the summer of 2016, two interns presented on their internship at the Southwest Region Native American Fish and Wildlife Society Conference, at Twin Arrows Conference Center and Casino, on the Navajo Reservation. Additional training that summer included: one day helicopter count and capture operation training, First Aid/CPR course, and Chemical Immobilization of Wildlife course.

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## MEXICAN WOLF TRIBAL YOUTH CONSERVATION PROGRAM



© Photograph provided by WMAT Mexican Wolf Program Photo Achieves Interns, Wolf Technician, and Wolf Biologist presenting at a Tribal school (Summer, 2018).

During the winter/spring 2018, we hosted two interns. They participated in opportunities unique to that season's project objectives. During this time, we conducted our annual aerial wolf count and capture operations and den season field work. Interns worked with interagency colleagues executing wolf handling, processing (including collecting biological samples), radio collaring, and releasing wolves. They continued to hone their wolf monitoring and management skills. In preparation for den season, they monitored wolves, assisted with map creation and den visits (with the purpose to obtain early pup counts). They also assisted with livestock depredation investigations and reports. They completed and submitted personal field journal entries and reports.

In the summer of 2018, four interns presented on their internship at the Southwest Region Native American Fish and Wildlife Society Conference, at Sky Ute Casino Resort, on the Southern Ute Reservation in Ignacio, Colorado. Additional training included: one day helicopter count and capture operation training, First Aid/CPR course, and captive wolf capture/handling/processing at Ladder Ranch in New Mexico.

To celebrate our interns and acknowledge all those supporting our intern program, we held an end of season picnic for the interns, their families, contributors, and WMAT Tribal Wolf Program personnel. At this picnic, personnel and interns spoke – providing families and each other a greater understanding of the WMAT Mexican Wolf Tribal Youth Conservation Program.

This program was a great success! We are very thankful for the generous funding provided for our Mexican Wolf Tribal Youth Conservation Program. The WMAT Mexican Wolf Program strongly desires to continue this program in the future and is contingent on funding.

**For more information:** <https://www.wmatoutdoor.org/>



© Photograph courtesy of the Arizona Game and Fish Department

### MORE ABOUT MEXICAN GRAY WOLVES

Mexican gray wolves are about the size of a German shepherd. They are the smallest subspecies of the gray wolf in North America, weighing in at 50 to 85 lbs. (they are about half the size of their cousin, the North American gray wolf).

Prefer mountain forests, grasslands and scrublands.

Lifespan is 6 to 8 years in the wild; up to 15 years in captivity.

Have a keen sense of smell, excellent hearing and highly sensitive vision. They are intelligent, family-oriented animals who live in family packs and maintain home ranges or territories. They communicate through howling, body language and scent marking.

Kill and eat a variety of prey, including elk, mule deer, white-tailed deer, and javelina. Opportunistic, they will scavenge dead elk and deer, cattle carcasses and hunter gut piles during hunting season. They occasionally also prey on livestock; and wildlife biologists believe this behavior could be exacerbated by scavenging on livestock carcasses.

Mexican gray wolf packs are generally fairly small, consisting of an adult alpha pair, a yearling or two, and pups of the year. Social cohesion in the pack is strong. Adults are very tolerant of the growing pups, feeding them meat brought back from kills. Pups establish a dominance hierarchy and learn hunting behavior through play.

Pups are born blind and defenseless. About 8 to 10 weeks after birth, pups are moved from the den site to a rendezvous site, where they remain while the adults hunt. A pack member often stays behind to "babysit" the pups. Pups are mature at about 10 months of age.

Reproduction: Mating season is mid-February to mid-March; Gestation is 63 days; Litter size is 4 - 7 pups.

**Did You Know? Mexican gray wolves are not necessarily gray. Their fur is a mix of gray, rust, black and cream.**

### RESOURCES:

<http://www.fws.gov/southwest/es/mexicanwolf/>

[http://www.biologicaldiversity.org/species/mammals/Mexican\\_gray\\_wolf/](http://www.biologicaldiversity.org/species/mammals/Mexican_gray_wolf/)



# A Chimp Haven LOVE STORY



© Photographs and graphics provided by Chimp Haven

**“One of the best things about life at Chimp Haven is all the new friendships, families, bromances, and, yes, even romances, that blossom between the retirees when they integrate into large, dynamic social groups. Often, chimps find just the friend they needed to help them thrive and gain confidence.**

Take Jill and Hulk, for example. You may remember these two from the BBC documentary *Sue Perkins and the Chimp Sanctuary*. At the time, Hulk and his group were introduced to Jill’s group of girls for the first time, and while Jill tried to be friends, Hulk wouldn’t give her the time of day!

Well, things have changed. “She now has him wrapped around her little finger,” shared Colony Director Michelle. “Through their friendship, Hulk has started to shine in the group.”

Caregiver Hannah, who trains with Hulk, is one of his biggest fans and watched this love story unfold up close. “Hulk ignored Jill initially because, I believe, he was a bit intimidated by her,” shared Hannah. “He may be a big guy but he’s basically a squishy teddy bear and is not very high-ranking among the boys, so he kept a low profile. He started to warm up to her and one day, for the first time I’d ever seen, Hulk had a play face while he and Jill were playing...and let me tell you, it was cute!”

Over the past six months, Hulk has totally embraced his

playful side. As a big guy, sometimes he unintentionally gets a little rough when he plays, but Jill’s a strong-willed girl who has no problem putting him in his place. “He quickly obliges and they go right back to playing, no problem,” says Hannah. “He definitely needs a strong lady in his life who can handle him and Jill is just that.”

Jill and Hulk’s relationship has been heartwarming to watch, and as so often happens, dynamics in the group have changed for the better as their bond has formed and strengthened.

That’s what Chimp Haven is all about: the chance for chimps to just be chimps, complete with friends, social support, and freedom to choose how to spend their time together. And of course, it’s all possible because of YOU!

You can catch up on all our love stories, including Maurice and Bowen’s bromance, Marie and Sarah Anne’s sweet friendship, and Pierre and Angela’s “long distance relationship” on our blog: <https://chimphaven.org/tag/love-stories/>

**Thank you so much for making these stories possible. We hope you love them as much as we do!”**



**Rana Smith**  
President & CEO  
[www.chimphaven.org](http://www.chimphaven.org)





*This open bur was discovered at the base of a wild American chestnut tree in Western North Carolina.  
Note, American chestnut burs typically have three seeds.*

© Photograph courtesy of TACF

# RESTORING THE AMERICAN CHESTNUT

by Sara Fern Fitzsimmons

*Director of Restoration / The American Chestnut Foundation (TACF)*

The demise of the American chestnut (*Castanea dentata*) has been described as one of the great ecological disasters of current time. Through the first-half of the 20th century, the species was virtually eliminated from the landscape by an Asiatic blight fungus (*Cryphonectria parasitica*) introduced on Japanese chestnut materials imported to the United States in the late 1800s.

The American chestnut was densely populated with a range from Maine to Georgia. The Pennsylvania Blight Commission estimated that more than 25% of the state's hardwoods were American chestnut trees in the early 1900s. In native forests throughout their range, mature chestnuts are storied to have averaged up to five feet in diameter and up to one hundred feet tall. Many specimens of eight to ten feet in diameter were recorded, and there were rumors of trees bigger still.

Due to their abundance and enormous size, the American chestnut once ranked as the most important wildlife plant in

the eastern United States. A large American chestnut tree could produce ten bushels or more of nuts. Chestnut mast supported many species indigenous to the eastern United States including: squirrels, wild turkey, white-tailed deer, black bear, raccoon and grouse, which once depended on chestnuts as a major food source.

Due to the tree's capacity to regenerate from the root collar, the American chestnut continues to survive as an understory



© Photograph courtesy of TACF

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## RESTORING THE AMERICAN CHESTNUT

or shrub species. The American chestnut is now typically only found as a small stump sprout, rarely reaching over 20 feet in height. Although the tree has not been put on the threatened and endangered species list because of its relatively numerous population size, the blight fungus usually kills those stems before they can reach sexual maturity, reproduce and/or expand within its native range. (seen at right). We call the species “functionally extinct.”

Although millions of sprouts exist throughout the original range, different management strategies, the importation of other exotic and invasive species, and the influence of hungry deer herds, especially in and around urban and suburban areas, all have influenced the species capacity to continue surviving simply through re-sprouting.

### Importance of Native Species and Impact on Wildlife

At TACF, we often get asked the question: why should we restore the American chestnut? The species has been virtually absent from the Appalachian forest ecosystem for over a century. Why go through all this effort and expense to save it? While it is true that the species has not had a significant effect on the landscape for over 100 years, restoring it will certainly increase the overall diversity and health of native Appalachian forests.

As most readers know, native plant species are integral to feeding native insects and large herbivores. If we can increase native flora, we can increase the health of native fauna. Unfortunately, we are losing major pieces of our Appalachian megafauna every decade. Now under attack from different pests and diseases are the eastern hemlock, ashes, and American beech. The hope is the restoration of the American chestnut will not only lead to improved ecosystem health, but also showcase methods and systems that can be used to assist other native tree species in peril.

### Restoration Efforts

Efforts underway to restore the American chestnut include traditional breeding methods, simple conservation strategies, methods that reduce the virulence of the blight fungus, and modern genetic transformation techniques. The American Chestnut Foundation (TACF) works with a wide range of partners to combine these strategies for creating self-sustaining, resilient, and disease-resistant American chestnut populations. While the broadest goal is to restore the American chestnut species, TACF focuses on two major objectives: (1) introducing genetic material(s) leading to disease-resistance in the American chestnut; and (2) preserving the genetic heritage of the American chestnut species by planting and grafting native germplasm.



© Photographs courtesy of TACF

**TOP:** American chestnut shows signs of the blight through its rust colored bark and the canker that appears near the center of the photo; **CENTER:** Blooming catkin displays itself like a firework; **BOTTOM:** Volunteer measures the diameter-at-breast-height (DBH) of a wild American chestnut tree in Tennessee.

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## RESTORING THE AMERICAN CHESTNUT



© Photographs courtesy of TACF  
*LEFT: Volunteers help plant seedlings at the Arboretum at Penn State's American chestnut seed orchard; RIGHT: Volunteers from the VA Chapter of The American Chestnut Foundation (TACF) sow seeds in the greenhouse at TACF's Meadowview Research Farms in Meadowview, VA.*

To avoid inbreeding and to maximize inclusion of regionally-adapted genetic complexes, TACF utilizes many different American chestnut trees from multiple locations throughout the eastern United States. Thus, every generation of planting material requires that hundreds to thousands of trees be properly screened and tested. To date, TACF has conserved over 1000 sources of American chestnut from across the native range

Plant pathogens frequently evolve to overcome plant defenses. Although the blight fungus is not known to have overcome the defenses of the numerous Chinese chestnut trees planted in the US, a future “breakdown” of resistance in blight-resistant chestnut trees is possible. To minimize this risk, the more tools in the resistance toolbox that a tree has, the better. Therefore, combining resistance from Asiatic sources, along with that from novel gene constructs such as the oxalate oxidase gene from wheat, will create a more robust and resilient restoration population.

Many land-owners are interested in receiving blight-resistant American chestnuts that are ready to be used for reforestation. Although that is what TACF is trying to achieve, unfortunately, those materials are not yet available for wide-scale distribution.

Volunteer growers plant testing, conservation, breeding, and demonstration orchards every year. Though potentially blight-resistant American trees are being tested, the work is far from over. Restoration of a native species is the goal. As such, we need as much diversity in our breeding program as possible. As TACF moves forward, it will be vital to incorporate more American chestnuts and different types

of breeding strategies to create a self-sustaining American chestnut population for many generations to come.

TACF and its chapters rely on our core of citizen scientists to accomplish many of the breeding activities. Volunteers maintain more than 500 orchards and have planted over 500,000 trees. There are over 5000 members in TACF combining to log some 19,000 hours of volunteer time per year!

### How You Can Help

TACF is always looking for new trees for germplasm conservation, places to plant trees, and help in various other field and administrative tasks. To maximize diversity and adaptation of restoration populations, TACF seeks to use as many American chestnut trees as possible.

Starting in 2018, TACF is placing a priority on locating and conserving as many wild American chestnut trees as possible. We need your help to find trees and then collect leaves and/or nuts from them.

- Go to this website to download a **Tree Locator Form (TLF)** and learn about chestnut identification: <https://www.acf.org/resources/identification/>.
- Download **TreeSnap** on your phone.
- Go for a walk in the woods. Contact your local TACF office to find out if priority areas for scouting have been identified near you.
- When you find an American chestnut tree:  
- **Document** the tree using a TLF, TreeSnap, or both.

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## RESTORING THE AMERICAN CHESTNUT

- AND **Collect a leaf and twig sample** as per the instructions on the TLF.
- **Mail** leaf sample to your nearest TACF office for identification. Include a TLF that is either completed or has your TreeSnap ID on it.

Even if you can't find or plant trees, just joining and spreading the word about chestnut restoration can help continue the work of TACF and its partner organizations to restore more diverse and sustainable forests for the future.

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

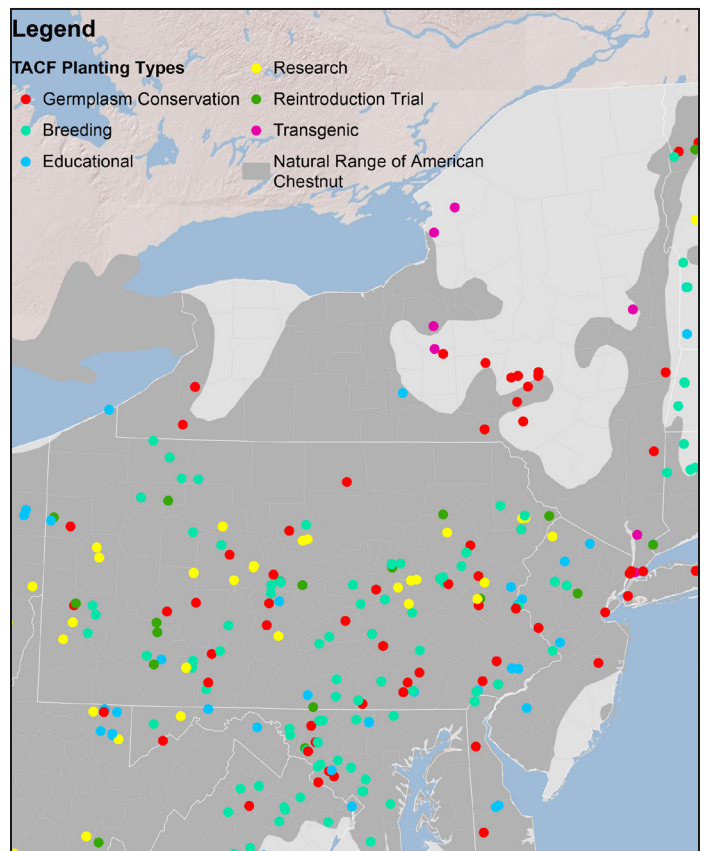
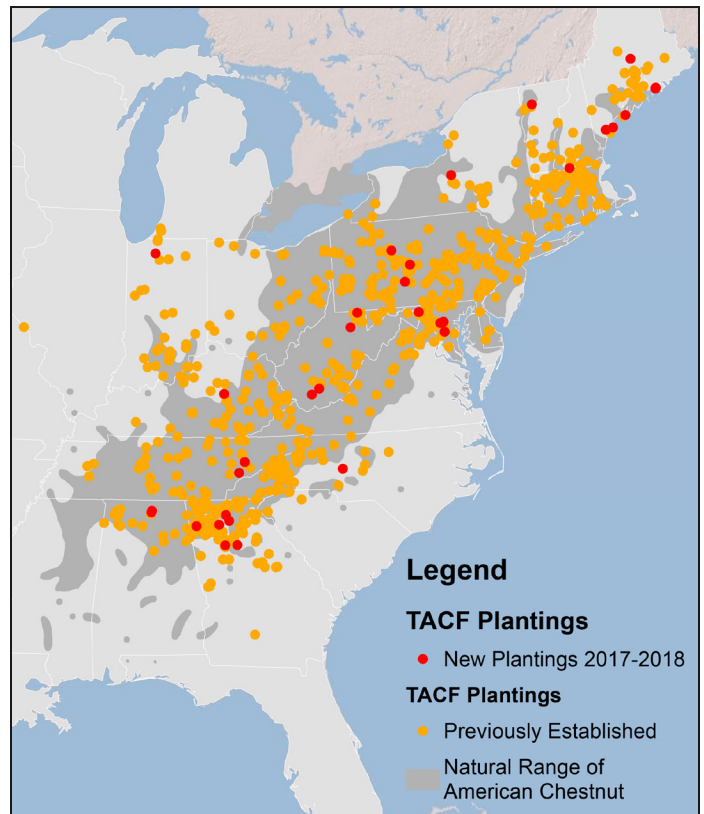
### FROM RESEARCH TO RESTORATION

The American Chestnut Foundation (TACF), a 501(c)(3) not-for-profit, was founded in 1983 by a group of prominent plant scientists and lay persons who recognized the severe impact the demise of the American chestnut tree imposed upon the local economy of rural communities, and upon the ecology of forests within the tree's native range. The American chestnut tree reigned over 200 million acres of eastern woodlands from Maine to Florida, and from the Piedmont west to the Ohio Valley, until succumbing to a lethal fungus infestation, known as the chestnut blight, during the first half of the 20th century. An estimated 4 billion American chestnuts, 1/4 of the hardwood tree population, grew within this range.

TACF is committed to supporting all approaches toward the ultimate restoration of the American chestnut tree. It's work includes three major research tracks. These tracks include: **Breeding, Biotechnology, and Bio-control**. The 3BUR (Breeding, Bio-control, and Biotechnology United for Restoration) ad-hoc committee was established in 2016 to propose ways that the three major research tracks might integrate their efforts to benefit American chestnut restoration, including - traditional breeding methods, modern genetic transformation techniques, simple conservation strategies, and biocontrol methods that would reduce the virulence of the chestnut blight fungus.

As the biotechnology and backcross breeding are reaching a point of maturation, TACF is integrating these programs to plan for the first stages of reintroduction of the American chestnut to American forests. This type of merger will allow stacking of blight resistance genes, combining *Phytophthora*-resistance with transgenic blight resistance, and increasing the proportion of American chestnut genes in the resulting progeny.

**Join Our Community!** Return of the American chestnut to its former native range in the Appalachian hardwood forest ecosystem is a major restoration project that requires a multi-faceted effort involving members and volunteers, research, sustained funding, and most importantly, a sense of the past and hope for the future. **Get Involved!**



© Esri Sources Esri USGS NOAA





LEFT: Ready to ride at the new multi-use trails in Thomaston; RIGHT: Oceanside Middle School lining up to ride back to school.



© Photographs provided by Georges River Land Trust

# Connecting to Community Forests

by Annette Naegel

Director of Conservation / Georges River Land Trust

Trails bring us together. Georges River Land Trust has had trails at the heart of its mission since the beginning, now over 30 years ago. In time, the organization has built over 50 miles of trails, mostly on private lands through a handshake agreement. This is possible in Maine, without the threat of liability because of the protection granted to private landowners who allow public access.

The Land Trust's newest initiative *Connecting to Community Forests* started with the first phase of multi-use trails in the Thomaston Town Forest, in Thomaston Maine this past year. To date, our trails have been primarily for hiking, whereby we build narrow paths through the woods, up hills and along the river valley that provide a quiet contemplative experience. Our goal for the Connecting to Community Forests is to broaden the access for community members to experience their open space lands.

The local conservation commission, trail runners, mountain bikers, and Oceanside Middle School joined the Land Trust to create the first beginner bike trail in the area. This

project supports the new Riding for Focus program at Oceanside Middle School. The school received a competitive national grant for 36 mountain bikes, safety equipment, a physical education curriculum, and comprehensive teaching training through the Specialized Foundation, such that the students' outdoor experiences are integrated into their school learning.

The Riding for Focus Program explores how cycling can positively affect student learning, well-being and health. The Oceanside students have been helping to build the trail and now will be able to ride directly from school to these trails where they can safely have fun and exercise.

The Land Trust is pleased to share its forte in trails and conservation with the next generation in innovative ways, benefiting everyone.

## About Georges River Land Trust

Our goals are to conserve land, protect resources and habitat, provide recreational opportunities and promote health, and educate about the intersection of art and



© Photo provided by Georges River Land Trust  
Winter fat biking on new multi-use trails.



nature and how to be good stewards of both. **Please join us!**

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





*RADIO TAGGED IBAT – Indiana bat, ready to be released with transmitter glued in place. The transmitter will fall off within a few weeks and the bat's fur grows.*

© Photograph provided by Carl Herzog NYSDEC

## Using Technology To Study BATS

by Carl J. Herzog

*Wildlife Biologist / New York State Department of Environmental Conservation (NYSDEC)*

Bats are a very diverse group with nearly 50 different species found in the U.S. and more than 1000 worldwide. One big reason why there are so many different bats is that they are pretty much the only animals that have figured out how to tap into a widely available food source, namely insects that fly at night. A consequence of this survival strategy is that bats are almost universally small, secretive, and hard to catch. Add in the fact that all the action takes place in the dark and you end up with a group of animals that are very difficult to study.

And there are lots of reasons why we want to understand them better. Their almost unique role as consumers of nighttime flying insects suggests that bats may play a critical part in controlling these often-pesky creatures. Unfortunately bats currently face a suite of threats that is unusually severe.

Wind energy is among the most ecologically benign ways to power our 21<sup>st</sup> century lifestyle but migrating bats are killed

by the rotating blades in shockingly large numbers. We don't yet know if this will result in population-level impacts but the matter certainly warrants further investigation. And then there is the disease known as white-nose syndrome, which has already killed millions of hibernating bats, resulting in substantial changes to the bat community.

Motivated by these important issues, researchers and wildlife managers have developed lots of ways to peer into the night to help with bat study. One of the most commonly use methods involves using radio tracking technology.

Researchers have been attaching various kinds of radio transmitters to wildlife for over 50 years, but devices small enough to use on a 6-gram bat are a relatively recent development. The battery life is short, the signals are weak and don't travel very far, and everything has to go just right for it to work but this tool is nonetheless so useful that researchers have adopted it widely. It's no exaggeration

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## Using Technology To Study BATS

to say that much of what we know about bat behavior has resulted from employing this technology.

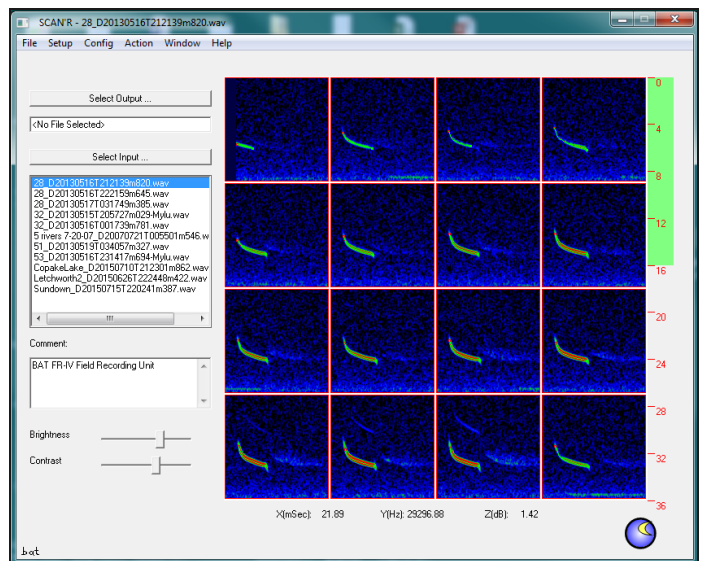
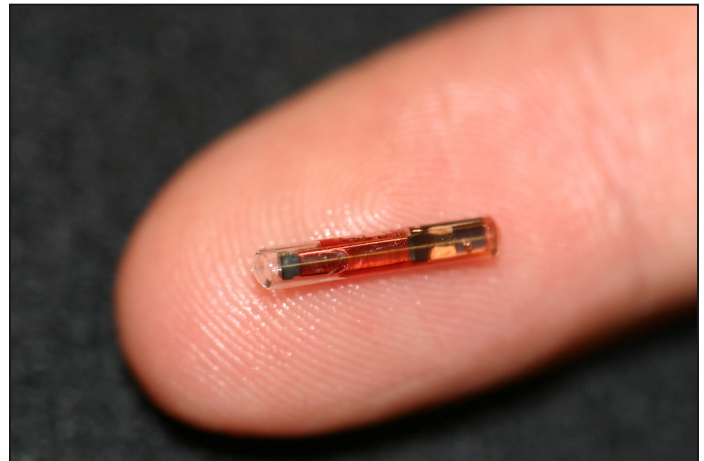
Most often we use radio transmitters as a way to locate bats as they fly around in the dark. The arrival of white-nose syndrome in North America has led us to ask other questions, though. A big one related to that disease is how well the afflicted bats are sleeping in winter. The disease is known to disrupt the bats' hibernation patterns. Radio technology helps here as well. A special version of these tiny transmitters is capable of sending the bats body temperature to a remote monitoring location. Thus, if we attach the transmitters during the hibernation season we can monitor the bats' arousal patterns.

Radio transmitters are only one of many technology – based approaches that bat researchers find indispensable for studying these elusive creatures. Since 2009 NY DEC has been tracking the State's bat populations by using special microphones that eavesdrop on the bats' echolocation calls that they constantly emit as they fly. Here's how that works.

Bats are famous for being able to navigate in complete darkness and echolocation is how they do it. They create brief pulses of sound, generally too high-pitched for humans to hear, and then listen for echoes that bounce off objects in their vicinity. This allows them to avoid obstacles and even catch insects on the wing in complete darkness. Wildlife managers can record these sounds with specially designed equipment and, in most cases, identify the species that created them. The analysis requires sophisticated software that sorts out the bat calls from amongst all the other sounds that might be recorded, displaying each pulse graphically. The resulting clues as to where bats may be found and how many individuals are flying through the night sky have proven to be highly informative.

Many people today have their veterinarian implant a small "microchip" under the skin of a pet as a way to permanently identify the animal. These devices are more accurately known as PIT tags, which stands for Passive Integrated Transponder, and bat researchers have embraced the technology as yet another way to glimpse into the otherwise secret life of bats. Tag reader equipment must be rather close to the animal to be effective, but the readers are usually set up at bat roosts, recording when individuals leave and return. The devices are being used to measure winter survival of hibernating bats and tracking the daily coming and going at summer roosts. A nice aspect of this technology is the tags don't rely on battery power and thus last the life of the animal.

Not all technology tools used by bat researchers are electronic. Advances in DNA analysis have allowed researchers to not only identify individuals from a small sample of blood or tissue but to even measure how closely



© Photographs / Chart provided by Carl Herzog NYSDEC

**TOP:** PIT tag on finger1 – Passive Integrated Transponder tag. These are injected beneath the bat's skin and allow permanent identification of that individual; **CENTER:** Transmitter – A tiny radio transmitter used to aid in tracking free-flying bats; **BOTTOM:** acoustic screenshot – Screenshot of acoustic analysis software, showing 16 individual sound pulses from a little brown bat.

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## Using Technology To Study BATS



© Photograph provided by Carl Herzog NYSDEC  
*A northern long-eared bat, in hibernation.*

related two individual animals might be to each other. Recently a group at the USGS Fort Collins Science Center has even been able to extract DNA from bat fecal pellets collected from beneath roost trees. This ability promises to be very informative in studying bat colonies by providing insight into population sizes, how many young bats successfully grow to maturity, and whether offspring are likely to join their mothers in the same colony when they become adults.

Many aspects of our future are uncertain, but one thing that we can be certain of is that the pace of technological development will continue to accelerate and that new approaches to study wildlife will become available along with that development. We can also be certain that bat researchers, faced with great challenges in trying to understand the life history of a very elusive subject population, will embrace these developments to aid them in managing a diverse and important group of animals.

### ABOUT BATS

There are more than 1,300 species of bats worldwide. There are only 3 that feed on blood (vampire bats) and only 1 that targets mammals. They don't suck blood, they lap it like kittens with milk. All vampire bats are limited to Latin America.

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.

Bats are believed to save US farmers an average of \$23 billion annually in reduced crop damage / 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.

The world is a dangerous place for bats. Although they provide vital environmental and economic services, bat populations are declining around the globe, largely as a result of human activity.

Loss of habitat remains the most widespread peril worldwide. The forests many bats use for roosting and/or foraging for food are disappearing at a frightful rate.

### 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.***

### Additional Resources:

<https://www.dec.ny.gov/>  
[https://www.dec.ny.gov/docs/administration\\_pdf/batsofny.pdf](https://www.dec.ny.gov/docs/administration_pdf/batsofny.pdf)  
[https://www.dec.ny.gov/docs/administration\\_pdf/0215consmag4web.pdf](https://www.dec.ny.gov/docs/administration_pdf/0215consmag4web.pdf)  
[www.batcon.org](http://www.batcon.org)  
[www.nwhc.usgs.gov](http://www.nwhc.usgs.gov)  
[www.pgc.pa.gov](http://www.pgc.pa.gov)





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# IMPORTANCE OF HANKINS CREEK

by Chanlyn O'Sullivan

*Student / Sullivan West High School, Lake Huntington, NY*

When posed with the question of where people spend most of their time, most individuals answer with their home or work. Though this is true, there should be a place where the individual can get away from those typical areas. People have a biological desire to explore the unknown wild places in nature, but they sometimes find themselves unable to reach these areas. Often, they are hard to find or are no longer preserved by the state or local communities. However, they are important and need to be protected for subsequent generations to enjoy. Our community needs to create and maintain more of these outside spaces, so that more people will know the value of place and community. The importance of the place I spend much of my time may be unknown to an outsider, however, Hankins Creek brings

me immense serenity, and has a unique, interesting history that should be preserved and shared with the surrounding community.

In order to reach Hankins Creek, one must travel down a short path to the water edge. At the end of the trail, there are a few round, gray rocks that tilt towards the water end. I enjoy standing on the rocks while soaking in the value of this creek. I examine how the trees have all changed throughout the seasons. From the blossoming of the dogwood tree in the spring to the color changing of the maple leaves in the fall. I notice how the edge of the creek has changed in the years due to erosion. The oak tree that has been

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## IMPORTANCE OF HANKINS CREEK



© Chanlyn O'Sullivan, Photographer

resting on the flat rocks for years has finally drifted down the stream. The slippery flat rocks never change, they only disappear when the water level rises above them. I breathe in the mossy, fishy air that I've grown to love. I jump due to the Japanese water bugs floating on the tip of the water. I watch as one skips on the water over to the rock island. This creek flows behind many homes in this area, bringing us all together and creating a place we all have in common.

The value of the creek is different for each person who visits it. In my opinion, the value of Hankins creek is a sense of community and a place that removes the stress from other locations and brings me peace. Hankins creek has been bringing people together for decades. About three generations ago, this creek was a hot spot for people around the neighborhood.

In order to learn all about my place, I spoke with someone who has vast information on the creek. Years ago, there was an old saw mill where people from the community could work or pick up lumber. This mill provided fire wood for people in the area. These community members left precious memories at this ordinary Saw Mill that turn it into a place. However, the mill burnt down, there's no longer a place where people can join together.

Another important aspect of the stream is the sink hole. Years ago, this sink hole was a gathering place for the teenagers in the community. This area was known as the "Hell Hole". It interests me that we no longer use the attractions this amazing place has to offer. About fifty years ago this area used to be booming with excitement and joy because of the happiness it brought to individuals who visited it. Today there are a few areas left that provide public spaces for others on the creek, such as the baseball field and playground. These limited locations must be preserved

and maintained for this place and the community to thrive.

The first step that should be taken in order to understand "a place", is understanding the difference between "place and space". I have a connection with Hankins Creek that outsiders do not realize or understand. When individuals see a picture of some random place, they do not see the meaning of that place. When I look at an image of Hankins Creek, I see memories from my childhood. My younger brother, the neighbors, and I used to spend hours on end swimming and exploring the creek. During these adventures we learned things about the creek that most people did not know. For example, there's one singular patch of slippery rocks in between our houses or if you walk to the one side of the bank you might find old milk carton holders. This was the beginning to my attachment with this area. As I grow older, I notice that when I am distraught, I walk down to the edge of the stream in order to gather myself. To this day, I still find comfort in being near the creek. Individuals in Sullivan County could also find this type of support from areas like this creek. Hankins creek is emotionally important to me because of the experiences I've had with the location.

The importance of adolescents having a special location where they can relax and take a break is usually overlooked. The reason for this is that our society is in a fast pace mode where they only have time to spend in their home and work place. It is difficult for me to find time to stop what my focus' should be in order to go to a third place and unwind. Americans rarely care about the places they are in. However, it is essential to value these places. In recent years the usually busy stores have been closing due to the popularity of online shopping. These places might

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## IMPORTANCE OF HANKINS CREEK

be one of the areas another might identify with, but we are continuously taking away these areas that other people have connections with. Taking away these “third realms” also eliminate a part of the community. Most people only interact with their community when they are shopping and removing these spaces can be detrimental to society. This relates to the place I identify with as well. I have only ever seen a few people use the public access that are throughout the edge of the creek. I believe one reason for this is people do not even pay attention to that area. The stream is on an extremely busy road however, nobody ever stops to sit and relax on the water. Another possible reason is that people are too busy and uninterested in locations such as the creek that they do not bother to pull off on one of the access and take a break. As a result of the lack of attention Hankins Creek receives, its popularity has been decreasing and damage to this area is going unrecorded. I would like to see this area gain some of its popularity back and for others to understand the emotional attachment this place has for the community.

When individuals begin losing touch with serenity, they resort to unhealthy activities. In order to achieve complete serenity, one must be untroubled and at peace. Today, adolescents get involved with drugs because they are stressed and do not have another way to relieve the pressure. Since many teenagers believe that using drugs is the only tangible way to relieve stress, they do not seek out another solution. However, I find that Hankins Creek provides a drug-like effect. When I sit on the rocks on the edge of the water, I get a sense of euphoria, which is a feeling that is usually associated with medication. This positive reaction produced by drugs is easily produced with a location like Hankins Creek without the side effects. When I am at Hankins Creek I'm allowed to unwind and take a break from stressful situation.

All my personal memories and others past story makes Hankins Creek into a beautiful place. It is important for our generation to keep these types of places alive for the community and the individuals in them because without them, the lives of individuals will remain unfulfilled and eventually, they will resort to unhealthy measurements to reach fulfillment. It is depressing to watch such supportive locations being destroyed due to neglect. Current generations should fight to maintain such locations. I have experienced the positive effect these areas have on people. Whenever I need a break from reality, I know that I can always go to Hankins Creek. These areas make stressful time more relaxing and bring comfort to an individual.

**Due to the good nature of these types of locations, all of their stories should be shared and acknowledged by the community to save these important places!**



TOP and CENTER: © Chanlyn O'Sullivan, Photographer  
BOTTOM: Photograph taken by Melissa Ebeling  
and provided by Chanlyn O'Sullivan

Chanlyn O'Sullivan is a high school senior in Sullivan County, NY. She participates in many school activities - National Honor Society, Student Council, Musicals, Select Choir, Jazz Band, Volleyball and she is her class treasurer. Out of School, she enjoys music, reading and writing. She plans to attend university in the fall to study Music Therapy.





© Photograph provided by CPAW NJ.

## COMPASSION with a PURRpose™

by Karen Shinevar

*President / Communities Promoting Animal Welfare NJ (CPAW NJ)*

We at CPAW NJ believe that Mahatma Gandhi said it best:

*"The greatness of a nation and its moral progress can be judged by the way its animals are treated."*

Animals are living beings who feel hunger, thirst, pain, fear, and joy. But almost everywhere, animals are subject to human dominion and are deeply affected by political decisions regarding land use and competition for resources that affect their welfare. As fellow sentient beings, there is every reason to show these living creatures respect and compassion. In fact, by doing so a community will be healthier, have fewer animal welfare problems and costs, and be a place where more people will want to live and do business.

CPAW NJ was formed in 2017 because after researching available alternatives to help reduce animal shelter intake and save lives, we saw the need to raise awareness and make available to the public solutions that work for cats: low cost spay/neuter for companion animals; and trap, neuter, vaccinate and return (TNVR) for outdoor cats.

**Why are we spending local tax dollars to kill healthy animals?**

TNVR work is focused on reducing shelter intake -- and happens primarily outside the shelter building. It PREVENTS killing, saves money, and creates a healthier community through vaccinating cats against rabies and

reducing the outdoor cat population over time by spaying/neutering as many as possible who live outdoors. It doesn't need more employees or bigger buildings or money for drugs to kill healthy animals. In fact, TNVR is not about a BUILDING....it represents community collaboration to save lives and allow humans and animals to live together with less conflict.

Did you know that approximately 75% of all animals euthanized in NJ shelters are cats? And many of those who are killed for space or because they exhibit feral behavior (never socialized to humans) are vibrant, healthy creatures whose only sin was that they were brought into the animal shelter in the first place.

**Where do cats in shelters come from?**

Abandoned friendlies are brought by caring community members, cats are surrendered for behavior reasons or loss of owner, and when residents complain about outdoor cats, these unsocialized but healthy animals are also picked up by animal control officers and brought to a shelter. Significant money is spent to house and then euthanize them for lack of space, behavior, illness and even local policy that views cats as "throw away" animals.

And there are so many more cats who NEVER touch the shelter. The challenges for outdoor cats to survive and thrive

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## COMPASSION with a PURRpose™

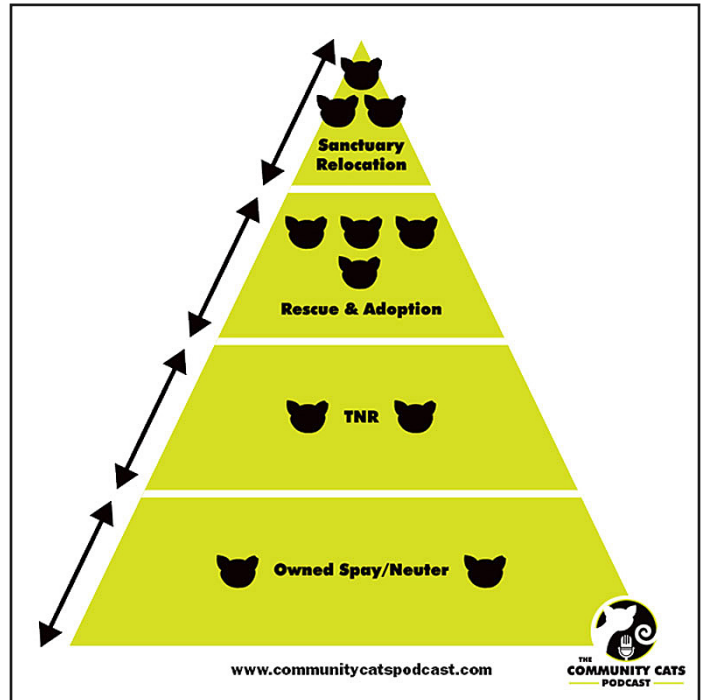
are also difficult, largely because of the lack of humane care and treatment. A potentially much larger number of deaths occur outside, unseen. Reducing shelter deaths is important, but it is only one feature of the crisis cats find themselves in throughout many parts of New Jersey.

And resources available for more shelter buildings and more employees to catch (and often kill) cats are scarcer than ever. Many NJ municipalities do not have shelters or even provide a plan for cat care in their communities. So continued focus on a “shelter” building to turn off the faucet of cat births (and deaths) is misplaced. It’s time to spread the evidence about the worlds of “community cats” and promote through education and action TNVR and low cost spay/neuter for all cats.

### DID YOU KNOW?

- Outdoor cats include community cats (stray, lost, and abandoned pet cats, and unsocialized feral cats) as well as owned cats that are allowed to roam.
- Feral cats are not socialized to people. While they are socialized to their colony members and bonded to each other, they do not have that same relationship with people. Cats unsocialized to humans by 16 weeks after birth have “feral behavior” and are rarely adoptable. Being taken into shelters puts their lives at risk.
- Community cats include previously owned cats, and their kittens, or abandoned animals rescued from the outdoors.
- Compassionate people will always feed cats, even when local law bans feeding. Enlightened local governments have more success by encouraging responsible practices and encouraging TNVR to promote public health and reduce the overpopulation.
- Not all towns have shelters; those that do don’t all care for cats.
- Catch and killing animals of any species only makes more room for other animals to move in; resources are wasted and the problem grows. Removing animals from an area doesn’t work for any species.
- Kittens can become pregnant at 4 months and most kittens born to outdoor cats do not survive. But even assuming for a low survival rate, they multiply faster than rabbits!

**So why not save money AND reduce the outdoor cat population?**



*The Community Cat Pyramid developed by experts from the Community Cat Podcast.....a picture is worth a thousand words.*

*For more information: <https://www.communitycatspodcast.com/introducing-the-community-cat-pyramid/>*



© Photograph provided by CPAW NJ.

*Jack (a kitten born to an outdoor cat) was a LUCKY one...abandoned at 4 weeks with his blind brother Turner (who has now succumbed to a virus) Jack's eye had ruptured but miraculously he survived surgery and is now in a happy home with his sister Leia.*

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## COMPASSION with a PURRpose™

It can be done -- but not by focusing on a building or killing healthy animals. SOLUTION: Practice TNVR rather than taking feral cats into shelters and promote low cost spay/neuter programs for indoor and outdoor cats. That is the way to turn off the faucet.

A successful animal welfare approach includes a wide variety of programs to reduce shelter intake and help people keep their pets, including surrender prevention programs offering food, behavior advice, and low cost medical assistance; helping outdoor cats through TNVR; promoting low cost spay/neuter for all cats; a rehoming program; and a healthy shelter-based program with foster-based options, help for lost pets, and proactive adoption practices. Every animal-oriented organization in a community should work collaboratively to maximize the value of scarce resources and save lives.

### ADDITIONAL RESOURCES:

<https://www.alleycat.org/resources/the-vacuum-effect-why-catch-and-kill-doesnt-work/>

<https://www.asPCA.org/animal-homelessness/shelter-intake-and-surrender/closer-look-community-cats>

<https://resources.bestfriends.org/article/tnr-stray-cats-meaning-history-statistics>

<https://resources.bestfriends.org/article/frequently-asked-questions-about-tnr>

<http://www.pawsitivealliance.org/spayneuter-faq.html>

<https://vetmed-maddie.sites.medinfo.ufl.edu/files/2014/07/New-Paradigms-for-Shelters-and-Community-Cats.pdf>

<https://www.neighborhoodcats.org/how-to-tnr/getting-started/what-is-a-feral-cat>

<https://www.neighborhoodcats.org/how-to-tnr/getting-started/what-is-tnr>

<https://www.neighborhoodcats.org/how-to-tnr/getting-started/the-7-steps-of-tnr>

<https://www.animalsheltering.org/magazine/articles/pointing-way-pyramid>

<https://www.uwsheltermedicine.com/library/resources/new-paradigms-for-shelters-and-community-cats>

### ABOUT CPAW NJ

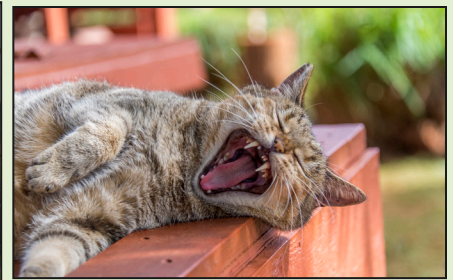
A 501(c)(3) not-for-profit in New Jersey with a mission to reduce shelter intake and to save the lives of healthy outdoor cats ("community cats") through the proven humane practice of trap, neuter, vaccinate and return (TNVR) to reduce the outdoor cat population and to help these animals live healthier lives in their outdoor home.

<http://cpawnj.org/>



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© Photographs provided by Lanai Cat Sanctuary

## LANAI CAT SANCTUARY

### SAVING CATS / PROTECTING ENDANGERED BIRDS

More than 600 spayed/neutered cats call Lanai Cat Sanctuary (in Hawaii) home. A 501(c)3 nonprofit, Lanai Cat Sanctuary's mission is to make lifelong care possible for cats from kittens to adults. This is based on the belief that cats deserve the highest quality of life and aim to end the suffering of cats struggling to survive on the streets and in the wild.

It all began in 2004 with sterilizing Lanai City's street cats. That effort was followed by sheltering them in a horse stable in the mountain community of Koele. It was just a small committed group of cat lovers trying to do the right thing because the island was without an animal shelter, rescue group or veterinarian. The Sanctuary's founder Kathy Carroll, a spirited cat lover who had moved to the island with her artist husband Mike led these efforts. Her innovation and activism drove the organization in its early days.

By 2009, Lanai Cat Sanctuary was established as a nonprofit charity and relocated to its current site. The site was a plot of land with access to fresh running water and little else, but it was home. Protecting animals – cats, as well as endangered birds – was the driving force and mission.

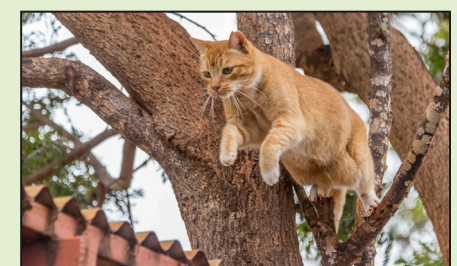
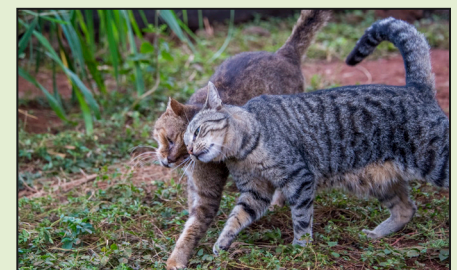
In 2014, the Sanctuary was expanded by establishing a medical system that would enable each cat to have an

individualized care plan was the goal. A high-tech mobile veterinary clinic was purchased. It was used for onsite care and services including sterilization, X-ray and assessments in a clinic environment. Veterinary teams with experience in shelter medicine were recruited from Oahu and the U.S. Mainland.

In the last few years, the sanctuary has expanded its family of cats and its ambition is to eliminate overpopulation. It rescues cats from protected areas where native and endangered birds such as the 'Ua'u, the Hawaiian Petrel, ground nest. Cats are also brought in from Lanai City, which is home to 3,000 residents – most of whom work for the island's two luxury resorts. As a result, the Sanctuary has brought in over 600 cats in the past three years, with last year reaching almost 200.

Lanai Cat Sanctuary stands today as a three-acre lush oasis in the midst of miles of nowhere on one of the most remote islands in the United States. There's no electricity – just a high-tech mobile medical center, a port-a-potty and fresh running water. Funding comes from vacationers who visit the sanctuary and give to support its mission.

*"We adopt out roughly 50 cats a year with most of them being adopted out of state. We are also the number one attraction on our island with over 11,000 tourists*



© Photographs provided by Lanai Cat Sanctuary

*visiting us annually."*

*Keoni Vaughn, Executive Director*

**To learn more:**

**<https://lanaicatsanctuary.org/>**



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## DISCOVERING NATURE



© Photograph Courtesy of Hawk Mountain Sanctuary

### RAPTORTHON

#### Kicking Off The Spring Migration

**Take Part this Spring in the Hawk Migration Association of North America's (HMANA) 10th season of Raptorthon! Any time March 1-May 31, 2019.** Be part of a continental effort to support raptor conservation, monitoring programs and your local watch site.

Like Birdathon, Raptorthon is a sponsored Bird Count, but is focused on raptors. It's aimed at getting the maximum count of raptor species in a 24-hour period and optionally you can count all other bird species as well. Simply choose one day to count, register with HMANA, find sponsors to pledge support for your Raptorthon, go out and find as many species as possible, collect your pledges and report your results. HMANA will allocate your proceeds according to you wishes and publish results in the Hawk Migration Studies journal.

*About HMANA* - a membership-based organization committed to the conservation of raptors through the scientific study, enjoyment, and appreciation of raptor migration. Founded in 1974 and incorporated as a 501(c)(3) nonprofit organization in NYS, it's mission is "To advance the scientific knowledge and promote conservation of raptor populations through study, enjoyment, and appreciation of raptor migration." **For more information:** <https://www.hmana.org/raptorthon/>.

Hawk Mountain Sanctuary (the world's first refuge for birds of prey) launched this upcoming spring migration season by participating in the 2019 Raptorthon. Senior Educator Rachel Spagnola was Hawk Mountain's representative this year, with her team Ridgetop Rachel and the Wing Watchers. Hawk Mountain's event took place on March 30<sup>th</sup>. Team Ridgetop Rachel and the Wing Watchers began with a driving road survey following the Kittatinny ridge, from Little Gap to the Lehigh Gap, eventually ending at Hawk Mountain Sanctuary. This route allowed the team to explore this important migration corridor for raptors, songbirds, monarchs, and more.

*About Hawk Mountain Sanctuary* – a 2,500-acre sanctuary open to the public year-round by trail-fee or membership, which in turn supports the non-profit organization's raptor conservation mission and local-to-global research, training, and education programs. **For more information:** [www.hawkmountain.org](http://www.hawkmountain.org).

## THE DELAWARE VALLEY EAGLE ALLIANCE

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

*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.*

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

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### PROJECTS AND PROGRAMS

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

### SUPPORT

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

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Editor-in-chief: Yoke Bauer DiGiorgio  
Design: Yoke Bauer DiGiorgio / Nature's Art Productions LLC  
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