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NTS NEWSLETTER

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WHAT'S INSIDE?

TURTLE WARS!

BY BROOKE DUGAN

Everyone loves turtles whether they have stompy feets, flippy flappies, or something in between, but not all chelonians are created equal. After a hot debate broke out during a Zoom lecture, the NTS exec board was divided between Team Blandings and Team Box Turtle. The only way to figure out the winner was to start the first UIUC Vet Med Turtle Wars. In the first battle of Wars, I put native Illinois turtles against each other, and due to popular demand and thinly veiled threats, I allowed non-native write-ins for any kind of turtle. When I say any type of turtle, I really mean any.

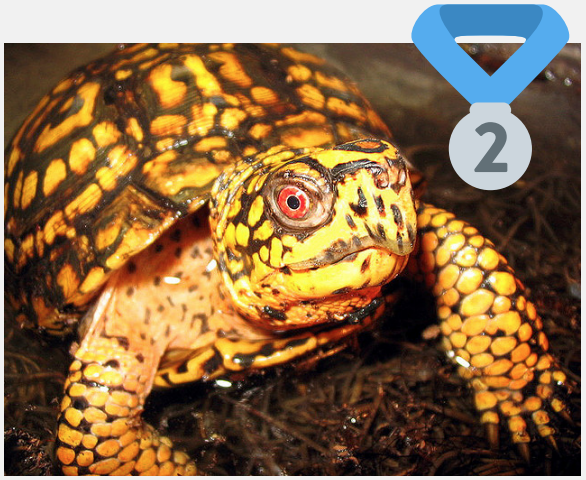
I surveyed vet students, staff, and faculty, and after weeding through the votes and mudslinging, I narrowed it down to only the best of the best turtles. Point values were fairly arbitrary. I made them up as I went along, but only so that certain people wouldn't hurt me if sea turtles didn't somehow win.

Coming in third place with 279 points, the Blanding's Turtle still wins the day with its dazzling smile. The Blanding's is endangered in most of its native range, including Illinois, and much like the number 2 turtle, it's plastron is hinged. While they might not be able to shut as tightly as a box turtle, I say it still counts. I'm the judge of this episode of Wars, and for every person who said the Eastern Box Turtle was superior because it had a hinged plastron, I'm default awarding 50% of your Team Box spirit to Team Blandings.

Reasons the Blanding's Turtle is the **BEST** turtle, per the peanut gallery:

"I want to see Dr. Allender implode."
"uhhhhh yellow smiles are the bomb.com"
"Blanding's have the BEST smiles!!!"

The Eastern Box Turtle wholly claimed second place with **307 points**. These little cuties have color and personality in their favor, I'll admit, and the Wildlife Epidemiology Lab does a lot of cool work with them. Plus they're the reason volunteers get to play with the turtle dogs over the summer. Camping, hiking, puppies, and turtles. Who could ask for anything more?



Here's why some of you guys were hardcore Team Box that I won't judge you too much for:

"He can HINGE HIS BODY..A superior animal"
"They are so cute with such attitudes!"
"big cutie"

And coming in at the #1 BEST NATIVE TURTLE with an amazing **344 points** is the Alligator Snapping Turtle! They are spikey and chompy and angry looking guys and are one of the largest freshwater turtles in the world. Their IUCN status lists them as vulnerable, so these friends need all the love and help we can give them. The internet also says that they're occasionally called Loggerhead Snappers, so to all of you Team Sea people, you'd best be giving the Alligator Snapper just as much love as a Loggerhead Sea Turtle.

Reasons why the general population loves these superior snappy boys:
"They look metal"
"Awesome looking; jaws that are scary"
"They go snap snap. Much feisty, very danger."
"They're modern day dinosaurs and for some reason I'm drawn to things that want to bite me."

Now how about those write-ins?

You guys told me 25 different turtles that were better than any Illinois native turtle. And to make certain people happy, I mucked with the point values so that certain species could win the overall vote. So without further ado and for the sake of my own safety, here are the top 3 turtles in the world!

Number 3 is the class favorite, the Red Eared Slider! With **87 points**, these little guys know how to draw a crowd. They're one of the most popular turtles in the pet trade. Few people can resist the appeal and sass of a Red Eared Slider. An entire generation grew up with probably the most famous Red Eared Sliders: the Teenage Mutant Ninja Turtles! While some may argue these guys aren't real turtles, this is my Wars, and I say they count. TMNT are canonically based on Red Eared Sliders, so every vote for Mikey, Raph, Leo, and Donnie also goes toward these cheeky sliders.

So why did you slider lovers love these guys?
"What's cooler than inspiring an entire anthropomorphic mutant ninja crime fighting family?"
"*cues 80s-90s TMNT Theme Song*"

In second place, we have the Green Sea Turtle! With a staggering **216 points**, I really should have deducted points for excessive sass and salt in the comments, but considering these guys are admittedly pretty cool and naturally salty, I'll let it slide. This time. Green Sea Turtles have their own genus all to themselves, which is also kind of nifty. This species dominates tropical and subtropical waters all over the world and often migrate and return to the same feeding and nesting areas year after year. For their navigational skills alone, Green Sea Turtles are undoubtedly better than me.

<u>Everyone who voted for Green Sea Turtles was extremely vocal about it, so proceed with caution when you read through some of these comments.</u>

"Have you SEEN a green sea turtle? No explanation needed"
"Ignore my "rank these turtles" response as they all pale in comparison to their marine counterparts that swim thousands of miles roaming the open ocean unencumbered by the restraints of terrestrial and freshwater habitats"
"This is a threatened species that contributes to the health of sea grass communities by grazing and preventing overgrowth. They provide food to tiger sharks, the shark that has arguably the coolest teeth. They help control jellyfish populations, they return to the site they were born at simply from identifying the kind of sand that is present, they have a completely unknown form of navigation that is always accurate, AND THEY DO ALL OF IT WHILE LOOKING LIKE A TOTAL SNACK."

And in first place, to no one's surprise, are ALL SEA TURTLES! That's right. As the general in this Wars, I've decided that due to popular demand, all sea turtles count as a collective group. With an intense **360 points**, sea turtles are the undisputed winners of Turtle Wars 2020.

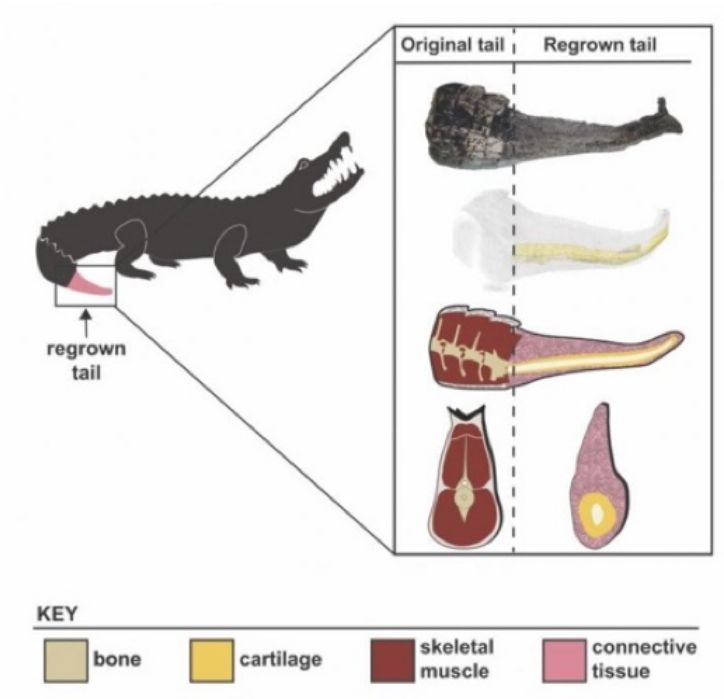
"It swims so many miles in the ocean!"
"Sea Turtles = Best Turtles"
"Have you seen their shells? Also have you tried holding your breath for 7 hours?"
"BECAUSE THE OCEAN IS AWESOME"

Thank you to everyone who participated in Turtle Wars 2020! Your comments were amazing! If you guys liked participating in Turtle Wars and have ideas for future Wars, please let us know! The exec board really enjoyed this, and we're inclined to do it again with other animals.

WHAT THE TAIL? A LOOK AT ANIMALS WITH REGENERATIVE ABILITIES

BY FAYTH KIM

When you think of regeneration, you may immediately think of the axolotl. The axolotl is known to be able to regenerate its spinal cord, limbs (complete with segmented skeleton), and even organs. Researchers discovered that following amputation of a third of the heart, axolotls will regenerate it within 30-60 days. Appendages are regrown with appropriate size, orientation, and function. Old and new structures appear to blend seamlessly. With some exceptions like lens formation, axolotls retain regenerative abilities throughout their life. The general steps of how this occurs is known. Within minutes of amputation, the axolotl's blood clots, and within hours, epithelial cells begin dividing to form "wound epithelium" at the injury site. Cells from neighboring tissues then migrate to the amputation site and form a blastema, a bud of undifferentiated proliferative cells. The new body part then sprouts from the blastema. Many geckos and skinks, with the evolved the ability to self-amputate their tails, are also known to rapidly regrow their tails. The regenerated tail is, however, anatomically distinct from the original structure as it lacks a segmented skeleton. Regeneration is very physiologically-demanding (shown to reduce overall growth rate) and may explain the conservation of core structures within species.



What about in animals of a larger scale? Emerging research from Arizona State University reveals how juvenile American alligators have the ability to regenerate their tails. Damage to the structure often results from territorial aggression, cannibalism, and motor blade trauma. In the study, young alligators have been able to regrow their tails up to ¾ of a foot, or approximately 18% of their body length. The scientific teams were able to conclude that the regenerated tails were in fact, complex structures that included: skeleton (cartilage), connective tissue, blood vessels, and nerves. Not only were signs of regeneration observed, but also signs of wound healing within in the same structure. For example, instead of skeletal muscle in the regrown tail, there often was scar-like connective tissue. The evolutionary significance of this suggest how functionally advantageous tails are in their habitats, which are commonly murky aquatic environments. Further research may help the development of various medical therapies.

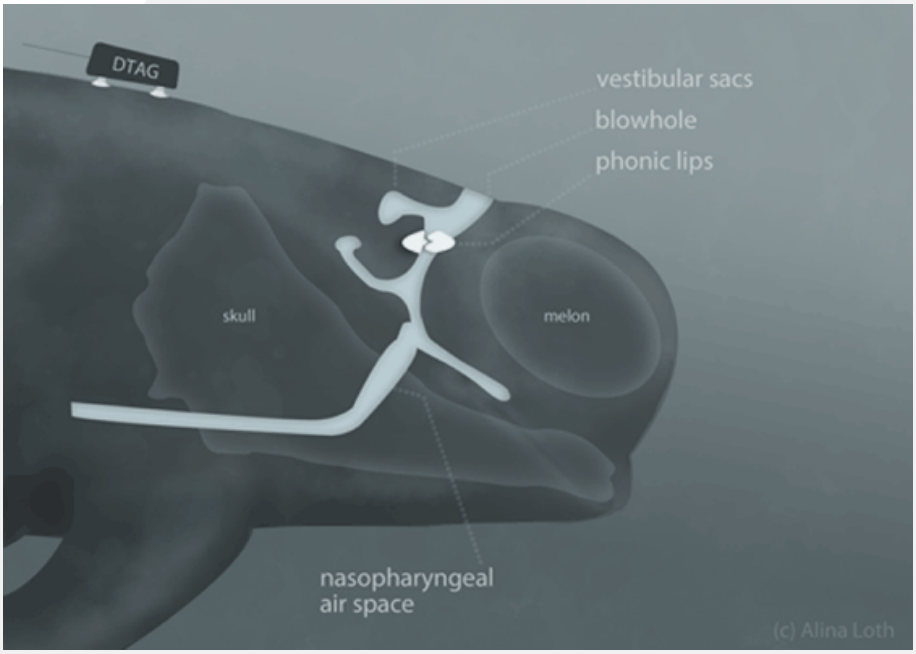
TOOTHED WHALE ECHOLOCATION: WHATS ITS PORPOISE ?

BY COLLEN ELZINGA

Toothed whales (including dolphins and porpoises) are impressive mammals that have remarkably developed echolocation. This sensory ability allows them to better locate food and navigate underwater.

These whales can produce a variety of sounds by moving air between sinuses in their head. They start making clicks by moving air from the nasopharyngeal air space through phonic lips. These “lips” control air flow similarly to vocal cords. Then the air travels into another head cavity called the vestibular sac, which is adjacent to the blowhole. The pitch of the noise changes as the whale uses up the air in the sac. They can even pause their echolocation to recycle air back into the nasopharyngeal sac. This conserves energy by reducing the amount they need to resurface for more air to make clicks. Additionally, the whales use only tiny volumes of air to produce powerful clicks, which suggests that using sonar-like clicks for echolocation takes little energy for them.

The sounds that the whale makes are reflected or echoed back from objects around them, then received back by an oil-filled channel in the lower jaw, and finally conducted to the middle ear of the animal. The whales generally emit low frequency sounds when they are swimming around normally. The resulting echoes provide information about the seafloor, the shorelines, underwater obstacles, water depth, and the presence of other animals underwater. The whistles, clicks, groans, etc. are also thought to be important in communication between individuals. There is even a theory that suggests very high intensity focused sounds may be used to stun or disorient prey. Overall, echolocation is an extremely sensitive tool that gives toothed whales a more detailed view of their environment.



HORSESHOE CRABS' AMAZING BLUE BLOOD

BY ALEC COLOSI

If you ask anyone who loves wading around in shallow rocks in coastal habitats (guilty), they will tell you one of their favorite critters to find is the horseshoe crab (also guilty). Horseshoe crabs are living fossils, and there is evidence that they have been around unchanged for over 445 million years. That means they have been around since before the dinosaurs! They also aren't really crabs at all. They are actually more closely related to spiders and other arachnids and are in a class all their own. There is so much about these incredible animals that makes them special, but for this article I will focus on a much lesser-known side of horseshoe crab science: horseshoe crab blood.

Horseshoe crabs do not have true "blood" as do animals that veterinarians usually work with. Their "blood" more specifically is called hemolymph. They have no red blood cells, and their oxygen carrying molecules are copper rather than iron. Because of this, the hemolymph is a bright blue color. Apart from being very pretty, horseshoe crab hemolymph contains compounds that are important for human biomedical research. Among these compounds is Limulus Amebocyte Lysate (LAL). LAL is a compound that clumps and clots around bacterial toxins. This characteristic makes LAL incredibly useful for testing the sterility of medical equipment and injectable drugs, like vaccines. This is one way scientists make sure that vaccines are safe for use and won't cause negative side effects related to contamination. It also means horseshoe crabs are part of the reason we don't have to worry about so many of the preventable diseases we now have vaccines for!

More recently, horseshoe crab hemolymph has been used for research on something the whole world ahs been concerned about for almost a year: COVID-19. Thankfully, there is now a vaccine that will be wildly distributed soon to help combat the disease, and it is partly thanks to horseshoe crab hemolymph and LAL that researchers were able to make sure the vaccine is safe for use.

It isn't all great, though. As with any use of animals for research, horseshoe crab research can also have its disadvantages. Horseshoe crabs face threats from humans ranging from fishery use to habitat destruction, and many die in the process of hemolymph collection in labs. They are not in danger of extinction, but are listed as vulnerable on the IUCN Red List, and their capture and use is monitored. Luckily, there are also several laboratories that practice collecting smaller amounts of hemolymph from horseshoe crabs to avoid killing them and having to catch new specimens.

Horseshoe crabs remain one of my personal favorite animals, and I think after over 445 million years, from keeping coastal habitats healthy to helping humans with vaccines, they have earned a bit of respect. So, if you've ever had a vaccine and find yourself walking along the beach on the east coast of the United States, look for a big brown carapace and send them a thank-you.

Test Your Trivia Knowledge!

BY: RYAN PATTERSON

1. What is the only sea turtle species that nests during the day?

a. Leatherback
b. Loggerhead
c. Kemp's Ridley
d. Green Sea Turtle

2. Which one of these animals did Australia go to war against in 1932?

a. Kangaroos
b. Emus
c. Koalas
d. Crocodiles

3. Queen Bees can lay up to _____ eggs per day.

a. 700
b. 1200
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4. What is a unique ability of the Paradise Tree Snake?

a. It can "fly" from tree to tree by flattening its abdomen as it glides through the air
b. It can survive at the highest altitude of any snake species
c. It can change color to camouflage into the bark or leaves of the trees it inhabits
d. It can use tools to attract birds as prey

5. What bird species lays the largest eggs compared to its own body size, weighing up to a quarter of an adult bird's body mass?

a. Hummingbird
b. Ostrich
c. Albatross
d. Kiwi

HONEYBEE MEDICINE

BY RACHEL ANGLES

With the new Veterinary Feed Directive (VFD) laws and concerns over the loss of pollinators, veterinarians have recently become more involved in the health of honeybees. If a beekeeper wants to administer antibiotics to their colony, they are now required to have a prescription or feed directive from a licensed veterinarian. These laws were put into effect in order to encourage the judicious use of antibiotics in production medicine settings, consequently slowing the spread of antimicrobial resistance and its threat to animal, human and environmental health. Honeybees are considered production animals by the Food and Drug Administration (FDA) due to the consumption of honey and other hive products, and thus there is an increasing need for veterinarians to be educated on basic apiculture and honeybee health in order to better communicate with beekeepers and adequately treat their colonies.

Colonies are made up of three different types of bees: workers, drones, and the queen. The queen is responsible for laying fertilized eggs, which develop into larva, then pupa, and then finally worker bees. A healthy queen generally lays eggs in rings, with different developmental stages present in concentric circles. The offspring is referred to as the brood. The drone's only role is to find and mate with queen bees, they are typically only made when the colony has enough resources. The worker bees are responsible for hive hygiene and defense, nursing larva, producing wax, and scouting for food and resources. When something goes wrong in the hive, knowing these roles and noticing differences will make it easier to pinpoint the issue.

Things to look for in a general hive inspection are a good activity level among the workers, and any bees that are dead or appear to be weak (crawling, trembling, etc.). Honeybee medicine, due to the scale of the animals in question, is much more focused on "herd health" as opposed to the health of the individual insects. When examining inside the hive, it is recommended to use the beekeeper's equipment rather than providing your own for good hygiene. It is also important to practice good biosecurity when moving between hives, especially if one or more are believed to be diseased. A soft brush can be used to remove bees to examine the underlying brood, and a smoker can be used to keep them away and to keep them calm.

It is important to look for good color and consistency between individuals at the same stage in the brood. Deceased or deformed larva/pupa are indicative of disease. A spotty or "shotgun" brood pattern can also be observed with some types of infection and can signal for issues with the queen bee.

Left: A shotgun brood in a colony diagnosed with American Foulbrood, a bacterial infection caused by the species *Paenibacillus larvae*. Right: a normal-looking healthy brood.

A strong colony will also have a good amount of capped honey cells, low levels can be an important indicator of colony health. Foul odors can be characteristic for certain types of bacteria. Parasitic infections will often present with deformed wings in adult bees, chewed caps and pupa, and granular guanine deposits within cells. Hairless bees and headless larva are characteristic for some types of viral infections, and mummified bees can be seen with some fungal infections.

Left: Guanine deposits (white specks) from *Varroa destructor* mites. Middle: hairless bee with chronic bee paralysis virus. Right: mummified bees with a chalkbrood infection, caused by the fungus *Ascosphaera apis*.

Antibiotics that are currently labelled for use in honeybees are lincomycin, oxytetracycline, and tylosin. Medication is administered by mixing the powdered form with sugar water according to the label directions and setting it out for the bees to find. Certain types of acaricides can also be used to prevent parasitic mite infestations but should be rotated on a regular basis to prevent the buildup of resistance.

Overall, honeybee medicine is a very exciting emerging field in veterinary medicine. If you are interested, check out the links below so that you can "bee" prepared to treat anything!

https://www.avma.org/sites/default/files/resources/honeybees-veterinary-medicine-guide-for-veterinarians.pdf

https://gov.mb.ca/agriculture/crops/crop-management/pubs/administering-antibiotics-and-acaricides-to-honey-bees.pdf

https://nvap.aphis.usda.gov/BEE/bee0001.php

WHAT THE FLOCK?

BY KAYLA LADEZ

Do you call every group of birds a flock? Test your knowledge of some group specific names. Match the letter with a number!

A. 

B. 

C. 

D. 

E. 

F. 

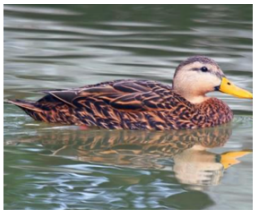
G. 

H. 

I. 

J. 

K. 

L. 

M. 

N. 

O. 

1. Cast, cauldron, kettle
2. Asylum, cry
3. Rafts, team, paddling
4. Party, ostentation
5. Parliament, wisdom, study
6. Charm, trembling
7. Murder, congress, horde
8. Gaggle, plump, skein
9. Convocation, congregation
10. Wake
11. Pandemonium, company, prattle
12. Glittering, shimmer, bouquet, hover
13. Scoop, pod, squadron
14. Drumming, descent
15. Concentration, clique

ANSWERS BELOW!

Hawks, falcons: G-1
Ducks: L-3
Finches: D-6
Crows: O-7
Geese: B-8
Eagles: A-9
Loons: C-2
Hummingbirds: I-12
Owls: E-5
Parrots: K-11
Woodpeckers: F-14
Vultures: H-10
Kingfishers: J-15
Peafowl: M-4
Pelicans: N-13

BOELENS PYTHONS: THE CADILLACS OF MORELIA

BY EMILY GREZDA

Boelens pythons (Morelia boeleni) are non-venomous pythons that live in the mountains of Indonesia and Papua New Guinea. They are incredibly secretive and difficult to find in the wild, and nearly impossible to obtain in captivity unless you have a spare $20,000 to spend on a pair with the intention of researching their behavior and a promise to attempt collecting data and attempt reproducing them.

So why talk about them? They aren't a species you will likely come across in practice, but they are well-known in the reptile community because they are one of the most specialized snakes in the world. They are known for their intelligence and inquisitive nature; whether an individual is very shy or more apt to interact, they are keenly aware of their environment and are seemingly more calculated in their actions than most other snakes.

In the wild, these pythons only live at elevations of 7500 – 8500' along the Jayawijawa Mountain range, measuring a whopping and average of 8-10' long, up to 14'; the biggest snake by far to live at such high elevation and cool temperature. They are a CITES Appendix II animal, "protected but not endangered". However, since they are so difficult to locate, we do not know how many are truly present. Since they are in such secluded areas, Ari Flagle, founder of the Black Python Project, has been visiting the tribes who live there for the past 14 years. The key to this project is local tribe assistance; locals have been incented to help find nesting sites, which both prevents over-collection and provides a larger sample size for research. Many animals have been equipped with GPS trackers, scale clipped for DNA sampling, and marked before being re-released at their capture site. Temperature, humidity, barometric pressure, elevation, wind speed, and other factors near these sites are all recorded.

The question remains: how do these giant pythons survive at such high altitudes? Trail cameras at nesting sites and infrared heat sensors have been consistently monitoring known nest sites. They have shown that females are able to raise their body temperatures nearly 10 degrees Fahrenheit from ambient/surface temperature. While the snakes are not social, some nesting sites are only a few feet apart from one another – whether this is because the sites are so specialized or because there is some type of mutual benefit is unknown. They primarily feed on rodents but will occasionally also consume small birds. Life span is unknown; the longest living known is a 26-year old individual who is currently still alive in captivity.

I had the unique opportunity to visit Quetzel Dwyer's facility in Costa Rica this November, where he is one of the only individuals to have successfully reproduced Boelens in captivity. Their scales are incredible smooth, almost velvety, to the touch, but then I was amazed to find that their sheds, while very thin, felt rough as sandpaper. Their scale composition is likely a mechanism to protect against fungus in their environment's 80% humidity, but we cannot be sure.

While research has been ongoing, it has had to be the first year the Black Python Project has been unable to visit Boelens' natural habitat since research began. I wish I could provide better insight to these pythons' lifestyle, but they serve as an example showing how much there still is to learn about reptile specialization. There is always more to do! For more information, you can visit projectblackpython.org

NTS MEMBER SPOTLIGHTS

BY SHEVON MEADOWS

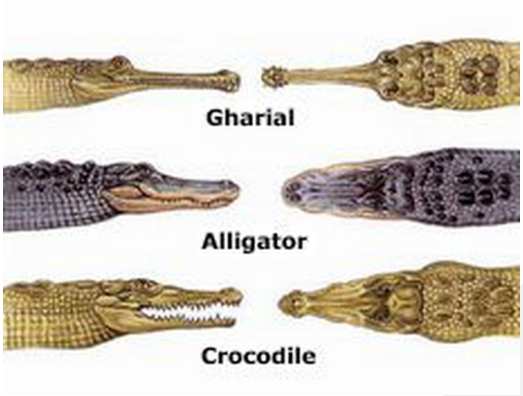
Take a look at some of the amazing experiences our members have had!

Our first spotlight is on Alexandra Shaffer, a first-year student. In 2019 she completed a 3-month internship as a temporary Reptile Keeper at the St. Augustine Alligator Farm in Florida. There she had hands on opportunities to work with juvenile American Alligators and full-grown Galapagos Tortoises, along with a variety of other species. She also learned all about their behavior, husbandry, and anatomy. Being able to get hands on experience with animals that are considered dangerous and are feared by many gave Alexandra a new respect for them. She learned about this opportunity by visiting the zoo and inquiring about positions.

Our next spotlight is on Danielle Money, a first-year student. From September of 2019 to March of 2020, she completed a 7-month internship at Island Dolphin Care in Key Largo, Florida. Island Dolphin Care is a non-profit facility that provides animal assisted therapy for veterans and children with special needs. Danielle was an Animal Care intern and cared for 8 Atlantic bottlenose dolphins. She took part in fish prep, assisted with husbandry, and assisted with training behaviors, earning her bridge! While there she completed a lecture series on USDA regulations, along with behavior and training. All the great things she learned in this experience is what led her to want to pursue zoo medicine. She found the application for the internship online.

POKÉMON INSPIRED BY REAL LIVING ANIMALS

BY KENNYMAC DURANTE



Feraligatr (Left) and Krookodile (right)

First up we have two crocodilian-inspired Pokémon, Feraligatr and Krookodile. Despite their names being a little too on the nose, its actually their noses (more specifically snouts) that make their designs more interesting to evaluate. First up is Feraligatr. Given the similarity to its name, one would be led to believe that this is meant to specifically resemble an alligator. However, I would argue it isn't. Taking a closer look at the snout of Feraligatr, you can see that both the teeth from the maxilla and mandible are protruding when its snout is closed. This "toothy grin" is similar to that of a crocodile! Crocodiles typically have both maxillary teeth and mandibular teeth shown while alligators mainly only have maxillary teeth shown (their upper jaw is wider than their lower jaw). Next is Krookodile. Another cool croc with a name being a tad misleading but the truth is once again, related to its snout. Requiring less interpretation of its creative design, its clear that Krookodile is a gharial, a specific species of crocodilian with extraordinary long snouts used to find and capture fish. Interestingly, the design of the Pokémon even seems to include a "ghara", a sexual dimorphic characteristic in male gharials. A ghara is a bulbous growth at the tip of a gharial's snout that serves as vocal resonator and a method of attracting a mate!

Sandslash

Next up is a true classic, the Pokémon species Sandslash, is inspired by pangolins! Made up of tough three-cusped keratin scales, pangolins are a unique species of mammal. Pangolins utilize these scales to protect themselves from predators. If threatened, they quickly curl into a ball and utilize their sharp scales to defend themselves. Pangolins are insectivores, eating a variety of insects such as ants, termites and larvae. Because of their uniquely scaled bodies and their natural insectivorous diets, they been dubbed the nickname "the scaley anteater."

Kingdra

Now we have one of the coolest species of Pokémon (personally one of my faves) inspired by one of the most extraordinary animals on the planet, the leafy sea dragon. Yes, you read that right, the leafy SEA DRAGON. Endemic to the waters off of south and east Australia, leafy sea dragons gently float through the water as they ornately camouflage themselves to blend in with the surrounding seaweed and kelp forests. Sea dragons utilize their tube-like snout to consume microorganisms such as sea lice and small worms. And similarly to seahorses, male sea dragons are also responsible for bearing offspring!

Oricorio

Just as Oricoio is native to the tropical region and islands of “Alola”, its real life inspiration, Hawaiian honeycreepers (aka the “Iiwi”), are endemic to the forests of the Hawaiian archipelago. Hawaiian honeycreepers are a nectar-eating species with specialized beaks to fill a different niche found on each specific island of Hawaii. For example, these birds has evolved to track and pollinate flowering trees found alongside the slopes of Hawaii’s volcanoes.

Relicanth

Lastly, we have a Pokémon that is inspired by the one and only, coelacanth. A primitive-looking fish, the coelacanth was long believed to have gone extinct alongside the dinosaurs around 65 million years ago. However, as the saying goes “life finds a way.” Being rediscovered in 1938 by a fisherman in South Africa, this species was confirmed to have never gone extinct at all. In fact, because of this species unique anatomical characteristics, it hasn’t had to evolve much at all in order to remain extant, making it “living fossil.” Primitive characteristics such as a hinged joint in its skull, extremely thick scales (common to only extinct fish), and paired-lobe fins (which move in a alternating fashion, as if it were walking in the water) are a few examples of its prehistoric anatomy. Coelacanths are quite elusive and live only in the deep sea at depths up to 2,300 feet. They can reach around 7ft in length, weigh nearly 200 pounds, and are estimated to live up to 60 years!

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Sources Used For Newsletter

CANVA.com
https://www.sciencedaily.com/releases/2020/11/201123100952.htm
http://sitn.hms.harvard.edu/flash/2018/regeneration-axolotl-can-teach-us-regrowing-human-limbs/
https://www.smithsonianmag.com/innovation/some-salamanders-can-regrow-lost-body-parts-could-humans-one-day-do-same-180974090/
https://www.nature.com/articles/s41598-020-77052-8
https://www.nhm.ac.uk/discover/horseshoe-crab-blood-miracle-vaccine-ingredient.html
https://myfwc.com/research/saltwater/crustaceans/horseshoe-crabs/facts/
https://www.allaboutbirds.org/guide/Coopers_Hawk/
https://www.allaboutbirds.org/guide/Mottled_Duck/
https://www.allaboutbirds.org/guide/House_Finch/
https://www.allaboutbirds.org/guide/American_Crow/
https://www.allaboutbirds.org/guide/Canada_Goose/
https://www.allaboutbirds.org/guide/Bald_Eagle/
https://www.allaboutbirds.org/guide/Common_Loon/
https://www.allaboutbirds.org/guide/Black-chinned_Hummingbird/
https://www.allaboutbirds.org/guide/Snowy_Owl/
https://www.allaboutbirds.org/guide/Belted_Kingfisher/
https://www.allaboutbirds.org/guide/Pileated_Woodpecker/
https://www.allaboutbirds.org/guide/Turkey_Vulture/
https://www.allaboutbirds.org/guide/American_White_Pelican/
https://ebird.org/species/compea
https://www.allaboutbirds.org/guide/Monk_Parakeet/
https://www.instagram.com/p/CGIGm4XlZOK/