

D V E A

# NATURE'S NEWSLETTER

ONLINE EDITION



WILDLIFE AND THE ENVIRONMENT



THANK YOU SO MUCH!



*Nature's Newsletter Corporate Sponsor*  
[www.chbny.com](http://www.chbny.com)

## INSIDE THIS ISSUE

- 2** COMMENTS BY THE EDITOR
- 3** SALT RIVER WILD HORSE HIERARCHY  
*by Bren Schultz*
- 5** ANNUAL ART CALENDAR FUNDRAISER  
Wildhorse Ranch Rescue 501(c)(3) Charity
- 7** Regulating 'Bunker' with Osprey  
*by Bryan D. Watts, Ph.D.*
- 11** 'BLACK-FOOTED CAT' PAIR HAS TWO KITTENS  
*by Tessa Townsend*
- 13** ABOUT THE BLACK-FOOTED CAT
- 14** FOX AND OUR FAMILY *by Mark Fraser*
- 16** ABOUT THE RED FOX
- 18** Bringing Together Multiple Solutions For Ocean Conservation *by Charles Ray*
- 22** DISCOVERING NATURE / Getting That Shot  
*by Yoke Bauer DiGiorgio*
- 22** About the Delaware Valley Eagle Alliance

## FRONT COVER PHOTOGRAPHY

- |              |   |
|--------------|---|
| Top          | © Drawing by Yoke Bauer DiGiorgio                           |
| Center Left  | © Anne Marie Fraser, Photographer                           |
| Center Right | © Bryan Watts, Photographer                                 |
| Bottom Left  | © Jordi Chias, Photographer /<br><i>National Geographic</i> |
| Bottom Right | © Bren Schultz, Photographer                                |

## COMMENTS BY THE EDITOR

My name is Yoke Bauer DiGiorgio, co-founder and director of the Delaware Valley Eagle Alliance, a 501(c) (3) not-for-profit in the northeast dedicated to the conservation of our wildlife and natural environment.

Six years ago we launched 'Nature's Newsletter' a quarterly online publication with a goal 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. Response was terrific and our readership grew rapidly. As part of our outreach to the community and to expand the use of Nature's Newsletter as an educational tool, we also began to include articles on topics of interest to students, and articles written by students for students.

All articles and images have been donated by dedicated experts in their field. Topics included all wildlife and environmental issues. I personally feel so fortunate to have met such amazing and dedicated individuals making a difference in the world today, and yes, to students who are just starting out also making a difference. We are so proud and grateful to have been about to share their remarkable and compelling stories with you.

This will be our last issue of Nature's Newsletter.

Six great years – and although we are filled with some sadness, we also feel an immense sense of accomplishment for all we have been able to do, and gratitude for all the amazing individuals we have developed relationships with. Thank you so much to all the contributors to the newsletter, sponsors and supporters and you, our readers.

Please stay tuned as we regroup and plan for future initiatives....

Yoke Bauer DiGiorgio  
Editor Nature's Newsletter  
Co-founder / Director Delaware Valley Eagle Alliance,



© John A. DiGiorgio, Photographer



© Bren Schultz, Photographer

# SALT RIVER WILD HORSE HIERARCHY

by Bren Schultz

*Founder, Salt River Wild Horse Education and Salt River Wild Mustangs.org*

**Q: What is the difference between a “band” of horses and a “herd” of horses?**

**A: A “band” is a family unit of horses that usually includes a lead mare, lead stallion, their offspring, along with other members. The “herd” is composed of multiple social or family band units that live together in a specific region.**

A **lead stallion** is the dominant stallion and first in command within his band. He will breed within his harem and his band will consist of his mares and their offspring. The more mares a lead stallion acquires, the more time he will spend trying to keep them in line and warding off other stallions that may attempt to steal his mares. He will protect his band at all costs and often relies on his satellite stallion (AKA lieutenant) for back-up in doing so.

A **satellite stallion or lieutenant** is typically an adult stallion that is permitted to be part of a band that already has a lead stallion. He serves an important purpose for the band and will act as additional protection when a threat is approaching. Often the lead stallion and his lieutenant will work together and create a working system between them when a threat arises. The lead stallion will “snake” his band to safety while the lieutenant wards off any rivals. The lieutenant will also work to retrieve any stolen mares or offspring from rivals while the stallion snakes his band further from the threat, eventually leaving the lead mare in charge of the band while he joins the lieutenant in protecting. The lead stallion and lieutenant can form a close bond, however, there are occasions where the lieutenant will become a challenger to the lead as well. Vocal bickering, posturing, and sometimes fighting between the two can be

**continued on page 4**



## SALT RIVER WILD HORSE HIERARCHY



© Bren Schultz, Photographer

observed. The stallion must always keep the lieutenant in line or he risks giving up control of his band.

The **lead mare** acts as second in command (shhhhh, don't tell the stallions but we all know the mare is really in charge). The lead mare usually stays at the front of the band as they move about and decides when it is time to move on. She is the guide and decides where to go while the other band mares and offspring follow. If she is foaling (giving birth), she will remain at a distance from them, or at times she may leave temporarily to give birth to her foal, the band will either rejoin her once the foal has been born, or she will rejoin the band once the foal is strong enough.

A **foal** is a baby horse. Foals can nurse their mothers for up to 2 years on the Salt River. A yearling is a young horse between 1 and 2 years of age. It is not uncommon to see a yearling continue to nurse for a few months after a new sibling is born. Often the mare will feed both of her offspring at once. Normally, offspring will remain with their birth band until they reach maturity and their hormones kick in. One indication that may be occurring is that a colt (young male horse under age 4) will begin to show sexual interest with the mares within the band. At this point, the lead stallion

will see him as a threat and will begin to chase him off. The mare will also sometimes assist in pushing him to "leave the nest" as well. This is an important dynamic that ensures inbreeding does not occur. When a filly (young female horse under age 4) begins to show maturity, she may start to wander away and flirt with others outside of her



© Bren Schultz, Photographer

continued on page 6





© Drawing by Yoke Bauer DiGiorgio

View all of Yoke's drawings on Instagram / @yokebauerdiorgio

'TENDER MOMENTS' Salt River Wild Mustangs

# ANNUAL ART CALENDAR FUNDRAISER

## Wildhorse Ranch Rescue 501(c)(3) Charity

*(saving animals in need since 1995)*

Each year, artists from around the world come together to contribute their work on behalf of Wildhorse Ranch Rescue, a wonderful non-profit organization consisting of hard working and dedicated volunteers that to date have saved well over 415 animals in need as well as many Salt River wild horses. All proceeds from the art calendar benefit Wildhorse Ranch Rescue. The annual calendar can be purchased through the Salt River Wild Mustangs Facebook pages or at: [www.saltriverwildmustangs.org](http://www.saltriverwildmustangs.org)

Wildhorse Ranch Rescue was established by Kim Meagher in 1995 and received their 501(c)(3) status in 2000. Wildhorse Ranch not only provides sanctuary to animals in need, but enrich the lives of both animals and caring people through their adoption programs.

Wildhorse Ranch Rescue has been quietly and humbly making progress across the state of Arizona by assisting wild horses when needed in many locations, including the Salt River's iconic herd, and through their Water For Horses program delivering vital support and aid as well as a permanent water source to the Grey Mountain wild horse herd in Northern Arizona.

The rescue facility is always looking for volunteers

### WILDHORSE RANCH RESCUE'S KEY PROGRAMS

**HavasuPups & HavasuHorses:** This program was started in 2007 to assist with the unwanted dogs in Supai. In 2014 Wildhorse Ranch Rescue began bringing horses in need.

**US Forest Service Retirees:** They worked with Bill Barcus of Payson Forest Service to put the paperwork in place with the Federal Government that allows all retired USFS Equines to go directly to a 501(c)(3) charity rather than to auction.

**Equine Rescue:** Wild mustangs, all domestic equines, Retired US Forest Service equines, US Calvary Horses, and any equine in need of help.

**Kitty City Program:** An enclosed atrium with 2 cottages that have heat and AC to safely house domestic and semi-feral cats with a high success rate of finding permanent and loving homes for them.

**Water For Horses:** Grey Mountain wild horse herd feed and water program

Location: 11811 S. Lindsay Road, Gilbert, AZ 85296

Mailing Address: PO Box 3080 Gilbert, AZ 85296

Office (480) 503-5497 or (866) 926-8007

[www.wildhorseranchrescue.com](http://www.wildhorseranchrescue.com)



## SALT RIVER WILD HORSE HIERARCHY



© Bren Schultz, Photographer

### MORE ABOUT THE SALT RIVER WILD MUSTANGS

The Salt River wild mustangs/horses are a historic population of unbranded, unclaimed, wild and free-roaming horses, that were born in the wild. The word Mustang or Wild Horse is used interchangeably.

Mustangs are descendants of Spanish, or Iberian, horses that were brought to the Americas by Spanish explorers in the 16th century. The name was derived from the Spanish word 'mustengo', which means 'ownerless beast'. Once escaped, these horses evolved without the influence of man and through survival of the fittest, evolved into the incredibly durable and tough breed we know today.

An iconic wild horse, they are protected under the Law which was established by Senator Kelly Townsend and signed by Governor Doug Ducey. The law required an MOU between the Forest Service and Arizona Department of Agriculture to allow a third party organization to manage the herd under the guidelines and expectations established by the two entities.

The mustangs are located within the Tonto National Forest mostly along the Northern side of Bush Highway at the Lower Salt River in Arizona. They live all along the Lower Salt River and can be found while visiting the recreation areas between Water User's Recreation site to the Granite Reef recreation site.

The best time to see the horses at the water's edge is early morning or early evening when they cross the river. Kayaking or paddle-boarding the 12 mile river stretch is known as the best way to enjoy the horses for many, but hiking any of the trails is a sure way to find a band or two as well.

<http://www.saltriverwildmustangs.org>



© Bren Schultz, Photographer

band. Stallions and young bachelors may take notice of her and attempt to steal her from her band. She may be stolen multiple times by numerous bachelors or stallions, until she finds a stallion that can protect and keep her. When offspring leaves its birth band it is called emancipation and colts are then referred to as bachelors.

**A bachelor stallion** is a non-harem stallion and is usually young and inexperienced but may also be a previous lead stallion that has lost his band. They typically will join other bachelors, creating what is called a bachelor band. They are well known throughout the herd as "the trouble makers" because wherever they go, they create chaos for other bands. Their behavior can be described as a college dorm lifestyle. They spend their time horsing around, they practice battling with each other, so they can one day overthrow a stallion and steal their own mares to start their own family bands. They also learn how to become adults by older and more experienced bachelor stallions. I always imagine circus themed music playing loudly as they approach. Their main goal in life is to become a powerful lead stallion.

<https://www.facebook.com/saltriverwildhorseeducation/>  
<https://www.facebook.com/groups/618363808650256/>  
<https://www.saltriverwildmustangs.com/>





© Bryan Watts, Photographer

*Osprey with menhaden. Due to its high energy density, menhaden is a critical prey item for osprey populations along the Atlantic Coast and within the Chesapeake Bay. Reductions in the availability of menhaden result in a decline in the prominence of menhaden in the diet and related diet quality. Prominence of menhaden in the diet is generally believed to be linked to productivity and population stability.*

# Regulating ‘Bunker’ with Osprey

by Bryan D. Watts, Ph.D.

***Mitchell A. Byrd Professor of Conservation Biology / Director, Center for Conservation Biology  
College of William & Mary***

‘Bunker’ or ‘Atlantic menhaden’ (*Brevoortia tyrannus*) have supported the largest commercial fishery by weight along the Atlantic Coast for more than a century. The menhaden is a large schooling fish that is distributed in nearshore waters from Nova Scotia south to Florida. Menhaden are filter feeders that depend on plankton and spend portions of their life cycle within estuaries including the Chesapeake Bay. Although menhaden are increasingly replacing other fish within the bait industry, 75% of the landings come from

the purse seine fleet for the “reduction” industry where fish are processed into fish meal and oil. These products are used as poultry, hog and aquaculture feeds, fertilizer, pet food and dietary supplements. During its peak in the 1950s, the reduction industry was harvesting 700,000 metric tons of menhaden annually and supported 20 processing plants from Maine through Florida. Today only a single plant located in Reedville, Virginia remains in operation.

**continued on page 8**



## Regulating 'Bunker' with Oprey



© Bryan Watts, Photographer

**LEFT:** When food is limited, osprey broods form dominance hierarchies early. Less than one week old, these siblings display classic posturing. The bird on the right exhibits the upright posture of dominance while the bird on the left exhibits the subordinate crouch. These dominance relationships persist through the nestling period and determine who controls access to food and during lean times, who will live and who will die.

**RIGHT:** Two siblings showing the outcome of dominance relationships that leads to food stress and possible brood reduction. The dominant bird (left) has a full crop while the crop of the subordinate (right) is empty. The differences in regular food access can be seen in the body development of the two siblings. Chronic food stress leads to lower growth rates and ultimately may lead to the death of the subordinate sibling.

In addition to their economic value, menhaden play a significant role in coastal ecosystems representing forage fish for birds, marine mammals and predatory fish. Many economically important fish such as striped bass, bluefish and bluefin tuna, as well as marine mammals including dolphins and humpback whales, depend on menhaden during specific seasons. Many bird species such as brown pelican, bald eagle and great blue heron depend on menhaden during the breeding season while others such as common loon, northern gannet and double-crested cormorants depend on them during migration or winter. Of all the bird species that depend on menhaden, osprey seem to stand alone in terms of how tightly their recovery along the outer coast has been linked to menhaden. Throughout the early phase of recovery during the 1970s and 1980s, menhaden were believed to be a keystone prey species over a large geographic area.

Because menhaden stocks are shared by multiple states along the Atlantic Coast, by federal law their management falls to the Atlantic States Marine Fisheries Commission (ASMFC). The ASMFC's approach to menhaden management has evolved over the decades from no quotas and independent management by states to coordinated coast-wide management. Since 1980, the ASMFC has recognized the importance of menhaden as a forage fish for predator populations and the need to consider these consumers in management decisions. However, policy actions that protect consumer populations from overharvest

by the reduction industry have not risen to the occasion. It was not until the recovering striped bass (an important recreational fish) began to show signs of food stress attributed to low juvenile menhaden abundance in the 1990s that the ASMFC began to shift from single-species to multi-species models to set reference points that inform harvest limits. Striped bass, with lesions and poor condition, represented a line in the sand and highlighted the conflict between the fishing public and the reduction industry in terms of the role of menhaden. Not surprisingly, the multi-species models and the ecosystem-based models that

### THE CENTER FOR CONSERVATION BIOLOGY

CCB is a research unit shared by William & Mary and Virginia Commonwealth University. The Center is a part of the VCU Rice Rivers Center. Rice Center scientists conduct cutting-edge environmental research on the James River and around the world.

CCB's mission is to provide the global community with the information needed to drive thoughtful, science-based conservation, to educate and train the next generation of conservation scientists, and to make lasting contributions to the natural world through critical thinking, innovation, and ground-breaking research.

<https://cbbirds.org/>

continued on page 9



## Regulating 'Bunker' with Osprey



*Differential access to food leads to asymmetric broods. Subordinate bird on the left is half the weight of the dominant bird on the right. © Bryan Watts, Photographer*

followed have focused on the impact of menhaden harvest on predatory fish populations to establish reference points. The current state-of-the-art model for menhaden harvest regulation utilizes striped bass as an umbrella species for the broader consumer community under the assumption that as long as striped bass are performing to threshold levels, all other consumers should be fine.

Osprey are fish obligates that have a near global distribution. Due to this dependency, osprey represent one of the best biological indicators for many fish stocks throughout the world. Low fish availability and related low brood provisioning rates in osprey lead to clear behavioral and demographic responses. Pairs that maintain high provisioning rates feed young equally and siblings do not form dominance hierarchies. Broods experiencing low provisioning rates form linear dominance hierarchies and females feed dominant young to satiation. The consequence of continued low provisioning is brood reduction where subordinate young die sequentially until brood size matches available food. Because under low food conditions dominance hierarchies form early, most young with food stress are lost in the first weeks of development just before the most rapid phase of mass growth. Extreme food stress leads to breeding failure. The graded response to food stress makes osprey pairs sensitive indicators of fish availability.



*© Bryan Watts, Photographer*

*Menhaden added to an osprey nest on Mobjack Bay. Fish are being added to selected nests twice per week to see if higher provisioning may mitigate food stress.*

Several osprey populations from New England south to North Carolina have collapsed in recent decades due to food stress, likely related to declines in menhaden stocks. Mobjack Bay within the lower Chesapeake Bay has been a focus of osprey research since 1970 when Mitchell Byrd

**continued on page 10**



continued from page 9

## Regulating 'Bunker' with Osprey

first conducted surveys there. Over the past 50 years, several William & Mary graduate students have worked with osprey within this study area including Bob Kennedy, Gary Seek, Chris Stinson, Tim Kincaid, Peter McLean and Andy Glass. The collective work of these students provides insight into the response of osprey to changing menhaden abundance. During the mid-1970s when menhaden stocks were high, there was little evidence of food stress in osprey broods. By the mid-1980s, several signs of food stress were present within the population, including an increase in hunting time by adult males, lower provisioning rates, the occurrence of sibling aggression and subsequent brood reduction. By the mid-2000s, the amount of menhaden in the diet had dropped by 40%, brood reduction was common and reproductive rates had dropped to precarious levels.

One of the central tenets of the ecosystem-based model for setting menhaden harvest limits is that menhaden stocks should be maintained at levels that will sustain stable populations of the consumer species that depend on them. Population stability means that adults are capable of producing enough young to offset adult mortality, which in osprey represents about 1 young/pair/year. With respect to setting menhaden harvest limits, the question translates to what stock levels are required to allow osprey to reliably reach threshold production.

Michael Academia is a new William & Mary graduate student working with osprey-menhaden interactions within Mobjack Bay, with a particular focus on harvest policy and the possible role of osprey in setting ecosystem-based harvest limits. Michael has a passion for osprey but has a background in fisheries science from Humboldt State. Fieldwork in Mobjack was initiated during the spring of 2021 and is examining osprey reproductive rates, diet, brood provisioning rates, the growth rate of young and time budgets of males. Osprey exhibit a gender-based division of labor, with the males responsible for providing fish during the critical period of young development. In some ways, they are the key to linking menhaden stocks to population stability. In addition to observational work, Michael is performing a menhaden-addition study to evaluate how additional menhaden may mitigate food stress.



The CENTER for  
CONSERVATION  
BIOLOGY

**TOP:** Female osprey feeding nestling with fish provided. Adults adopted fish and immediately fed young giving some indication of ongoing food stress.

**CENTER:** Michael Academia uses a mirror pole to check on the status of an osprey nest in Mobjack Bay. To examine if osprey are meeting their critical demographic threshold, more than 100 pairs are being monitored for productivity.

**BOTTOM:** Michael measuring the forearm of a young osprey nestling. Young of selected nests are being measured once per week to allow for comparison of growth rates.

© Bryan Watts, Photographer





*"Afryea" means business when anyone comes near her kittens, but the three-and-a-half-year-old black-footed cat has proven to be an excellent mother.*

© Photo courtesy of Fossil Rim Wildlife Center

## 'BLACK-FOOTED CAT' PAIR HAS TWO KITTENS

by Tessa Townsend  
Carnivore Specialist / Fossil Rim Wildlife Center

The black-footed cats (BFCs) "Morgan" and "Afryea" are doing a great job for their program at Fossil Rim Wildlife Center. We are proud to announce the birth of two black-footed cat (BFC) kittens!

On April 1, 2021 our black-footed cat 'Afryea' gave birth to a female named 'Tad' and a male named 'Smidgen'. A tad is 1/4 of a teaspoon, while a

smidgen is 1/32 of a teaspoon, so we thought these two small units of measure were very fitting for the two small kittens. Afryea has been taking great care of them and they are growing bigger and bigger by the day; well, as big as a BFC kitten can get.

Afryea is three-and-a-half years old and has lived at Fossil Rim since April 2018, when she was transferred



© Photo courtesy of Fossil Rim Wildlife Center

**continued on page 12**



## ‘BLACK-FOOTED CAT’ PAIR HAS TWO KITTENS



© Photo courtesy of Fossil Rim Wildlife Center

**LEFT:** Compared to other litters, the 2021 black-footed cat kittens are easier to distinguish. The female “Tad” (bottom) has a darker head and is a bit smaller than her brother “Smidgen.” / **RIGHT:** “Tad” (left) and “Smidgen” (right).

here from Hogle Zoo (Utah). Her breeding partner ‘Morgan’ came to Fossil Rim from Oklahoma City Zoo in November 2014 and was one of the first black-footed cats to live at Fossil Rim. The two were introduced in February 2021 and got along well from the start.

Afryea is proving to be an excellent mother once again. This is her third litter. And this was Morgan’s first successful breeding. He is a very genetically valuable male, so we were very excited that he was finally able to sire a litter!

In the past, our black-footed cat kittens have been pretty indistinguishable, but that hasn’t been the case with this litter. Tad has a very dark head and is a bit smaller than her brother Smidgen.

At six weeks old, the kittens weigh between 450 to 550 grams, which is just over one pound. Their eyes have been fully open since they turned one week old, and they are just starting to venture out and explore their yard.”

The black-footed cat has a population classification of “Vulnerable” with a decreasing trend.



### ABOUT FOSSIL RIM WILDLIFE CENTER

Fossil Rim Wildlife Center is a not-for-profit 501(c)3 located in Glen Rose, Texas, specializing in captive breeding programs for indigenous and exotic endangered and threatened species.

Fossil Rim is dedicated to the conservation of species in peril, conducting scientific research, training of professionals, responsible management of natural resources and public education. Through these activities, we provide a diversity of compelling learning experiences that inspire positive change in the way people think, feel and act with Nature.

Fossil Rim takes part in the black-footed cat SSP and is currently home to one breeding pair located in our Intensive Management Area (IMA). In 2019, a female gave birth to the first two black-footed cat kittens in Fossil Rim history.

Fossil Rim has been open to the public for more than 30 years, but we go back farther than that. Learn about Fossil Rim’s history and the people who made it possible.

<https://fossilrim.org/>





© Photo courtesy of Fossil Rim Wildlife Center

## ABOUT THE BLACK-FOOTED CAT

The black-footed cat, or small-spotted cat, is one of the smallest cat species in the world. They weigh in at 2-5 pounds and measure 14-20 inches in length. Despite their small size, they are quite tenacious and have been known to defend themselves against jackals that are eight times their size.

Black-footed cats are native to the scrub desert regions of southern Africa and are only found in three countries: South Africa; Botswana; and Namibia.

Their name comes from the black pads and thick, black hair on the soles of their feet, which help protect them from the hot sand.

They also have a broad skull with large, rounded ears that give them exceptional hearing to find prey in scarcely populated areas.

**Their low-set ears are usually flattened in an aggressive posture, which helps them blend in while hunting in areas with limited cover.**

In addition to the strong sense of

hearing, they also have excellent night vision.

They have a large home range that covers up to 12.5 square miles. Each night, they travel as many as 10 miles while they hunt for food. Black-footed cats have a very high metabolism and need to eat 20 percent of their body weight each day.

They hunt 70 percent of the night and have a successful hunt every 30-50 minutes. In a single night, one black-footed cat will consume 10-14 rodents and birds - more kills than a leopard makes in six months.

In fact, their predation success rate of 60 percent is the highest of any feline (a lion only succeeds in catching its prey roughly 20-25 percent of the time).

Black-footed cats are solitary except for a short period of time during breeding or when a female is raising young. Gestation is 63-68 days and a female will give birth to 1-4 kittens with an average litter size of two.

At birth, kittens only weigh 2-3 ounces,

but they develop quickly. Kittens are weaned at 2-3 months. The mother will now start to bring live prey back to the den for the kittens to kill. The kittens become independent at 3-4 months old and reach sexual maturity between 8-12 months of age.

Black-footed cats are very secretive in the wild, and most of what is known about them has come from a few ongoing field studies. Radio collars have helped detect the process of their nocturnal hunts with the help of an advanced, light-sensitive camera.

Population estimates in 2019 were about 10,000 in the wild. Major threats include - deforestation, overgrazing by livestock leading to a reduced prey base, and indirect poisoning.

### RESOURCES:

<https://fossilrim.org/>

[https://en.wikipedia.org/wiki/Black-footed\\_cat](https://en.wikipedia.org/wiki/Black-footed_cat)

<https://wildcatconservation.org/wild-cats/africa/black-footed-cat/>





© Anne Marie Fraser, Photographer

# FOX AND OUR FAMILY

by Mark Fraser

Executive Director, Nature Walks Conservation Society

Not long ago my wife Anne Marie and I had the honor of admiring a family of young Red Fox at their den site. Thanks to some pretty powerful lenses we had the ability to photograph and video the beautiful and wild interaction between the mother and young from a distance that kept them comfortable.

We witnessed frolicking siblings and adorable sneak attacks especially from one extremely playful Fox Kit who seemed like play was his only interests in the universe to the mom occasionally alerting her young to potential danger. We have had the wonderful fortune over the years to have a similar opportunity almost every year thanks to friends alerting us to any new den sites.

A Few years ago one of the little ones was actually blind in one eye but seemed to be getting along without too much difficulty. What amazes me about watching a family of Fox interact is not the differences between their families

and our own, but the stunning similarities! Seeing the mum scolding a child who was walking towards danger or watching her look of utter exhaustion while trying to keep up with a nursing family of insane kids was so much like what a human family deals with it is remarkable.

Do Fox “think” the way we do? Well, most scientists/biologists like to avoid anthropometric statements that give human characteristics to wild species however I take exception to that term as a whole. We “are” animals-mammals (though we hate to admit that for some odd reason). We have fossils to back that up and a clear path of lineage and also living (non-human) relatives with the same hands, same basic body shape and occasionally cranky disposition. I believe life on Earth is truly sacred and the admiration of the natural world brings the greatest and most wholesome joy.

**continued on page 15**



## FOX AND OUR FAMILY



© Anne Marie Fraser, Photographer

All “Mammals” are related. That means that if you could somehow magically have a photograph of the Mother or Father of “any” mammal going back untold millennia sooner or later every mammals great, great etc for a couple hundred million years grandparents – would be the “same” species!

A common ancestor of ALL mammals “All” being the key word. Humans are mammals and if you could go back long enough then the Fox we were admiring, and “ourselves” would have the same common ancestor! It certainly “sounds” radical - but is it, really? That common mammalian ancestral species likely looked allot like a fuzzy tailed shrew by the way.

Therefore, it's reasonable to assume that Fox, being mammals like ourselves should have allot in common (besides being warm blooded, having hair, nurse young etc). While I am pretty sure they are not interested in Space travel, iphones or microwaves nor could (or should) they be, however I am highly confident that our instinctive



© Anne Marie Fraser, Photographer

continued on page 17





© Anne Marie Fraser, Photographer

## ABOUT THE RED FOX (*Vulpes vulpes*)

Of the over 37 types of foxes, only 12 are considered true type foxes of the *Vulpes* genus. The red fox is the largest of the true foxes (about three feet long and two feet tall). Living on multiple continents (the entire Northern Hemisphere including most of North America, Europe and Asia, plus parts of North Africa), the red fox is the most common type of fox.

### More About the Red Fox:

- They have long snouts and red fur across the face, back, sides, and tail. Their throat, chin, and belly are grayish-white. They have black feet and black-tipped ears that are large and pointy. One of the most noticeable characteristics is their fluffy white-tipped tail.
- They prefer rodents and rabbits, but will also eat birds, amphibians, and fruit. They will also steal food from garbage cans or farms. Their ability to find food, even during the winter, is one reason why red foxes have a reputation for being cunning and smart.
- They mate in winter. Right after mating, a female builds

a den. Females can deliver anywhere between one and 12 pups per litter. Pups are born brown or gray, usually turning red within about a month. Both parents take care of their offspring until the next fall, when the young foxes set out on their own.

### Fun Facts:

- With excellent hearing, red foxes can hear low-frequency sounds and rodents digging underground.
- Their forepaws have five toes, while their hind feet only have four!
- When afraid, red foxes grin

### RESOURCES:

<https://www.nwf.org/educational-resources/wildlife-guide/mammals/red-fox>  
<https://onekindplanet.org/animal/fox-red/>  
<https://en.wikipedia.org/wiki/Fox>  
<https://www.worldatlas.com/articles/the-twelve-species-of-true-foxes.html>



## FOX AND OUR FAMILY



© Anne Marie Fraser, Photographer

emotional responses to the world are incredibly similar. Fear (hear a loud bang and be spooked) Sorrow (mourn the loss of a loved one) Love (caring for and adoring family members) hunger (stomach letting you know it's time to eat) hate (mostly a human trait but an unrelated trespasser would certainly garner a similar response).

If you think about the similarities it's suddenly easier to "empathize" with a species in need. Wildlife Conservation and Preservation of habitat take on a whole new meaning when we achieve empathy through understanding. So in a very real way admiring a day in the life of an adorable family of Foxes is like a remarkable mirror, a reflection back to a time long ago within our own ancient past when life was focused on family, and survival. That same behavior of siblings attacking each other wrestling and sneaking up on each other - is actually embedded with important lessons to develop skill-sets. The same with our own young. Fox "learn" to find food by trying and failing and then learning from the mistakes just like we do.

***The truth is we are "all" connected in very remarkable ways!***



### THE NATURE WALKS CONSERVATION SOCIETY...

a 501C3 not for profit organization with a mission to promote the preservation of wildlife and habitat through direct public outreach.

Founded by Mark Fraser, naturalist and conservation advocate, who has since expanded the message from national radio with professor Michio Kaku to Classrooms across America and a Youtube channel with an estimated 4-million views as well as countless in person public educational events.

<https://naturewalkscs.org/>

<https://www.flickr.com/photos/annemariefraser>





*Collage of impact of plastic trash in oceans on marine life.*

*© Photographs courtesy of Marine Conservation Network*

# Bringing Together Multiple Solutions For Ocean Conservation

by Charles Ray

*CFO and Compliance Officer / Marine Conservation Network*

If you live near the ocean or any large body of water, you can expect to sit at a restaurant and order a great and healthy seafood dish from local sources. If you live on the top of a mountain in the Rockies, you can also order a delicious seafood dinner at your local restaurant, but the fish most likely came from an import company who get their seafood from an outside source. Either way, much of the seafood that gets served in many restaurants comes from outside sources or other countries, and the fish usually aren't seasonal. The demand for seafood from other countries comes at a high cost, and usually that cost is paid by depleting the oceans of fish, by-catch, and overfishing. There is little regulation or enforcement in place to make fishermen and their commercial fishing fleets more conservative or compliant in curtailing bycatch or considerate of overfishing. They fill their pockets so you



*© Stephane Bidouze, Photographer / Discover*  
Shipping traffic accounts for a large portion of plastic trash and bottles thrown into the ocean which then washes up on every shore in the world .

can fill your plate.

**continued on page 19**



## Bringing Together Multiple Solutions For Ocean Conservation

An organization, Sustainable Seafood Experience (SSX), was formed by Kimberly Ray, lifelong ocean advocate and protector, to help educate the general public and make commercial fishing fleets more compliant in protecting our oceans and supply of seafood. Educating local communities on what is locally available and sustainable was the first step in helping to curtail by-catch and imports from other countries. It was working out fine until Kimberly realized that there are many more related issues concerning the plight of the oceans across the globe other than what seafood is sustainable and what is not. Global warming and climate change has a lot to do with marine population. The amount of plastic trash we (nearly deliberately) put into the ocean is eaten by the fish we then consume ourselves. Ocean acidification affects the amount and number of species found along coastlines, which in turn affects the communities that depend on fishing for a living. Shark finning is run nearly exclusively by underhanded or organized crime syndicates whose only goal is to make money by serving a bowl or soup that can cost up to \$100. Some countries invade other country's fishing waters and plunder whatever they can at the cost of depleting those oceans of sustainable seafood (China's huge fishing fleet is a good example of this) with no respect for the invaded countries resources or compensation for their loss. Illegal whaling fleets still slaughter hundreds of whales each year for "research" projects, yet the result of that research is never made public. (*Whales poop a lot, and that is food for the plankton which absorbs CO2 and gives off 1/2 of all the oxygen we breathe on earth. No more whales: no more plankton. No more plankton: no more oxygen. We are suffocating ourselves by our own greed.*) Most governments have a very laissez-faire attitude about enforcing what little policies countries have left to enforce to protect their interests in fishing areas – unless there is money to be made in enforcement. The list of cataclysmic issues facing the survival of our oceans and marine life goes on and on. Where does it stop?

There are a great number of non-profit and for-profit organizations which focus on one or two issues that face our oceans and marine life. 4ocean is a good example of a corporation whose goal is to extract as much plastic trash from the ocean as possible in any one of the 5 gyres around the world. They have started on the great pacific garbage patch and are expanding their efforts around the world. Boyan Slat has also started The Ocean Cleanup project. He is a Dutch inventor and entrepreneur who creates technological solutions to global problems such as removing trash in rivers before it gets to the ocean. A prototype of a giant cleanup project is currently underway in the pacific now. Next, you may hate them, but everyone has to have an army for defense, and Sea Shepherd is one of the ocean defenders for marine life that has no



**TOP:** Discarded shark corpses after being gutted for shark liver oil /  
© Andy Murch, Photographer / Predators in Peril Project

**CENTER:** Hong Kong is one of the world's biggest markets for shark fins, but the sharks the fins come off of are thrown back into the sea to drown /  
© Antony Dickson, Photographer / AFP/NPR

**BOTTOM:** Large commercial fishing fleets are responsible for overfishing and by-catch waste, and sometimes take more than the sea can replenish /  
© Photographs courtesy of Marine Conservation Network

voice in governments. They may seem to be vigilantes and sometimes take matters into their own hands, but with no defense of illegal whaling or fishing, the seas and marine life will be the ones who suffer the most. And many universities and government organizations, such as NOAA, are on the

continued on page 20



## Bringing Together Multiple Solutions For Ocean Conservation



*"Ghost fishing" by derelict gear is a significant threat to sea turtles.*

© Jordi Chias, Photographer / National Geographic

front lines doing research and trying to enforce regulations to help stop the rape of the oceans. However, though there are a multitude of conservation organizations focusing on one or two problems to solve, none of them are (usually) in contact with each other to make their efforts and research more effective across the board. They each are concerned about their own bottom line and funding issues, and hope that someone else doesn't steal their research. There needed to be an organization to combine and quantify the efforts of ALL marine and ocean conservation organizations so they can all be on the same page in fighting the grave issues facing our planet and our oceans.

In 2015, Kimberly realized one possible solution to marine life conservation issues was to form a new non-profit corporation which addressed all the issues facing the plight of the oceans. Establishing the **Marine Conservation Network (MCN)** was the result. Kimberly's vision is to join the efforts and progress of each and all conservation organizations around the country and around the world, make sure they are each compliant with local and federal guidelines, and help spread the word to the general public that there really are people and organizations in the world that are genuinely trying to help restore our oceans. It is something like an inhouse directory for researchers and organizations to help each other by linking up for the good of all. MCN partners with other groups and non-profits and for-profits by helping to educate the public on changing the way we treat the oceans, and how we can better manage it without destroying it in the process. The path to enlist all these organizations together did not come without roadblocks or stubbornness. The old ways of securing



© Charles Ray, Photographer / MCN

*Kimberly Ray (Shark Lady) at Santa Barbara Sea Center educating the public of the importance of sharks.*

funding or grants for research projects is hard-wired into the minds of some corporations. But the goal really isn't about the money. It's about saving our oceans and marine life, and with some hard-won inspiration, many are now coming around to join in the fight.

Most importantly, Kimberly believes in planting seeds  
**continued on page 21**



## Bringing Together Multiple Solutions For Ocean Conservation



*Dolphin rescued from derelict and discarded fishing gear.*

*© Photograph courtesy of Clearwater Marine Aquarium*

in the minds of our young people. The inroads we make into combining our efforts in marine conservation won't be chiseled in stone, and the cause of conservation needs to be taken up by the next army of fighters – our children. That is why, as a crucial part of MCN, she developed the Young Ambassador Program to inspire today's youth to become tomorrow's leaders and fighters. Applications are taken for youth between the ages of 8 to 15 who are actively participating in marine conservation and making a difference in the world and in their community. It isn't a gratuitous title or placard to make them feel special – it is their special continued efforts that make them worthy of being the next generation of ocean citizens and leaders among us. And, in recognition of their continued hard work and dedication toward their chosen field in oceanography or marine sciences and conservation, they are awarded with a scholarship to the college of their choice. It is hoped that the students will someday teach the masters.

In addition to the Young Ambassador Program, MCN contributes videos and newsletters each month and posts them to their YouTube channel to help with their education initiatives for the public benefit. Each month a new, lesser-known conservation organization is interviewed and highlighted and presented on their website to illustrate that the large corporations aren't the only companies out there

helping to save our oceans. She has also joined forces with other noted conservationists such as Jean-Michael Cousteau. Other smaller organizations are also vital in the overall efforts to fight the destruction of marine life and the oceans. It is the combined efforts of all of us that will win the day.

What can YOU do to help? It really doesn't matter if you live on a mountain top in the Rockies, or along the ocean coastline. When you order fish, always ask where it is from and what are the local selections. What's on YOUR plate? Before you throw away that plastic cup, think of using recycled paper products. When you take a breath of fresh air, think of where the oxygen came from. To lessen the carbon footprint from one of us is to lessen the carbon footprint of all of us. Contact MCN and donate your time or money. If we do nothing, then nothing will be done.

***Together, we can make oceans of difference!***

**For More Information:**

[www.marineconservationnet.org](http://www.marineconservationnet.org)

<https://www.linkedin.com/in/mcn2021/>

<https://www.facebook.com/MarineConservationNetwork>

<https://twitter.com/MCNnetwork2015>

@MCNNetwork2015

[https://www.youtube.com/channel/](https://www.youtube.com/channel/UCYYLbiN23pNBjrlNybKAFcw)

[UCYYLbiN23pNBjrlNybKAFcw](https://www.youtube.com/channel/UCYYLbiN23pNBjrlNybKAFcw)



# DISCOVERING NATURE



© John A. DiGiorgio, Photographer

## GETTING THAT SHOT

by Yoke Bauer DiGiorgio

Getting it right takes more than just luck. Wildlife photography involves a lot of work and does not always meet with success. My husband John and I have traveled thousands of miles; tolerated the attack of hordes of mosquitoes, horse flies, ticks and other annoying insects; hiked in snowstorms and downpours; operated our cameras in frigid temperatures with cold stiff fingers; and spent endless hours in blinds. The key to consistent success at wildlife photography is threefold: know your species; know your equipment; and know yourself. You must be able to get a full frame of your subject. A great background in good light is also essential, as well as, proper exposure control. As a photographer, you need to frame your subject for artful compositions and focus "dead on" the eyes so that they're sharp. As a videographer, you need to capture your subject doing something interesting. And you need to do all this while keeping the camera and lens steady.

**Know Your Species:** Before we go out to photograph a particular species we spend hours researching them, so we learn "when to be where" to get the images we are looking for. Observing animal behavior in the field is an important part of learning about a species. Will the species tolerate an encounter with a human? How close is close enough? We prefer using large telephoto lens with adapters and at times, a portable blind. A blind effectively hides you. It is comfortable enough to stay in for long stretches, and permits the observation of the subject as it approaches without undue stress. Depending on the species, a blind may have to be erected and left in place for several days depending on how comfortable the species is with its presence.

**Know Your Equipment:** using the right equipment is so important for consistent quality images. Reading books and articles by other photographers is helpful, as well as, attending seminars and workshops. I have found, however, that my greatest lessons were learned by being outdoors with my camera and tripod. Practice. Practice. Practice.

**Know Yourself:** Understanding your physical capabilities and desire to get better shots despite hardships is also important. How early are you willing to rise? How long can

you sit in zero or below zero temperatures without moving? How heavy a tripod are you able to carry and how far are you willing to carry it? Many a time we would set up before dawn, each sitting in our own blind, waiting for hours, for that "special eagle" to come close enough to make it worth taking a photograph. Bringing a good book along is always helpful.

**In summary,** whether the image is a portrait, a behavior or scenic, whether we travel far or close to home, we strive to capture that certain feeling of alertness evident when working with truly wild animals. You don't need to travel far. So rise early and get outdoors. See the sights, hear the sounds, and smell the smells. Use your camera and share the wonders of the wild all around us.

## 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

## THE NATURE'S NEWSLETTER

*Is dedicated to facilitating 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.*

## 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.*

Editor-in-chief: Yoke Bauer DiGiorgio  
Design: Yoke Bauer DiGiorgio / Nature's Art Productions LLC  
<https://shop.naturesartproductions.com/>  
[www.naturesartproductions.com](http://www.naturesartproductions.com)

The Delaware Valley Eagle Alliance assumes no liability for opinions and information expressed by individual authors.

© Delaware Valley Eagle Alliance Publication