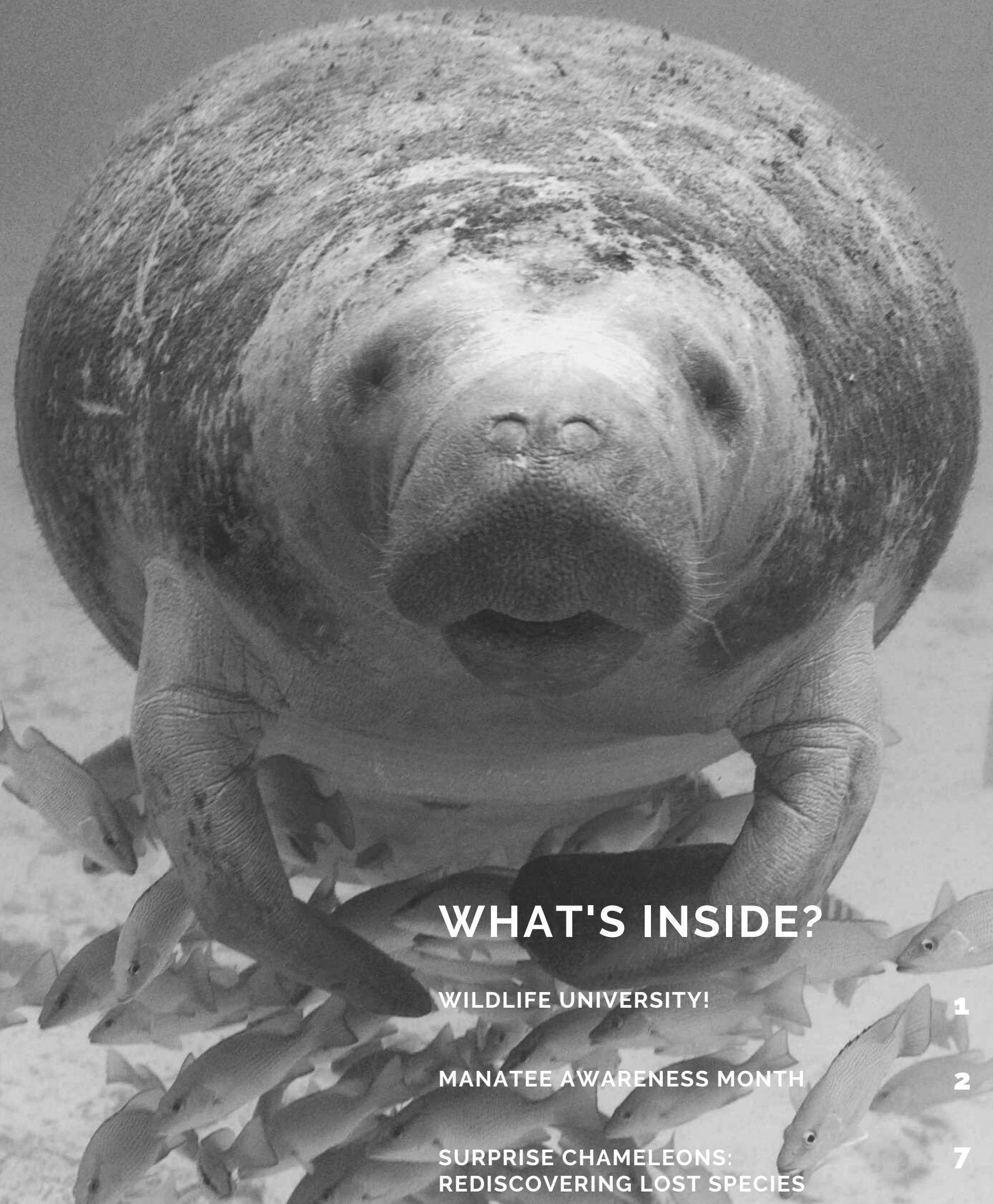


NTS NEWSLETTER

PUBLISHED BY THE NON-TRADITIONAL SPECIES CLUB AT THE UNIVERSITY OF ILLINOIS



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-Welcome to Wildlife University!-

As part of the Non-Traditional executive team, we strive to bring some of the best opportunities, lectures and experiences in zoo medicine to our amazing club members (oh hey, that's you!). Over the past year or so, we have been brainstorming with some new ideas on how to make our club more dynamic and offer more learning opportunities in non-traditional species medicine! And after countless emails, tons of collaboration, and a truly remarkable team effort, we have come up with a new and unique opportunity for you!

The Non-Traditional Species executive team is extremely proud to announce on of our greatest endeavors yet..

Wildlife University!

Wildlife U. is a conference made by veterinary students, for veterinary students! This fully virtual online conference is an incredible opportunity for veterinary students and professionals to learn more about all things zoo medicine! Whether your interests specifically pertain to wildlife rehabilitation, herpetological medicine, or conservation, this conference is a fantastic way to expand your knowledge. We have an incredible list of veterinarians that cover specialized fields such as; neurology, clinical pathology, anesthesia, public health and conservation, wildlife rehabilitation, avian medicine, herpetological medicine, and zoological medicine!

Sunday, December 6

9:00 am - 10:00 am	Clinical Pathology in Wildlife Patients <i>Dr. Amy Schnele, DVM, MS, DACVP</i>
10:00 am - 11:00 am	Head Trauma Treatments and Cases <i>Dr. Devon Hague, DVM, DACVIM (Neurology)</i>
11:00 am - 12:00 pm	Common Diseases seen in Herps + Avians <i>Dr. Laura Adamovicz, DVM, PhD</i> <i>Dr. Kenneth Welle, DVM, ABVP (Avian)</i>
12:00 pm - 12:30 pm	Lunch
12:30 pm - 1:00 pm	Q & A Student Career Opportunities <i>Dr. Sam Sander, DVM, DACZM</i>
1:00 pm - 2:00 pm	The Role of Pathology in Multidisciplinary Marine Mammal Health Research: From the Gulf of Mexico to Hawaii <i>Dr. Katie Colegrove, DVM, PhD, DACVP</i>
2:00 pm - 3:00 pm	How to Care for Pediatric Wildlife Patients <i>Dr. Renée Schott, DVM, CWR</i>
3:00 pm - 4:00 pm	Public Health & Conservation Genetics <i>Dr. Will Sander, DVM, MPH, DACVPM</i>
4:00 pm - 5:00 pm	Keynote: Anesthesia or Welfare in a Wildlife Patient <i>Dr. Sathya K. Chinnadurai, DVM, MS, DACZM, DACVA, DACAW</i>

Saturday, December 5

9:30 am - 10:00 am	Welcome Lecture
10:00 am - 11:00 am	Legality of Handling and Treating Wildlife Patients in Private Practice <i>Dr. Julia Whittington, DVM</i>
11:00 am - 12:00 pm	Species ID, Safety, and Handling of Common Wildlife Patients <i>Dr. Sarah Reich, DVM</i>
12:00 pm - 12:30 pm	Lunch
12:30 pm - 1:30 pm	Fluid Therapy for a Wildlife Patient <i>Dr. Sam Sander, DVM, DACZM</i>
1:30 pm - 2:30 pm	Wildlife Anesthesia and Analgesia <i>Dr. Danielle Strahl-Heldreth, DVM, MS</i>
2:30 pm - 3:30 pm	Avian + Chelonian Common Diagnostics <i>Dr. Matthew Allender, DVM, PhD, MS, DACZM</i>
3:30 pm - 4:30 pm	Breakout Group: "Pager"/Triage Cases Simulation and Discussions <i>Dr. Sam Sander, DVM, DACZM</i>

Wildlife University Conference will take place over the course of two days, **December 5-6th 2020** and registration is now open at:

<https://vetmed.illinois.edu/vet-resources/continuing-education/wildlifeuniversity/>

If you have a passion or interest in wildlife, zoological, zoo companion, or non-traditional species medicine, this is the conference for you! Additionally, as veterinary students here at University of Illinois, your registration is offered at a discounted price (\$35 on or before November 25th; \$45 after November 25th)!

If you have any questions about the conference, always feel free to reach out to the exec board through our email: illini.nts@gmail.com! We hope to see you all virtually at Wildlife University!

MANATEE AWARENESS MONTH

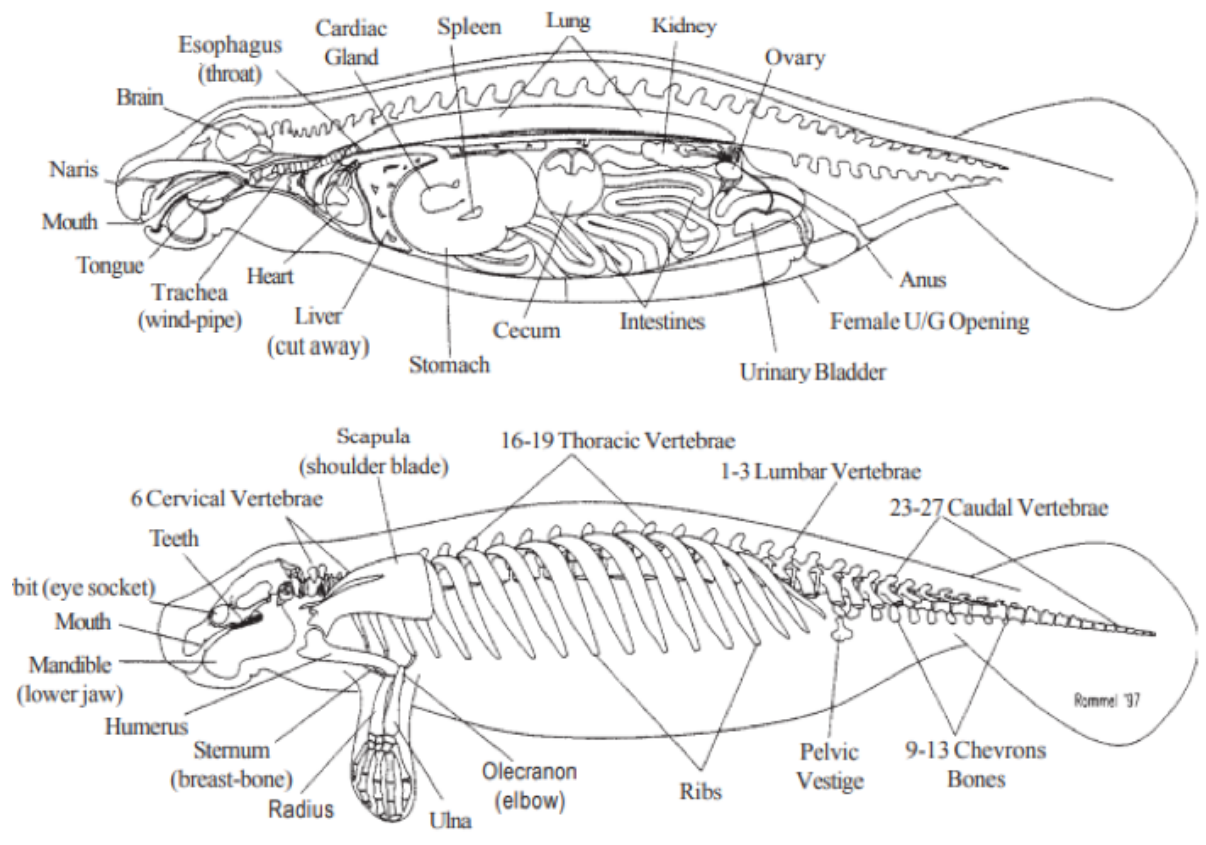
BY ALEC COLOSI

November has come, and as the temperatures here in Illinois begin to drop, so too do the temperatures of the Atlantic Ocean and the waters around coastal areas of the Southeastern United States. It is at this time of year and through the winter that people in Florida can see droves of manatees crowding into warm bay areas and power plant outflows to keep warm. Many people love the sight of manatees and can spend hours watching them slowly swim through the water, but few people know much about them as a species. With November being Manatee Awareness Month, I couldn't think of a better time to, well, raise some awareness!

If you asked most people in the U.S. how many species of manatee there are, they would probably say only one. However, in the order Sirenia there are three extant manatee species as well as the dugong. These species include the west Indian manatee, Amazonian manatee, and west African manatee. To keep things more local, this article will focus on one of the subspecies of west Indian manatee: the Florida manatee. Florida manatees inhabit shallow coastal waters and rivers in the Southeastern U.S. They can live in both salt- and freshwater, as well as brackish estuaries. In the summer months, manatees can be found as far north as Massachusetts, but in winter months they concentrate in the warmer waters of Florida and the Gulf of Mexico. They feed almost exclusively on sea grass and can eat more than 10% of their body weight every day. Their role as a voracious grazer makes them important for balancing sea grass communities. Manatees have lived a relatively relaxed lifestyle. They have no known natural predators and can live up to 60 years. They usually swim along at only about 5 miles per hour, though they can swim up to 15 mph if they get frightened.

The anatomy of a manatee is one of the most interesting things about them. Though manatees are commonly called "sea cows", their digestive system is more similar to that of a horse. Manatees are hind-gut fermenters and have a large cecum full of bacteria that break down the plant matter they eat. They also have a fascinating body plan. Instead of a cranial/caudal association between their thorax and abdomen, manatees have a dorsal/ventral thorax/abdomen. Their lungs lay along almost the entire dorsum of the animal and the heart lies up near the neck instead of between the lungs. Manatees also have almost no medullary bone in their ribs, forming a very strong cage around the thorax. Manatee brains are interesting, too. They have the smallest brain to body mass ratio of any marine mammal, and their brain lacks folds and sulci that are associated with higher intelligence. However, manatees are just as proficient at experimental activities as the notoriously intelligent bottlenose dolphin! What their brain lacks in size and folds, it makes up for in having a huge number of densely packed neurons.

Florida manatees were placed on the federal endangered species list in 1976, but fortunately conservation efforts prevailed, and they were downgraded to Threatened in 2017. Due to their affinity to coastal areas, human activity poses a great risk to manatees. It has been estimated that up to 95% of adult manatees have been struck by a boat at some point in their life. As you hopefully now know, a manatee's ribs and lungs are oriented along their dorsum, so a boat strike can cause serious injury including pneumothorax, pyothorax, and diaphragmatic hernias. Along with boat strikes, manatees face threats from fishing line entanglement, flood control structures, and ingesting fishhooks. Manatees can also suffer from cold stress. This is a condition brought on by colder water temperatures that causes a cascade of diseases in a manatee including immune suppression, skin sloughing, and death. Loss of habitat has reduced the number of warm water refuges available to manatees, leaving them more at risk to this condition.



Although manatee populations have come back considerably, they still face the same threats as always. Several factors contribute to injuring manatees, and all of them can be avoided if you know what to do when you are on a boat or near a manatee. First is proper boat etiquette. When driving a boat in coastal areas or in inlets, make sure to go slow. There are signs in most areas frequented by manatees that direct boaters to slow down, and they should be followed. When you are fishing, make sure you don't just cut your fishing line when you are done or if it gets stuck. Leaving these fragments behind not only poses a risk to manatees, but also to many other marine animals that can get tangled in the line and die. Next is how to act around a manatee. A lot of us have seen cute videos of people giving manatees water from hoses on a dock or a boat. While it is amazing to be near these animals, this kind of activity is very dangerous and should be avoided. When humans give fresh water to a manatee, they associate boats and docks as a safe place to get a drink. The manatee feels comfortable getting close to boats and has a greater chance of being hit and seriously injured by one. The same precautions should be taken with manatees as with any other wild animal. To quote Florida Fish and Wildlife: "Feeding, touching and chasing wildlife are forms of harassment that may put the animal in danger. Please keep your distance from all wildlife".

I hope this article has given you a greater appreciation for manatees and has taught you some cool facts about these amazing animals. I have always believed that education is the best way to help a species in need, and I love sharing my love for manatees and other marine animals. There is so much more about these animals I could share but cannot fit into a newsletter article. Any U of I students reading this who want to learn more about manatees can ask me any time.

Happy Manatee Awareness Month!

TO FIGHT, OR NOT TO FIGHT? THAT IS THE QUESTION.

BY FAYTH KIM

Fights among social-living animals happen frequently, it's within their nature. Common reasons may include resources, territories, and potential mates. How does an animal then "size-up" its competition? Factors like size, strength, and the outcomes of prior fights are known to be important in decision making. In addition, research at the University of Exeter present other complexities taken into account during group conflicts. Size is not the only determining factor used. Group cohesion, teamwork, location of the battle, and strength of certain individuals are weighed. How important is what they are fighting for? Groups will assess this for themselves and their opponents.



Factors considered:

1. **Motivation** – Smaller meerkat mobs with pups have been seen to still win. They were possibly motivated by the prospect of new territory, meaning more food for their young.
2. **Strength of individuals** – Smaller packs of grey wolves with more males (bigger and stronger than females) are able to overcome larger packs.
3. **"Winner/loser effect"** – Baboons who lost group conflict will spend less time where the fight occurred. They have been observed to avoid locations where they have previously lost.
4. **Social cohesion** – During periods of intergroup fights, chimpanzee groups may be more cohesive and males are less aggressive within the group. These good social dynamics may then prove useful when fights occur.
5. **Chances of success** – Turtle ants often have multiple nests, and they will prioritize protecting the nests with narrower entrances (larger entrances are harder to defend). Working together, they are able to protect certain areas of their territory.

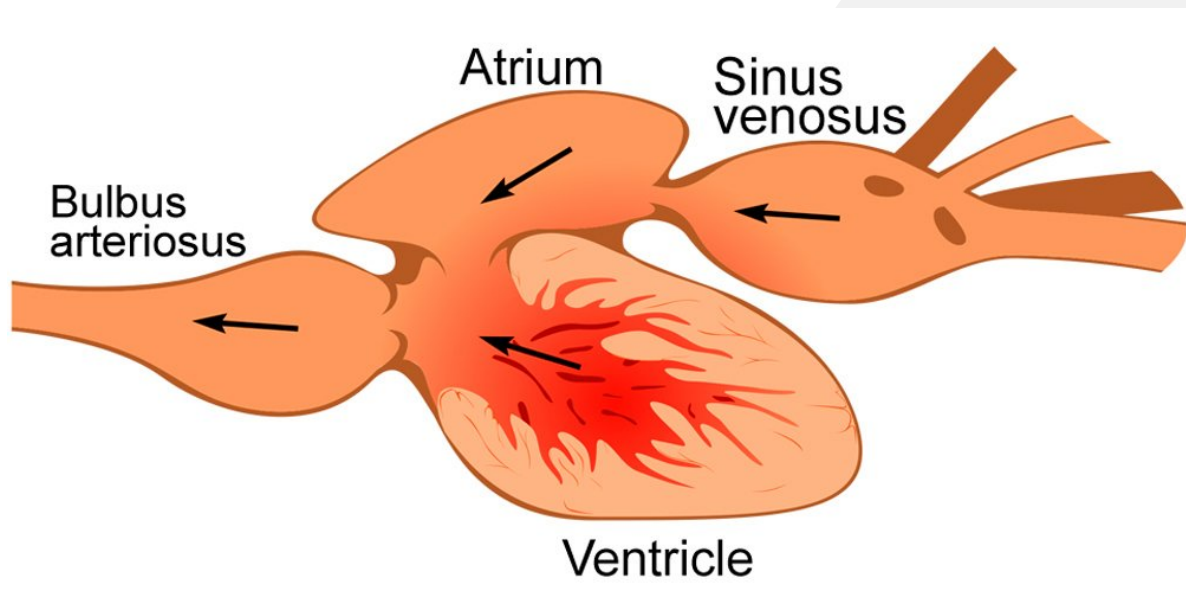
Current research presents that conflicts within the animal kingdom are highly calculated. Animals gather information and decide whether to fight or not, how much effort it's worth, and if/when they should concede. It is believed that understanding more about this animal behavior can in turn help understand conflict among humans.

HOW IS FISH CIRCULATION DIFFERENT THAN MAMMALIAN CIRCULATION?

BY COLLEN ELZINGA

For starters, fish do not have the familiar four-chambered, double-circuit system that mammals enjoy. They run on a single circuit system where the gills and body are connected in series and blood does not take a second pass through the heart. This unidirectional flow of blood produces a gradient of oxygenated to deoxygenated blood around the fish's systemic circuit. This setup results in a limit to the amount of oxygen that can reach some of the organs and tissues of the body, reducing the overall metabolic capacity of fish.

Unlike in mammals, the fish heart only has one atrium and one ventricle. The oxygen-depleted blood that returns from the body enters the atrium via the sinus venosus, goes to the ventricle, and is pumped out through the bulbus arteriosus to the gills where it can become oxygenated. From there, the blood continues through the rest of the body.



The ventricle is responsible for the generation of the blood pressure. The bulbus arteriosus, on the other hand, works to dampen the pressure pulse generated by the ventricle. This step is necessary because the next organs after the bulbus arteriosus are the gills, which are thin walled and may be damaged if the pulse pressure becomes too high. However, the blood pressure will drop when the blood cells squeeze through the gill lamellae and the blood pressure afterward has to be high enough to drive the blood around the body. Thus, it is a delicate balance of pressures in this system.

Interestingly, for many fish species the heart this is the only source of oxygen for the heart itself, unlike mammalian coronary circulation. Some fish species (such as salmonids) do have a coronary circulation, but it is a low pressure supply that branches off after the blood flows through the gills. It is not as efficient as the mammalian coronary circulation that branches off at the base of the aorta and is driven by this high pressure output.

Additionally, the actual composition of the heart muscle is different in fish. In mammals, the compact myocardium comprises around 99 % of the total muscle mass, while only around 40 % of the fish myocardium is compact and the rest is spongy. The spongy myocardium takes up oxygen from the deoxygenated blood in the lumen of the heart.

AVIAN BODY CONDITION SCORING

BY KAYLA LADEZ

Body condition scoring is a great way to assess a patient's general health. It can be especially important for avian patients because birds are extremely messy eaters and clients will have no idea if their bird is eating or not. All birds should be weighed using a kitchen scale at least once weekly to help clients keep an eye on any changes in weight. BCS is a great additional measure for veterinarians to assess muscle loss in sick birds and sometimes fat deposits in over-conditioned birds. BCS scoring is not universally agreed upon partially due to its subjective nature, and mostly because different birds show great variability based on species and lifestyle. For example, a free-ranging raptor should have more muscle around their keel than a captive cockatiel with trimmed flight feathers. BCS is assessed by palpating both the prominence of the keel and the muscle on either side of the keel. Usually the scale is 1-5, with 1 showing a prominent keel and concave muscles (emaciated) and 5 showing a prominent "U" shape of the breast that potentially includes fat deposits (obese).

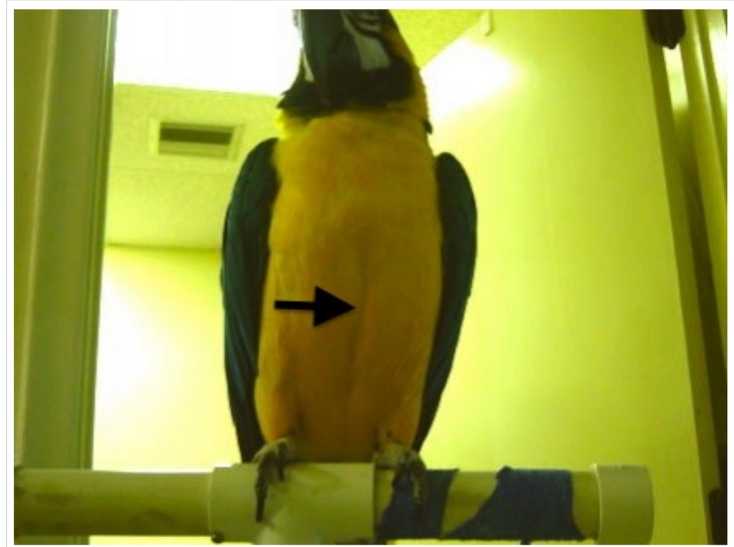


Figure 4. Fat deposits along either side of the keel may create a part in feathers over the sternum. Note: The presence of "cleavage" does not necessarily mean the bird is overweight and palpation is required. Photograph provided by Dr. Gwen Flinchum. *Click image to enlarge.*

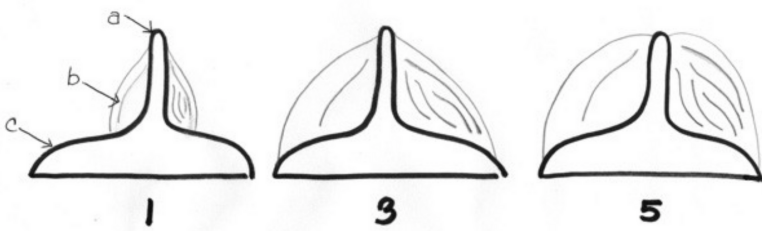


Figure 2. Transverse sections of the sternum and pectoral muscle mass in the avian patient displaying body condition score (BCS) where (a) is the keel or carina of the sternum, (b) is pectoral musculature, and (c) is the sternum. Emaciation = little muscle, no fat, concave contour (BCS 1).

Good condition = convex contour, little subcutaneous fat (BCS 3). Obese: contour extends beyond keel, subcutaneous fat deposits. *Click image to enlarge.*

The ideal BCS score is 3 which usually means the breast muscles have a slight convex contour off of the keel. It is also important to check the neck, flanks, and inguinal area for more subcutaneous fat deposits. BCS is a subjective measurement that requires practice to determine the feeling of muscle vs fat and create consistently in your scoring. Thankfully, this is a quick and easy measurement that most birds tolerate very well. Now is a great time to start practicing your BCS scoring on every bird you get your hands on! Members of the Wildlife Medical Clinic: Don't forget to take advantage of the great model we have on the wall in the triage room.

Test Your Trivia Knowledge!

BY: RYAN PATTERSON

1. Which one of these is not a way commonly used to age a lion?

- a. Body coat condition
- b. Nose color
- c. Paw size
- d. Mane size

2. Which founding father wanted the turkey to be the national bird for the USA instead of the bald eagle?

- a. Benjamin Franklin
- b. Thomas Jefferson
- c. James Madison
- d. Alexander Hamilton

3. What is a group of jellyfish called?

- a. Clump
- b. Herd
- c. Smack
- d. Jam

4. Which of these is not a distinguishing factor between snakes and legless lizards?

- a. Forked Tongue
- b. Presence of Eyelids
- c. Presence of Earholes
- d. Carnivorous/Herbivorous

5. How many noses does a slug have?

- a. 1
- b. 2
- c. 3
- d. 4

SURPRISE CHAMELEONS: REDISCOVERING LOST SPECIES

BY BROOKE DUGAN

On October 30, an expedition team announced that they had rediscovered the Voeltzkow's or Malagasy chameleon (*Furcifer voeltzkowi*) in northwest Madagascar. This species was first described in 1893 and was last seen by scientists in 1913 and earned the title of Lost Species by the Global Wildlife Conservation. During the expedition in April 2018, the team found 3 males and 15 females. They found the species to have distinct sexual dimorphism. The males were larger and mostly bright green in coloration with darker green markings. In contrast, females had a much wider variation in color especially when stressed. When relaxed, female Voeltzkow's chameleons had similar coloration to males, featuring bright greens with dark green stripes. However, when stressed, females rapidly changed to black with a mixture of purple, blue, and white stripes with red spots.



These striking differences along with genetic analysis allowed researchers to conclude that this species was distinct from a similar species, the Labord's chameleon (*Furcifer labordi*). Physically, Voeltzkow's chameleons are larger than Labord's and have a more slender head with a shorter to no rostral appendage and shorter crests. Given the similarities and close relation between the two species, scientists predict that Voeltzkow's chameleons have a short life cycle much like the Labord's, which have a lifespan of as little as four to five months.

Due to the Voeltzkow's elusive nature, short life cycle, and their seemingly small, scattered, isolated populations on the island of Madagascar, scientists recommended listing this species under the IUCN's Red List of Threatened Species.

As mentioned earlier, the Global Wildlife Conservation listed the Voeltzkow's chameleon as a Lost Species and even ranked them among their 25 Most Wanted. The Global Wildlife Conservation worked in collaboration with more than 100 scientists as well as other teams and individuals around the world to compile a list of more than 1200 species of plants and animals that have been lost to science. Their goal is to search for these species and work to protect them once they're found.

There isn't a hard set definition of a "lost" species, but generally, while compiling the list, experts from the IUCN Survival Commission Specialist Groups nominated species under various criteria that hadn't been documented for at least the past 10 years. Further, they chose 25 of those 1200 to be deemed Most Wanted as they had the greatest potential to be flagships for conservation efforts.



Animal and plant species can become lost for a variety of reasons. Emerging diseases, habitat destruction, invasive species, and human-wildlife conflict are among the biggest challenges that wildlife face. However, there are also environmental barriers, such as difficult access areas and regions in conflict, that can prevent active searching for certain species. Some species, such as the Voeltzkow's chameleon, also present the issue of small populations, short life cycle, and other cryptic behaviors that make them difficult to find and document.

Rediscovering lost species allows groups like the Global Wildlife Conservation to collaborate with local governments, communities, and international partners to find conservation strategies for the lost species, as well as the habitat they live in and the other species they share their home with. Publicity from these groundbreaking discoveries can encourage donations to further conservation efforts around the world. If you're interested in learning more about this elusive and beautiful species, you can read the original publication from Salamandra, the German Journal of Herpetology below.

<https://www.salamandra-journal.com/index.php/home/contents/2020-vol-56/1996-glaw-f-d-proetzel-f-eckhardt-n-a-raharinoro-r-n-ravelojaona-t-glaw-k-glaw-j-forster-m-vences/file>

PLAYING WITH PARASITES OF NON-TRADITIONAL SPECIES

BY SHEVON MEADOWS

I Q L A U P P O H B N D V O X O B T E S Z B I E E A B B U L
P E J F L O E A K T T C A Q H K S Y F F A R H N R T N D A K
V L Y R P B A N H S C I U K S R N M B X E X B T F A C W D J
N B A E P B W Q T I I B N F H F W Y F D P R W A P I C P B F
X I R S I L E F N O O Z X U A T Y C E I V U X M G R R W Z Y
X L Q F M T H M X E O Z L P O O N O K K S F X O H B X F R Z
B H M O N O D O N T E L L A G I R A F F A E X E F U Y D C U
H I A O L R D A Z F N H Q W W H T A F O Z Y L B X N Z B U S
E T X D Z N N I Z S T Q H B C B X M E N O G X A C A Q V F M
S X A W E K Z L U A E F Q S A Q L S H K X T D I R M U B P K
I U P X V J A J U M R H S X I D I A Z T A L R N U A V J X J
J G T D A P H D G M R I A A N K P L Q Y G P E V Z L P Q X L
F W J A U O A N A S R E Z K N P S P W I K C Y A U A I S D I
S Z L E N W Q E G A Q Y L E Q A U O W P D G S D K H T M I Z
A Z C Y P A N D C C Z Y Z I R G X X F H D W N E D P S X G L
J S B U F E M S O N T V S C C L B O W V K K J N V E H I W T
M G D E G T A A Y X S Y O D Z T Q T S L R C F S M C C G O H
J U F O W S J T I O F P H N C J U Z C J U D P Q D O X Z L Z
R D N S I A I F U R T M G W Y U G M J E J C I Z W L X F U N
B O P L E U H F T E E E Y S Z O R B N K D B N K D P C M O Z
M D Y B B Z Z K S W J M T N H G W Y V D U W M H J O D W T L
V A C G P Y P S P A G F I K Y Q P R D N Y Z N M S N W L I Y
B I Q C P S C A V B Q H Y E G Q Y L Q J R X O R R A E B Q R
U P V R F A J Y L U K R V I Q O T X I R A N O Y Q P L Z M I
W J W G B H R O L X I G O C H X I B D N F O L F K H J L D D
I P W I S H P G O A C Z X O R X L F H R Q N D G U O P A D S
P W E I H Z T V Q L G D O I R R W E F F D Z H Q V C M T S E
H I J G P H V O S W O N X P X Y H L K J I V E R A C J H Y I
F N A B G A A T L U V C C C N S O V A F M G Q F D N L A B A
F C A Q D G B G I R Y Q J J U N V A X W N V C P Q T V H I X

1. An intra-erythrocytic apicomplexan protozoan of which bobcats are a reservoir host.
2. An apicomplexan protozoan parasite that is the most successful parasite of warm-blooded animals.
3. An amoebae parasite that is a commensal in turtles and crocodiles but is highly pathogenic in lizards, tortoises, and snakes.
4. A nematode that lives as an adult in the intestines of giant pandas and can form bowel obstructions.
5. A cestode of African and Asian elephants that is thought to have oribatid mites as intermediate host.
6. A group of ectoparasitic platyhelminths commonly found on the skin, gills, or fins of fish.
7. A nematode that can cause damage to the bile duct in Okapis.
8. An intraerythrocytic parasite that is the most common cause of malaria in birds.
9. An apicomplexan parasite that causes coccidiosis in manatees.
10. A parasitic mite that burrows into the skin and causes mange. HINT: the WMC has seen a large number of foxes with this.

SPECIES IDENTIFICATION: SKULL ANATOMY!

BY RACHEL ANGLES

1.



2.



3.



4.



5.



6.



7.



8.



9.



10.



11.



12.



SPECIES IDENTIFICATION: SKULL ANATOMY!

BY RACHEL ANGLES



Answers:

1. Hippopotamus, 2. Pangolin, 3. Elephant, 4. Tarsier, 5. Shoebill, 6. Orca Whale, 7. Parson's Chameleon, 8. Hammerhead Shark, 9. Piranha, 10. Frog, 11. Cassowary, 12. Platypus

THE EFFECTS OF THE WEST COAST FIRES ON WILDLIFE

BY KYLIE AYERS

The west coast of the United States is no stranger to wildfires. However, as I'm sure you've noticed, this year the fires have caused more damage and gained more attention than usual. The landscape is even more susceptible to burning as a result of droughts and increasing temperatures. Additionally, years of fire suppression in the area are causing the fires to burn hotter, faster, and longer.

Some animals flee: Many animals will seek refuge near bodies of water and others simply run ahead of the fires to find shelter. Unfortunately, some animals that would previously flee from a wildfire cannot do so as well now as a result of habitat loss from increased human expansion.

Some animals adapt: Mule deer and black-backed woodpeckers actually require the burned landscape to nest and feed. The gopher tortoise has been shown to burrow underground to avoid the wildfires. In addition, some raptor species will take advantage of the lack of tree coverage to hunt.

And some do not...: There are no official reports of how many animals die in wildfires, but half of the Columbia Basin pygmy rabbit population was wiped out by the wildfires this year in Washington. As a result of the fires being hotter and more destructive than previously, the rabbits could not hide underground in their burrows like they usually do. This species requires sagebrush as a staple of its diet and for protection. Local biologists anticipate that it will likely be 10-15 years before the sagebrush will start regrowing, so reintroduction of the species into the area cannot occur for several years. In general, old, young, and sick animals are the most at risk for injury or death from a wildfire. However, because these fires are burning so quickly, we are seeing a greater number of healthy animals at risk.



Thankfully, vegetation starts to regrow quickly after a wildfire in many habitats. Unfortunately, the habitat of some aquatic and amphibious animals can be drastically changed long-term. Fires can affect the turbidity and chemistry of the water, as well as increase runoff.

What can be done? Many experts are suggesting increasing the frequency of prescribed burns on the West Coast to help curb fire suppression. However, it isn't that simple because many of the issues revolve around climate change. Remember to stay informed, do your part to reduce your carbon footprint, and educate others about climate change.

FACTS ABOUT WILDLIFE REHABILITATION

BY DREW CADWELL

For those of us who have worked in the wildlife clinic you might wonder what it takes to become a wildlife rehabber. Becoming a licensed rehabilitator requires special state and sometimes federal permits. Here are a few facts about wildlife rehabilitation:

1. Almost all wild birds are protected by federal law and a Federal Rehabilitation Permit is needed to possess sick, injured, and orphaned migratory birds for rehabilitation purposes. Licensed veterinarians temporarily possess and stabilize or euthanize sick and injured birds. However, birds must be transferred to a permitted rehabilitator within 24 hours of stabilization to heal and condition for release.
2. Beavers and other aquatic mammals such as otters are high maintenance species that take a longer time to rehabilitate because of their greater social and behavioral needs.
3. Orphaned bears can also be long-term residents as they should be around a year and a half old before being released.
4. The Chicago Bird Collision Monitors are a volunteer group that focuses on rescuing birds that have been injured from flying into buildings. They also work to mitigate the risk of bird-building collisions by educating the public and especially architects about relevant building design aspects.
5. In Illinois, there are separate permits for white-tailed deer and all other wild animals (excluding migratory birds) and wildlife rehabilitation is regulated by the Illinois Department of Natural Resources.
6. The laws regarding how long you are allowed to keep wildlife as a veterinarian vary from state to state. For example, in California you are only allowed to keep wild animals for 48 hours unless you are a licensed permit holder.
7. Many wildlife rehabbers work as volunteers. This means that they are responsible for paying for an animal's food, supplies, and veterinary care out of their own pockets. They rely on donations from the public to be able to afford the care that their animals need.
8. Rehabbers often receive "orphaned" animals who are not actually orphans. They work hard to educate the public to reduce the chances of animals being "kidnapped" from their parents.
9. In some states, future rehabbers are required to work under the supervision of a licensed rehabber for at least one year before they are eligible to become licensed themselves.
10. The University of Illinois College of Vet Med is a licensed wildlife rehabilitation center because of our very own Dr. Sam Sander holding a wildlife rehabilitation permit.

Test Your Trivia Knowledge!

BY: RYAN PATTERSON

1. Which one of these is not a way commonly used to age a lion?

- a. Body coat condition
- b. Nose color
- c. Paw size**
- d. Mane size

2. Which founding father wanted the turkey to be the national bird for the USA instead of the bald eagle?

- a. Benjamin Franklin**
- b. Thomas Jefferson
- c. James Madison
- d. Alexander Hamilton

3. What is a group of jellyfish called?

- a. Clump
- b. Herd
- c. Smack**
- d. Jam

4. Which of these is not a distinguishing factor between snakes and legless lizards?

- a. Forked Tongue
- b. Presence of Eyelids
- c. Presence of Earholes
- d. Carnivorous/Herbivorous**

5. How many noses does a slug have?

- a. 1
- b. 2
- c. 3
- d. 4**

PLAYING WITH PARASITES OF NON-TRADITIONAL SPECIES- ANSWERS

BY SHEVON MEADOWS

ANSWER KEY TO CLUE BANK:

1. CYTAUXZOOM FELIS
2. TOXOPLASMA
3. ENTAMOEBIA INVADENS
4. BAYLISASCARIS SCHROEDERI
5. ANOPLOCEPHALA MANUBRIATA
6. MONOGENEA
7. MONODONTELLA GIRAFFAE
8. PLASMODIUM RELICTUM
9. EIMERIA MANATUS
10. SARCOPTES SCABIEI

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