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NTS NEWSLETTER

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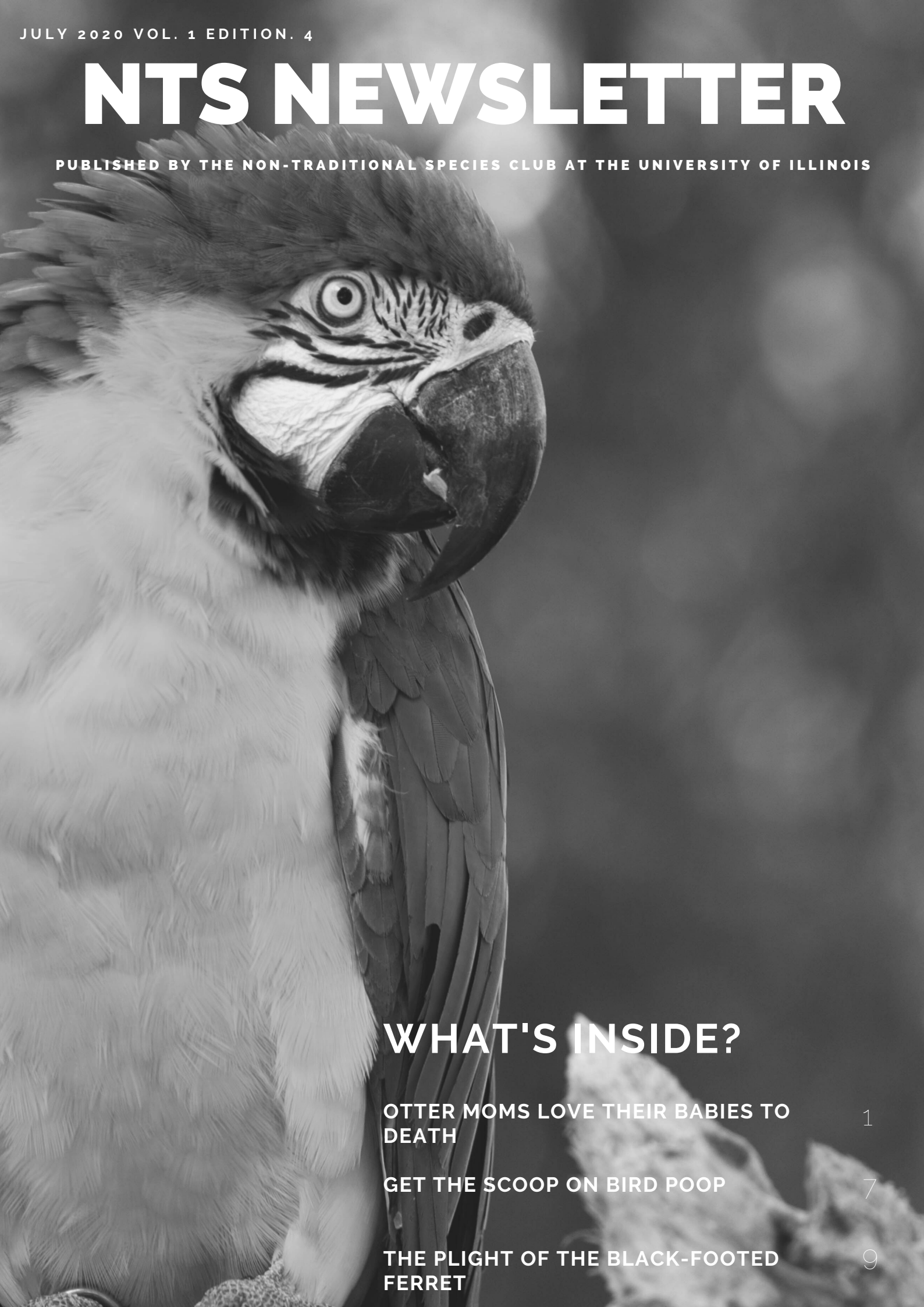


WHAT'S INSIDE?

OTTER MOMS LOVE THEIR BABIES TO DEATH

BY ALEC COLOSI

Everyone has seen the adorable videos of mother sea otters with their pups; grooming them, feeding them, or just taking a nice nap. But have you ever thought about what it takes to be an otter mom?Sea otters in general have disproportionately high energy demands. They are the most recent line of marine mammals to have evolved for marine life, meaning they lack many of the adaptations that other marine mammals possess. They don't have blubber to stay warm and cannot hold their breath nearly as long as pinnipeds (seals and sea lions) or cetaceans (dolphins, porpoises, and whales). To make up for this, they have the thickest fur in the animal kingdom, and spend a large portion of their day grooming to maintain it and keep warm. They are also very buoyant, but feed on bottom-dwelling invertebrates, so it takes great effort for them to forage and swim.

Between grooming and foraging, sea otters use a great deal of energy to keep themselves alive. Now, imagine having all these energy requirements and having a pup to care for on top of everything. That means grooming yourself to stay warm, grooming your pup for their warmth, foraging for yourself, producing milk (an incredibly energetically demanding feat for any mammal), and teaching your pup to fend for itself. All the while, avoiding predators and other sea otters that may want to steal your resources. By the time the pup is weaned, many sea otter mothers are left in very poor condition.

This phenomenon of caloric insufficiency and emaciation at the time of pup weaning has been termed End-Lactation Syndrome and affects many female sea otters annually. The demands of pup rearing can leave female otters too weak to fend for themselves and can result in stranding and death. Some otters have actually shown strategies to avoid the sometimes-fatal consequences of raising pups. Female otters can delay implantation of embryos, just like horses, and pre-load nutritionally during this delay. Some otters actually wean their pups early or even abandon them to survive the demands motherhood.

No matter how you look at it, motherhood takes quite a toll on any mammal, but sea otter physiology makes being a mother a much more high-stakes endeavor. With their basal metabolic demands as they are, adding the stress of rearing a pup can be a life-threatening ordeal. However, it is good to note that this species as a whole is coming back from near extinction, and current rehabilitation efforts look promising for maintaining a growing population. The next time you see a cute picture or video of a sea otter with her pup, I think we all will have a greater appreciation for just how much that mother sacrifices for her little bundle of joy.

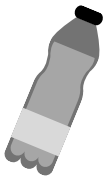
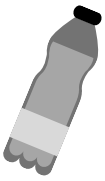
MICROPLASTICS & MARINE LIFE

BY COLLEEN ELZINGA

What are microplastics?

The creation of microplastics starts with water pollution. Plastic pollutants come from various sources, both domestic and industrial. Runoff containing microbeads, plastic fragments, and larger plastic trash can serve as a domestic source. Manufacturing industries can produce pellets and resin powders that add to the pollution. Along with this, coastal activities such as fishing practices, aqua tourism, and marine industries can be other sources of plastic pollution in the marine ecosystem.

Large plastic debris takes years to degrade into smaller pieces. Once the fragments are smaller than 5 mm they are known as microplastics, which are highly persistent in the ecosystem. Due to their size, these microplastics have a high bioaccumulation potential and settle into different layers of the ecosystem. They are ingested by marine life such as corals, planktons, fish, seabirds and marine mammals and are transferred along the food chain. Additionally, various harmful toxic contaminants can actually adhere to the microplastics which act as a vector.


Effects of microplastics on marine life

The harmful effects of microplastics on corals involves retention of plastic fragments in their mesenterial tissue, which can lead to a reduction in feeding capability and lower energy reserves.In plankton, microplastics can reduce chlorophyll absorption, cause loss of feeding ability, decrease growth, and reduce reproduction. These plankton are a key role in the aquatic food chain and fish ingest microplastics by mistaking these fragments as planktons or other natural prey. As a result, there can be negative effects on the fish GI system, slowed egg hatching rate, detained growth, and negative metabolic alterations.

Microplastic ingestion is also a concerning issue for sea birds, where the toxic effects of plastic fragments can cause alterations in their feeding behavior, reproduction, and mortality. Larger marine creatures such as sharks, whales, seals, sea turtles and polar bears are also vulnerable to microplastic ingestion in the oceans throughout the world. They can either consume them directly by swallowing ocean water or indirectly by consuming prey containing microplastics in their body cavity. This ingestion can have detrimental effects due to the ingestion of concentrated toxic chemicals.


How can you help?

The most important approach to resolving this issue is to minimize the plastic input into the ecosystem. One way you can help is through reducing your use of disposable plastics such as restaurant takeout containers, single use containers, grocery bags, and water bottles. Alternatives such as reusable grocery bags and reusable water bottles can make a big difference. Another way to help is to make informed choices when purchasing plastic items such as avoiding microbeads and buying items secondhand when possible to reduce the various plastic packaging. Another great option is to recycle, of course. Less than 14% of plastic packaging gets recycled so there is definitely room for improvement.

WILDLIFE ANAGRAMS!

BY RACHEL ANGLES

Whether you are new to Illinois or have lived here all your life, you are likely to see some pretty cool species if you plan on spending any time outside (or in the Wildlife Medical Clinic)! Can you figure out which native Illinois species are represented in these anagrams?

NTASEER RAGY LIRUSRQE _____

ERD-LEADIT WKAH _____

NASTEER OXB EUTTRL _____

REANIMAC REETSLK _____

MOONMC PANGNSIP LTERTU _____

OCROCNA _____

OWDO CUDK _____

MNOCOM TREGAR NESKA _____

CEAMIRNA BRINO _____

TREGA RODEHN OLW _____

KRUYTE RUULETV _____

LABD GLEEA _____

ERD XOF _____

DANCAA OSOGE _____

YIPSN FLOSHLTSE RLETUT _____

DEARBR WLO _____

AVIIGRIN MOPSUOS _____

NUGINOMR VODE _____

STARENE TACOLTOINT TIBARB _____

GARTE LEBU RENOH _____

EHTWI-EITDAL ERED _____

ERCESHC LOW _____

WILDLIFE ANAGRAMS - ANSWERS!

BY RACHEL ANGLES

NTASEER RAGY LIRUSRQE	EASTERN GRAY SQUIRREL
ERD-LEADIT WKAH	RED-TAILED HAWK
NASTEER OXB EUTTRL	EASTERN BOX TURTLE
REANIMAC REETSLK	AMERICAN KESTREL
MOONMC PANGNSIP LTERTU	COMMON SNAPPING TURTLE
OCROCNA	RACCOON
OWDO CUDK	WOOD DUCK
MNOCOM TREGAR NESKA	COMMON GARTER SNAKE
CEAMIRNA BRINO	AMERICAN ROBIN
TREGA RODEHN OLW	GREAT HORNED OWL
KRUYTE RUULETV	TURKEY VULTURE
LABD GLEEA	BALD EAGLE
ERD XOF	RED FOX
DANCAA OSOGE	CANADA GOOSE
YIPSN FLOSHLTSE RLETUT	SPINY SOFTSHELL TURTLE
DEARBR WLO	BARRED OWL
AVIIGRIN MOPSUOS	VIRGINIA OPOSSUM
NUGINOMR VODE	MOURNING DOVE
STARENE TACOLTOINT TIBARB	EASTERN COTTONTAIL RABBIT
GARTE LEBU RENOH	GREAT BLUE HERON
EHTWI-EITDAL ERED	WHITE-TAILED DEER
ERCESHC LOW	SCREECH OWL

HOW TO CARE FOR A MACAW

BY EMILY GREZDA

Parrots are flashy, exciting pets, but it's critical to be properly prepared before bringing one home. As a military macaw owner, I thought I'd give you some insight. Macaws are native to Central America, most species residing in rainforests. They are highly social, spending all their time with their flock. They require hours of one-on-one attention every single day, as you will become their "flock". Macaws in the wild spend their day flying to different foraging locations. Birds have very high metabolisms and require high calorie food, however, in your home they are only getting a small fraction of that exercise. Therefore, contrary to popular opinion, they should NOT be fed seeds. Seeds are high calorie and obesity is the biggest medical complication leading to death in pet birds. Instead, all pet birds should be fed a high-quality parrot pellet and fresh vegetables. Additionally, it's best to provide that food through some sort of foraging mechanism so they can spend more of their day completing natural behaviors. It's been experimentally shown that parrots preferto "work" for their food by foraging rather than eating it from a bowl.

Foraging at home may initially seem like an impossible task, but it actually doesn't need to be a very time-consuming endeavor on your part to set up, and you should start simple to set your bird up for success for this new enrichment. An easy way to start teaching a bird to forage can be as simple as putting crinkled paper balls in their food dish, requiring them to pick around them to eat. Adding food bowls to other ends of the cage and splitting meals among them is also easy. You can get creative without spending any money: twist cardboard tubes at one end and put food in so they need to destroy the tube to get to it, put pellets in little spaces in their toys, or put the food IN the piece of crinkled paper. Foraging toys are also in many pet stores and online.

Speaking of toys: macaws need a lot of them. Many macaw toys become "well-loved" aka they are destroyed, meaning that they will need to be regularly replaced. Some birds are so destructive that owners will buy 2x4" boards from home improvement stores that are then destroyed in days. It depends on a bird's personality, but no matter what, they need variety. Rotating toys to different locations or switching them out when the bird hasn't been playing with them can increase their interest when re-introduced. The more your bird is entertained, the quieter and better behaved it is likely to be.

No matter what, macaws are LOUD. They scream for joy, when they're upset, want your attention, or just because they're bored, and that scream will travel for up to 2 blocks' distance at full pitch. These are not apartment animals. Screaming can be discouraged but never eliminated. The best way to minimize screaming is to simply ignore it; coming in to yell at the bird will just make it excited; you are screaming back, and your attention is exactly what it likely wanted. It can be difficult to ignore a macaw who has been screaming for literally hours; trust me, I know.

Since macaws live in Central America near the equator, their daylight cycle is typically 12 hours. Macaws do sleep 12 hours a day when given the opportunity, so having their cage at night be in a room that can be dark and quiet for that long is important. If there are more hours of light, your bird may think it's springtime and become hormonal: think louder, more destructive, territorial, and moody.

There are so many more factors to owning a macaw: cage space, life span (80 years), vet expense, potential law restrictions, training, in depth diet discussion, risks associated with other pets, household changes (no candles or non-stick cookware, for example), aggression (their bite is 500-700psi; a lion's is 650psi), how to pet them (head and neck ONLY), and grooming requirements (showers!). It's a lot to consider, but I hope I've provided at least a little insight to the requirements of ownership. If you do your research and STILL have your heart set on a parrot, please consider rescuing. There are thousands of birds in the US in rescues due to owner surrender or death who need homes, and not all of them are unruly or sick. My bird, Vero, was a rescue and he is the best-behaved macaw I have ever worked with. Macaws are rewarding animals to word with, but education is key. I wish you luck!

Test Your Trivia Knowledge!

BY: RYAN PATTERSON

1. Which primate species is the only other species besides humans to possess the capability for blue eyes?

a. Gorilla
b. Orangutan
c. Ring-tailed lemur
d. Black lemur

2. What is a group of rattlesnakes called?

a. Rhumba
b. Bachata
c. Conga
d. Mambo

3. Which animal has the longest tongue relative to its size?

a. Giraffe
b. Chameleon
c. Giant Anteater
d. Long-tongued Bat

4. Ambergris is a substance produced in the digestive tract of sperm whales to help pass large, sharp objects such as squid beaks. What was the popular commercial use for ambergris before being made illegal?

a. Wax
b. Perfume
c. Soup
d. Glue

5. Which species of bird has the fastest recorded airspeed velocity?

a. European Swallow
b. Gyrfalcon
c. Golden Eagle
d. Peregrine Falcon

GET THE SCOOP ON BIRD POOP

BY KAYLA LADEZ

Bird droppings are an important indicator of health, but are you ready to answer a client's questions about bird poop?

Avian vets often get lucky enough to see their patients' droppings in the exam room, but it is still important to communicate with clients the basic anatomy of bird feces and what changes require veterinary attention. The Association of Avian Veterinarians recommends the use of paper towels or newspaper in the bottom of cages to help owners keep a close eye on daily droppings. The three components of droppings are urine, urates, and feces. Urine and urates are both produced by the kidneys, with the former being liquid and the latter being white. Remember, there is often normal variation depending on diet or stress, and between birds.

For example, a bird who suddenly eats many juicy berries may have normal changes in feces color and increased urine due to additional water intake. However, some changes in your future patients should raise red flags.

Decrease in volume of number of droppings
(may suggest less food is being ingested or appropriately digested)
Biliverdinuria
(green urates, may suggest liver disease)
Polyuria
(when unrelated to diet may suggest anything from liver or kidney disease to diabetes)
Diarrhea
Hematuria
Strong odor

Test your knowledge:

Q1: What is special about a bird's first dropping in the morning?

A: Larger, less formed, strong odor normal

Q2:

***Hint! There is more than one correct answer for each picture**

A: All are examples of polyuria. 1=Diarrhea, 2=Hematuria, 3=Biliverdinuria, 4=Decreased amount of feces + increased urates (suggests anorexia)

KNOW YOUR SMALL MAMMAL VITAL SIGNS!

BY KYLIE AYERS

As every veterinary student knows, the TPR is a very important part of the physical exam. One of the many fun (and challenging!) parts of working with exotic animals is the differences in 'normal' TPR values between different species. Knowing these normals is crucial for effectively triaging and examining your patients as a 4th year student and clinician in the future!

Below, I've compiled a set of normal TPR values from a selection of small mammals commonly seen in practice. Of course, these are just guidelines and not hard and fast rules. Always follow the directions of your supervising clinicians and technicians.

African Pygmy Hedgehog (*Atelerix albiventris*)

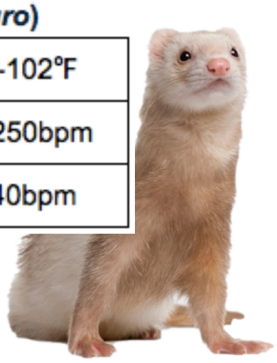
Temperature	95-98°F
Pulse	180-280bpm
Respiration	25-50bpm

Syrian Hamster (*Mesocricetus auratus*)

Temperature	99-102°F
Pulse	250-500bpm
Respiration	80-100bpm

Ferret (*Mustela putorius furo*)

Temperature	100-102°F
Pulse	180-250bpm
Respiration	20-40bpm

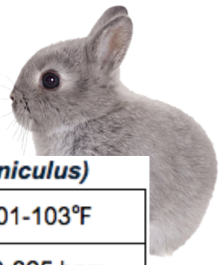


Guinea Pig (*Cavia porcellus*)

Temperature	99-101.5°F
Pulse	250-350bpm
Respiration	40-100bpm

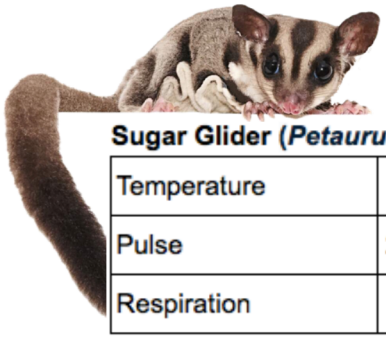
Chinchilla (*Chinchilla laniger*)

Temperature	98.5-100.4°F
Pulse	150-300bpm
Respiration	40-80bpm



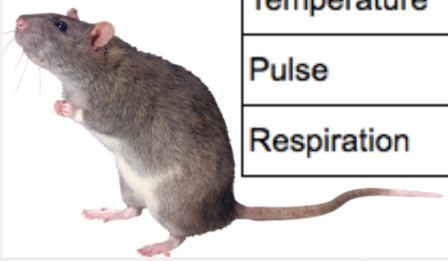
Rabbit (*Oryctolagus cuniculus*)

Temperature	101-103°F
Pulse	180-325 bpm
Respiration	30-60 bpm



Sugar Glider (*Petaurus breviceps*)

Temperature	96.5-97.5°F
Pulse	200-300bpm
Respiration	16-40bpm



Rat (*Rattus norvegicus*)

Temperature	99-100°F
Pulse	250-500bpm
Respiration	70-150bpm

THE PLIGHT OF THE BLACK-FOOTED FERRET

BY DREW CADWELL

Countless species are in danger of becoming extinct, each with their own unique story. However, few animals have been declared extinct and made as astonishing of a rebound as the black-footed ferret has in the United States. This is largely due to the successes of environmental policy addressing their protection in the twentieth century. Unfortunately, these ferrets are now facing difficulties securing that continued protection as agricultural policy has begun to play a role in the determination of the species' fate. Although the conservation of the black-footed ferret has been successful thus far, the nation has reached a crossroads at which public opinion regarding the continued protection of the species has been cast into doubt with the emergence of conflicting agricultural policy. This means that public policy affecting the black-footed ferret population has become convoluted as environmental policies have promoted conservation and agricultural policies have opposed it.

The story of the black-footed ferret spans over a hundred years and particularly in the latter half of the twentieth century, public policy has played a huge role in it. Americans first met black-footed ferrets in 1851, when they were discovered by John James Audubon and Reverend John Bachmann. Unfortunately, after only about a hundred years, black-footed ferrets had already become quite rare to encounter due to a combination of being hunted for their fur and Sylvatic plague running rampant through their populations. The latter is a bacterial infection caused by Yersinia pestis, the very same which causes bubonic and pneumonic plagues in humans. It is transmitted amongst prairie dog and black-footed ferret populations via flea bites. By the mid-twentieth century, a great number of people believed the animal to be extinct. However, a wild ferret population was found in Mellette County, South Dakota in 1964 which was an exceptional find for conservationists who had been so certain of the species' demise.

In 1967, the first endangered species list was created in the United States and black-footed ferrets were among those listed. Due to the designation of the species as endangered, more drastic precautions were soon taken by scientists and legislators alike to protect the species. Nine ferrets from the Mellette population were captured and transported to the Patuxent Wildlife Research Center in Maryland. Conservationists were hoping that these individuals would mate but had no such luck. In 1973, environmental policy was expanded in a very specific and monumental way by the authorization of The Endangered Species Act. Although this policy was aimed at allowing black-footed ferrets and other endangered populations to grow, what was believed to be the last wild ferret in Mellette County was found dead within a year. Within five years, the Black-footed Ferret Recovery Plan was approved by the US Fish & Wildlife. Although the service had existed since 1940, it was not until the 1970's that the service had been expanded to the extent that allowed it to carry out its mission purposefully. Unfortunately, this additional bureaucratic support made little difference in the struggle of the black-footed ferret as the last one in captivity died, and with it, humanity's hopes of restoring the species to its original natural population.

Then one day in 1981, a ranch dog brought a dead black-footed ferret home to its owners, John and Lucille Hogg, and later that year, a living black-footed ferret was seen near Meeteetse, Wyoming. Conservationists and researchers began searching to find this wild ferret population. Biologists decided to capture some black-footed ferrets as the population was declining, but all six of the ferrets captured died from canine distemper virus, a disease which black-footed ferrets are highly susceptible to. Conservationists knew that a politically supported captive breeding program would be the only way to ensure the survival and success of the species into the future. A couple of years later the IUCN – World Conservation Union's Conservation Breeding Specialist Group (CBSG) held a workshop to create a plan to breed black-footed ferrets in captivity and hopefully someday reintroduce the species to the wild.

A captive breeding program was then authorized and initiated by the state government of Wyoming through their state Game & Fish Department which then partnered with the US Fish & Wildlife Service. However once again, the initial attempts at breeding ferrets from the Meeteetse population were unsuccessful. By this point, the black-footed ferret was once again at the pinnacle of extinction. Trapping efforts from the previous two years had resulted in eighteen black-footed ferrets surviving for captive breeding purposes. Black-footed ferrets became the rarest mammal on Earth. Meanwhile, two litters of ferret kits were miraculously born at Sybille Wildlife Research Center marking the first time black-footed ferret kits born in captivity survived.

In 1988, The National Zoological Park's Smithsonian Conservation Biology Institute in Front Royal along with Virginia and Omaha's Henry Doorly Zoo in Nebraska joined the captive breeding program and a revised "Black-footed Ferret Recovery Plan" was approved by the US Fish & Wildlife Service. After several years of successful breeding at various sites, the first reintroduction of black-footed ferrets occurred in 1991 when 49 ferrets are released in Shirley Basin, Wyoming. The next year, two litters of wild-born kits were reported in Shirley Basin—the first known kits born in the wild since the Meeteetse population was lost. An outbreak of plague then spread through the Shirley Basin release site and further reintroductions were postponed. All in all, though, a total of 228 ferrets were released in Shirley Basin between 1991-1994.

In 1995, The US Fish & Wildlife Services assumed responsibility for managing the Sybille, Wyoming breeding facility and renamed it the National Black-footed Ferret Conservation Center and then a year later, the US Fish & Wildlife Service established a Black-footed Ferret Recovery Implementation Team to help coordinate recovery efforts. The BFFRIT includes representatives from federal and state governments, Native American tribes, zoos, private landowners and non-profit organizations. In the late 1990's, many private organizations such as zoos take up ferret recovery programs as they are supported by environmental policies that will be able to allow them to be compensated for their efforts. In 1998 there are finally once again more ferrets in the wild than there are in captivity due not only to the successful breeding – but also reintroduction – programs taking place. These efforts continued into the new millennium across the midwestern and southwestern parts of the country. From there on out several sites every year were continuing to develop breeding programs once the guidelines for the mating and reintroduction of the animals had already been established. As a capstone to these new programs and third-party public support for the issue, construction was initiated on a new National Black-footed Ferret Conservation Center in Colorado in 2001.

Reintroduction sites across the midwestern and southwestern United States were then established for the next decade from Montana to New Mexico. Unfortunately, these new populations constantly battled plague outbreaks during their first decade and occasionally entire populations would be decimated due to either Sylvatic plague or canine distemper outbreaks. In 2013 the USFWS completed the Revised Black-footed Ferret Recovery Plan to directly supervise the recovery of this species. This plan and the actions of the USFWS along with state legislatures demonstrate the effectiveness of federalism regarding enacting public policy to support public and scientific interests.

Public opinion has ranged from highly in favor of policy conserving black-footed ferrets to policy opposing it. As much as nearly everyone agrees that ferrets do not appear sinister in any way, some contend the creatures are still something of a nuisance that threatens their livelihood. Farmers across the nation have no problem with black-footed ferrets; only the prairie dogs which are so vital for supporting these populations. Black-footed ferrets cannot exist without prairie dogs as these rodents compose about ninety percent of their diet. Areas such as the Canata Basin that are fundamentally agricultural are now home to about 300 black-footed ferrets protected while their food source, the prairie dog, threatens the crops of farmers. It is these differences in public opinion that have led to the contradictory policies set forth by agricultural and environmental power centers such as the USFWS and US Forest Service as the prior has worked to conserve the species but the latter has eradicated prairie dogs on large swathes of land.

Perhaps one of the most effective examples of the competing policies affecting black-footed ferrets took place on Rosebud Sioux tribal lands in South Dakota. Several years ago, the federal government reintroduced a black-footed ferret population on Rosebud Sioux tribal land, but the tribe quickly became aware of the adverse ways in which this ecological introduction was affecting their way of life. The tribal council passed a resolution in 2008 that told two federal agencies to remove the animals and reimburse the tribe for its expenses as the tribe objected to a federal investigation of the tribe's prairie dog poisoning program. The tribe's resolution said that these proceedings were initiated due to a federal investigation regarding the poisoning of prairie dogs by tribal members. Although the prairie dogs are not protected, the ferrets are protected under the Endangered Species Act – making any actions the tribe takes to protect their crops a federal crime. Tribal official Rose Cordier said federal agents are looking into prairie dog poisoning in the ferret reintroduction area, "But they weren't poisoning in the ferret area," Cordier said. The executive director of the Tribal Land Enterprise Organization has added that the ferrets have migrated to areas where they are not supposed to be making it difficult for the tribe to support itself agriculturally. The tribal resolution said the ferret program has caused many problems – including conflicts between the tribe's Game, Fish and Parks Department and the Tribal Land Enterprise Organization.

There is no easy resolution to the issues present in creating an effective modern-day policy regarding black-footed ferrets. On one hand, the ferrets are a great asset to the United States by affording their ecosystems a greater degree of biodiversity. On the other hand, the prey which they feed on almost exclusively in the modern day – the prairie dog – is an agricultural menace due to the havoc it can unleash on crops. Certainly, there needs to be a plan in place to control prairie dog populations. Lastly, black-footed ferrets will stand the strongest chance of survival by the creation of joint committees consisting of agricultural and environmental governing bodies to ensure that well-thought-out policies can be set forth.

Follow Us Behind the Scenes

Welcome to part two of our three-part series! We're continuing to introduce you to the outstanding individuals that make up the NTS Executive Board. Hold on to your safari hats as we take you on a behind the scenes tour of this zoo of a group.

BY SHEVON MEADOWS

Emily is on her way to a residency in exotics or radiology!

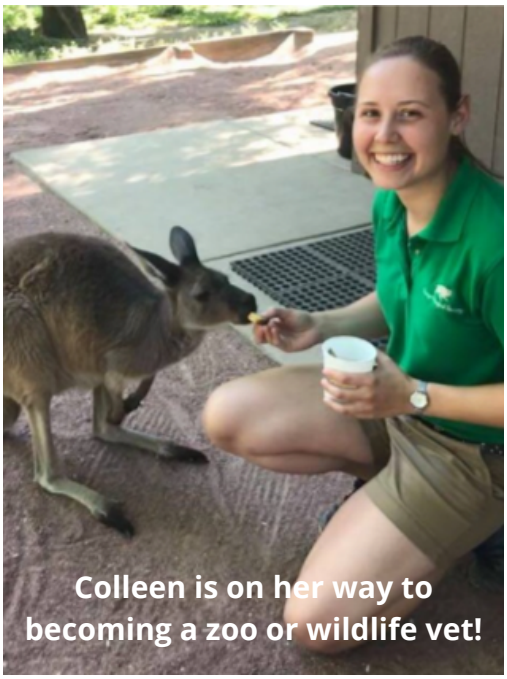
Acting as the next President-elect is upcoming second year Emily Grzeda. Her duties include taking charge of the fall clothing sale, helping the group stay organized, and assisting in the running of the Wildlife University Conference coming up this academic year. Emily is also involved in the Imaging and VBMA clubs. Prior to vet school, Emily published research as a first author based on research she did in rural Tanzania involving ticks on cattle. After her undergraduate education she began a small business, Eckleburg Exoticswhich allows her to breed, study the genetics of, and sell various species of reptiles. She also worked in the pathology department at Covance for a year and a half. Since starting vet school Emily has been able to perform her first cat neuter and over the summer has been working in a fish genetics lab on research as well as working full-time for a company in Indianapolis where she takes care of endangered reptiles and helps with routine veterinary care and maintenance.

In her free time Emily loves art and horseback riding. She currently trains a pony at a nearby farm that's run by a fellow upcoming 2ndyear student and finds that it's a great stress relief! At home she has a Great Dane/Mastiff mix dog named Gatsby, a Military Macaw named Vero, and a lot of snakes and geckos. Her favorite part about being an NTS board member is learning more about all species. She enjoys the Cockatiel team as well as naturally strengthening relationships with the Zoo Med staff. She feels there is always more to learn and loves everyone on the board - we accomplish a lot and get along really well!

Acting as the Association of Exotic Mammal Veterinarians (AEMV) Chair is upcoming third year Kylie Ayers. Her duties include representing the AEMV by coordinating the guinea pig fostering program, surgery trips, and planning lunch lectures and wet labs related to small mammal medicine. Other than NTS she is also involved in Surgery club, Wildlife Medical Clinic, and the Beardie team for the Wildlife Epidemiology Lab (WEL). Before attending vet school, Kylie worked as a veterinary assistant in general practice, an emergency/specialty hospital, and volunteered at her local zoo on her days off. Her favorite experience prior to vet school was studying mammal behavior on a study abroad trip to Kenya. Since starting vet school, she has been able to travel to the Galapagos to volunteer at a low-cost veterinary clinic and a spay/neuter campaign, allowing her to work on her spay and neuter skills and immerse herself in wildlife while living in paradise for a month! A couple of her other favorite experiences so far have been presenting research at the National Veterinary Scholars Symposium and working with the Zoo Med service. When she has free time Kylie likes to travel, hike, camp, pester her pets and boyfriend, be mediocre at trivia, re-watch her favorite hows a million times, and slow down on the rest of

Kylie is on her way to working with zoological companion animals in private practice!

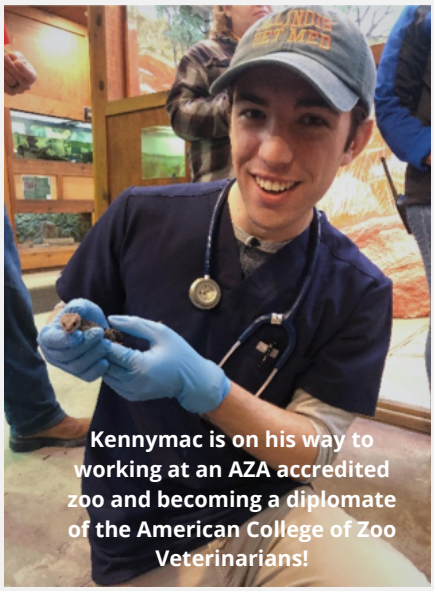
her vet med campaign in Dungeons and Dragons. She has two loud-mouth kittens named Zuko and Juno, a foster-failure guinea pig named Fred, and a ferocious bearded dragon named Reggie. Her favorite part about being an NTS board member is that it gives her a platform to share her love of all things about non-traditional species in vet med with her classmates!



Colleen is on her way to becoming a zoo or wildlife vet!

Holding the position of ISCWAVMA Secretary is upcoming third-year Colleen Elzinga. ISCWAVMA is the Illinois Student Chapter of the World Aquatic Veterinary Medicine Medical Association and is typically referred to as Aquatics club. In her position, she collaborates information between aquatics and NTS and contributes new ideas to the board. Colleen is also involved in the Wildlife Medical Clinic as Treasurer, Surgery club, ISCWDA, AWC, OTS, Therio club, Internal Medicine club, CVMA, and the SAVMA Halloween Committee. Before starting veterinary school, she studied abroad in Tanzania, Africa where she did research related to elephant conservation, was a research and field work assistant for a project on measuring hormones in Eastern Bluebirds, and swam on the Ripon college swim team. Since starting vet school she has worked as an animal care intern in the hoof stock department at the Brookfield Zoo and is currently a summer intern at the WMC. During her free time, Colleen likes to watch Netflix, Hulu, and Showtime. She has a red golden named Luke.
Colleens favorite part about being an NTS board member is being well informed about NTS involvement and events and that she has learned a lot about the logistics of running a club.

Holding the position of American Association of Zoo Veterinarians (AAZV) Chair is upcoming third year Kennymac Durante. His duties include coordinating and planning lunch lectures about various topics in zoological medicine, scheduling trips to various zoos for tours of veterinary facilities, and setting up hands-on wet labs. Other than NTS, Kennymac also participates in the Illinois Student Chapter of the Wildlife Disease Association (ISCWDA). Before attending vet school, he participated in the Education and Animal Behavior internship at the Philadelphia Zoo, the Animal Care internship at Buttonwood Park Zoo, the Veterinary Science Internship at Buttonwood Park Zoo, attended veterinary shadowing at Lehigh Valley Zoo, and was a full-time veterinary technician. Since starting his veterinary education, Kennymac has volunteered and become a Team Leader for the Wildlife Medical Clinic, participated as a student researcher in the Wildlife Epidemiology Lab, been a caretaker for the Cockatiel colony, and has shadowed the veterinarians at the Brookfield Zoo. When he has free time, he plays soccer, basketball, and video games. The games he plays the most are Pokémon, The Legend of Zelda, Spider-man PS4 and Overwatch. He is the proud owner of the best cat in the world, Gatsby. Kennymac's favorite part about being an NTS board member is organizing lunch lectures and trips to expand people's interests in zoological medicine. Some fun facts about him are that he's originally from Emmaus, PA, he's "technically" a water bender but is a fire bender at heart, his favorite movie is Spider-man 2, he's a Gryffindor, and although reptiles are some of his favorite species, his favorite animal is the okapi.



Kennymac is on his way to working at an AZA accredited zoo and becoming a diplomate of the American College of Zoo Veterinarians!

ALL ABOUT SNAKES QUIZ!

BY KENNYMAC DURANTE

I personally think it's safe to say that its borderline factual that reptiles are some of the most interesting, spectacular, and diverse fauna on the planet. From their unique adaptations to their vital roles in various ecosystems, reptiles continue to intrigue, inspire and fuel our innate tendencies to interact with the natural world around us. However not all reptiles are appreciated to the same extent. Enter the true creator of "social distancing"; SNAKES.

It's certainly no secret that snakes are some of the most misunderstood species. Despite historic stigmas against an otherwise peaceful suborder of animals, there is a day that's entirely dedicated to them in order to celebrate their existence! Every year on July 16th, the 'world' celebrates World Snake Day.

Now you don't have to like snakes necessarily, but World Snake Day serves as a way to share more information about these incredible reptiles and to help debunk any misconceived notions about them! Now for anyone that doesn't know, I could seriously give a TedTalk all about snakes. If you know me, you may be aware that they hold a special place in my heart. Instead of typing out my finalized draft for this hypothetical "Snakes are Awesome and Here's Why" TedTalk, I've put together a 10 question quiz for you instead! I hope you enjoy the quiz and a gain a deeper appreciation for snakes! *Answers at the end of newsletter*

Question No. 1: How many venomous species of snake are native to Illinois?
a) 4
b) 6
c) 8
d) 10

Question No: 2: True/False: Most species of snake have twofunctional lungs.

Question No. 3: Snakes that give birth to live young are considered _____.
a) Oviparous
b) Ovoviviparous
c) Viviparous

Question No. 4: There more than 3,400 species of snakes on the planet, with about _____ of them being venomous.
a) 200
b) 400
c) 600
d) 1000

Question No. 5: True/ False: Snakes dislocate their jaws in order to consume larger prey items.

Question No. 6: Species Identification! What species of snake is this?
a) Timber rattlesnake
b) Massasauga
c) Copperhead
d) Cottonmouth

Question No. 7: What is the most commonly pathogenic fungus that infects snake species?

a) Nannizziopsis guarroi
b) Ophidiomyces ophiodiicola
c) Parannizziopsis australasiensis
d) Blastomyces dermatitidis

Question No. 8: What is the primary prey item for queen snakes (Regina septemvittata)?

a) Mice
b) Small birds
c) Tadpoles
d) Crayfish

Question No. 9: As of 2015, how many snake species are listed as endangered or threatened in the state of Illinois?

a) 5
b) 11
c) 20
d) 30

Question No. 10: True/ False: Snake scales are made up Keratin, the same material that hair and finger nails are made of.

Trivia Answers

1. Which primate species is the only other species besides humans to possess the capability for blue eyes?

a. Gorilla
b. Orangutan
c. Ring-tailed lemur
d. Black lemur

2. What is a group of rattlesnakes called?

a. Rhumba
b. Bachata
c. Conga
d. Mambo

3. Which animal has the longest tongue relative to its size?

a. Giraffe
b. Chameleon
c. Giant Anteater
d. Long-tongued Bat

4. Ambergris is a substance produced in the digestive tract of sperm whales to help pass large, sharp objects such as squid beaks. What was the popular commercial use for ambergris before being made illegal?

a. Wax
b. Perfume
c. Soup
d. Glue

5. Which species of bird has the fastest recorded airspeed velocity?

a. European Swallow
b. Gyrfalcon
c. Golden Eagle
d. Peregrine Falcon

Snake Quiz Answers!

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