

### Conservation Messages (Take Action)

**Paper** – Tree habitats where many animals live are being cut down to make paper and other products. 27,000 trees are cut down each day to provide toilet paper to the world. Solution – Houston Zoo uses toilet paper made from recycled paper. They can help by recycling their paper in school and at home and using both sides of a piece of paper before throwing it away.

**Plastic/Marine Debris** – Plastic waste from land gets into streams and rivers and eventually into the ocean. Plastic never goes away; it just gets smaller and smaller. Animals eat it and choke or are poisoned. Solution – Zoo did away with plastic bottles and bags. Gift shops sell reusable bags and food vendors sell metal water bottles. They can help by recycling plastic, by bringing and using a refillable water bottle, instead of buying a single-use plastic bottle, and reminding mom to bring reusable bags when shopping.

**Cell Phones** – A mineral used to make cell phones, iPads, video games, etc. is mined in Africa where many of our animals live. The miners kill animals to eat as bushmeat. Solution – Houston Zoo partners with a company to collect and recycle this mineral. They can help by taking good care of their personal electronics so they can keep them as long as possible and making sure to bring old electronics to the zoo to recycle.

**Ocean Friendly Seafood** - Ocean-friendly seafood is seafood that has been caught in a way that protects animals like sharks and rays and ensures fish populations thrive over time. Solutions – Houston zoo serves only ocean-friendly seafood to our animals that eat fish (like sea lions). They can help by asking at the grocery whether the fish/seafood is ocean-friendly (HEB is moving in that direction, other grocery stores are lagging). For older campers, there is an APP they can download on their phone.

**Palm oil** – Palm oil is used in everything from soap to chocolate bars. The forests where many of our animal live are being cut down to grow palm plants. Solution – All candy at Zoo Boo is palm oil free and our food partner SSA is working to only serve sustainable palm oil products. They can help by asking at the grocery if things they want to buy are palm-oil friendly. For older campers, there is an APP they can download on their phone.

**Pollinators** – More than 30% of the food we eat is from plants that are pollinated. Without these animals, we could not eat chocolate, pancakes, ice cream or honey. Solution – Houston zoo is planting pollinator gardens around the zoo and educating guests about local plants to help encourage more pollinators to live here. They can help by making a pollinator station using old toys like the one in CZ and leaving it outside so pollinators have a place to sleep at night.

## Large Mammals

**California Sea Lions** (Jonah, TJ, Cali, Kamia and Max) – Sea lions are related to seals, but they are not the same animal. Sea Lions can rotate their flippers forwards to “walk” on land. True seals cannot do this, and thus are not as agile on land. Sea lions can run faster than humans! Sea lions are very smart and ours love to learn new behaviors. Conservation issue: Plastic marine debris. Here are some interesting stories on our animals:

- Jonah was born in the wild. He was found as a baby on a beach in California eating sand. Attempts to return him to the wild were not successful, so he was given a place to become a breeding bull here at Houston Zoo. Sea Lion supervisor Sophie worked with Jonah in California before she moved to Houston.
- Cali and Kamia are half-sisters born 10 days apart in 2004. Kamia had her baby in 2016 and Cali had her pup one year later in 2017.

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- TJ is the first sea lion born at the zoo in more than 20 years to mom Kamia. She is really playful and loves to try to get the adults to join her in fun and games.
- TJ's half-brother and cousin (their moms are sisters), Max, was born in June 2017 to first-time mom Cali. Max is a little clumsier than TJ.
- Baby sea lions have to learn to swim, they are not born in the water. Max and TJ learned how to swim in shallow pools in the night barn.
- Houston Zoo is helping save marine animals by organizing beach cleanups at Surfside beach every month, eliminating plastic bags from the gift shop and using only sustainable seafood to feed our fish-eating animals.
- They can help save marine animals by reminding their parents to bring reusable bags when shopping and using their reusable water bottle, rather than single-use ones.

**Asian Elephants** (Thai, Methai, Tess, Shanti, Tucker, Baylor, Tupelo, Duncan and Joy) – Elephants are the largest land mammal. Here are some interesting stories about our herd. Conservation: Palm oil.

- Our herd eats more than 700 pounds of food a day including 15 bales of hay, 50 pounds of fruit and vegetables, and 2-3 loaves of whole wheat bread.
- Elephants have favorite food and tastes just like we do! Here are their favorite foods: Thailand – watermelon, Methai – peppermint and citrus smells, Tess – sweet potato and carrots (nothing too sweet). Shanti – garlic, Tucker – watermelon, Tupelo – bread, does not like sour things, Duncan – apples and raisins, Baylor – bread.
- The elephants love small pumpkins and look forward to Zoo Boo each year when they get them as treats.
- They are covered in hair, but it is sometimes hard to see. Tess has blonde tail hair, the rest of the herd all have brown tail hairs, making Tess our “blonde bombshell”.
- They have poor eyesight, but the strongest sense of smell of any mammal.
- Baylor, Tupelo, Duncan and Joy were all born at the zoo. Tupelo is a female and she is very loving and nurturing with her younger brother Duncan and with Baby Joy. In fact, Tupelo is baby crazy and is always with Shanti and Joy.
- The moms (called cows) and babies all live together in the yard closest to the BEC. Methai, the matriarch of the herd, seems to love being “auntie” to all the babies and can be seen sparring with Duncan when he is in the cow yard. Shanti has a large heart-shaped head with pronounced domes and a ridge along her back. She is the most submissive in the pecking order of the herd.
- The juvenile and adult males live in the “man cave” bull yard. That yard was completed in 2017 and includes a pool deep enough for the elephants to swim. Baylor and Tucker love to swim. Baylor has a very sweet and gentle disposition. Whereas, Tucker is lovingly described as “naughty” by his keepers. He is smart and a “typical troublemaking juvenile male”. He seems to enjoy getting a reaction from guests. Thai's tusks are trimmed about every 5 years. This ensures the comfort of his neck and back as they can get quite heavy. It also allows Thai to have full use of his training walls when working with keepers.
- Houston Zoo helps save animals in Asia by working with local conservation partners to reduce human-elephant conflict. One way this is done is with “bee fences.” Elephants are scared of bees and farmers set up bee hives along their farms to serve as a natural fence. As an added bonus, the bees make honey which farmers can sell.
- By downloading the palm oil app, campers can help their parents purchase products made with sustainable palm oil. This helps preserve the forests where elephants live.

## Aquarium

**General Aquarium information** – A team of 6 keepers are responsible for all the fish in the Zoo, except those in the Children’s Zoo. Each keeper is responsible for a number of tanks and all of the animals in those tanks. Daily responsibilities include:

- Feeding the animals in their care. All animals, except the octopus, are fed 2-3 times a day. Some of the food is given whole, but other food items have to be made or prepared. Some animals, like the pacu in Natural Encounters, eat fresh produce, like carrots or apples. Other animals eat “mix” which is a combination of bloodworms, seaweed, chopped clams and brine shrimp mixed with minerals and other food. One keeper is also responsible for breeding sea monkeys (bring shrimp) which are fed to the jelly colonies. The aquarium also makes algae which is eaten by several animals.
- Cleaning the tanks. Each tank is emptied 50% and refilled at least once a week. The keepers also have to keep the viewing glass clean and remove any waste not collected in filters. How do they empty the tanks? Well, they siphon off excess water. They siphon off the old-fashioned way and insert a hose into the tank and take a deep breath and begin the suction. The trick is to do that and not inhale a mouthful of water or worse.
- Observing and enriching the animals in their care. Some animals, like the octopus, get toys to play with. Other enrichment may be introducing novel food or moving items in the exhibit around. All of the animals are monitored for behavior and their health.
- Monitoring the water quality in each tank. The temperature of the water is taken up to 4 times each day. The water quality is tested daily to ensure the right balance of salt and minerals and minimal amount of toxins are in the water.
- Speaking of water, the aquarium staff make more than 1,000 gallons of ocean water each day.
- One keeper is also responsible for the entire quarantine building, which has more than 30 tanks! Animals in that building may be new arrivals, sick or injured animals on animals whose tank is closed for maintenance.
- Aquarium keepers have to master a number of disciplines:
  - Biology for the diverse animals in their care – they have simplest of organisms like corals to complex vertebrates like sea turtles.
  - Chemistry for the quality of the water in the tank environments
  - Plumbing and mechanics for the life support equipment used to maintain the tanks.
- Conservation issues affecting the aquarium animals are sustainable seafood and plastic pollution. Houston Zoo is saving marine animals in Texas by eliminating plastic bags and by moving to sell water bottles made from paper, not plastic. Houston Zoo and our concession stand company SSA, only serve sustainable seafood to the animals and guests of the Houston Zoo.
- They can help save marine animals by reminding their parents to bring reusable bags when shopping and using their reusable water bottle, rather than single-use ones.

**San Francisco Piranhas** – These are the largest species of piranha. They have sharp teeth for stripping flesh from bones. Despite their reputation, divers regularly clean their exhibit with little in the way of protection, as piranhas are skittish and do not go into a feeding frenzy unless they smell blood or are very hungry. In fact, piranhas are omnivores. The San Francisco piranha is only found in the Sao (San) Francisco River in Brazil. Conservation: Plastic

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**Sea Turtle (depending on if we have one or not)** – The sea turtle (if on exhibit), is not a permanent resident of the Houston Zoo. It is rehabilitating with us after being found somewhere along the upper Gulf Coast of Texas. Once it is healthy, it will be released by NOAA. Texas is home to 5/7 species of sea turtles (green, Kemp’s Ridley, hawksbill, loggerhead and leatherback. The other 2 are found only in the Pacific flatback and Olive Ridley) Houston Zoo helps save sea turtles in Texas by doing beach cleanups, helping provide medical care and rehabilitation for injured turtles and collecting and sorting monofilament fishing line left in bins in Galveston. If we do not have a turtle, point out that is a good thing – it means no turtle was injured enough to need to stay at the Zoo to recover. Conservation issue: Marine debris

**Coral Shrimpfish** - These strange fish swim with their head pointing downwards! Found in warm tropical waters, coral shrimpfish have adapted to a vertical lifestyle that allows them to live among the protective spines of sea urchins.

**Anemonefish (clownfish)** - We have several species of anemonefish (commonly called clownfish) in the tank with live anemone. While cute and popularized by the Disney movie, these fish are very aggressive and territorial. Each one will defend its territory and bite anything that comes near it, including keepers! They are prolific breeders and you can sometimes see egg patches. One species has dark reddish eggs. The males are the ones guarding the eggs.

**Giant Pacific Octopus** – Can weigh up to 150 pounds and stretch 20 feet from tip to tip of their tentacles. They are able to change color and texture to match their surroundings, as well as use tools. They have no bones, and are able to fit through small openings, only restricted by the size of their beak. One previous octopus at the Zoo could squeeze through an opening the size of one half an iPhone! Octopuses live a short time (2-4 years on average). If you see the octopus “twirling” around, she is trying to remove old skin. Sometimes, you can see old suckers floating in the water. Conservation issue: Sustainable Seafood

**Australian lungfish**- These fish can live to be 100 years old! This fish has a single lung they use to breathe air. There are only a few species of lungfish left. They are a very ancient species that has changed little in more than 350 million years.

**Emperor/Banggai Cardinalfish**- These fish are critically endangered. They are found in Indonesia and have been overfished for the pet trade.

**Batfish** - The walking batfish is “benthic” or living on the ocean floor. It uses its pectoral fins to walk along the bottom! They are found in warm and temperate seas. Batfishes have broad, flat heads and slim bodies, and can grow to 14 inches in length. They spend more time walking on the bottom on thickened pectoral and pelvic fins than swimming.

**Pacific or Japanese sea nettle** – These jellyfish are eaten by a variety of sea turtle species. They are about 90% water, so it takes a lot to fill up an adult sea turtle. They have a pretty mild sting, but it would still hurt if you touched one. Our keepers feed them by using a turkey baster to squirt a little food into each bell once a day. The other 2 times they are fed, they receive sea monkeys (brine shrimp) larvae. Those are dripped into the water column where the nettles can catch them.

**Lionfish** – These pretty fish are native to the south Pacific island chains. They were popular in aquariums in the US and many were introduced into the wild. They are spreading rapidly through the Caribbean and devastating native fish populations, since they have no predators. They are venomous and can cause painful stings when envenomed.

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**Lined seahorse** – Like all seahorses, the male gives birth to the babies. They are bad swimmers and rely on camouflage to hide in sea grass beds where they live. They are found from Nova Scotia, Canada all the way south to Uruguay.

**Flashlight Fish** – Found in deeper water, they contain pockets of glowing bacteria just below their eyes. These lights help attract food and deter predators. Conservation issue: Marine debris

**Eels (moray, wolf and electric)** Eels are fish, not snakes. At this time, we have 3 eels all different species. Two are in the aquarium and the electric eel is in Natural Encounters.

Peacock wolf- The peacock wolf eel is spotted and not a “true eel.” They are in a family of fish known as wolfish. They are not aggressive to divers, but do have very sharp teeth. They can be up to 8 feet long and live in the same places in California as the sea lion. Juvenile wolf eels are bright orange and gradually turn the bluish color of adults. They are named for their large teeth, which resemble a canine’s teeth, like a wolf. They use their teeth and powerful jaws to crush the shells of crabs, clams and sea urchins that make up their diet.

Moray eel - Covered in toxic slime as a protection from predators. The moray eel is actually black, but covered in yellow slime. This makes them look green to green-yellow. Most morays eel species are saltwater fish, living in the ocean, usually near coral reefs. A few sub species can be found in brackish water or even fresh water. Despite looking ferocious, they are rather shy and avoid people. They keep their mouth open to push water through their gills, making it look like they are snarling.

**Coral restoration** – Our aquarium supervisor, Mike, has done several projects with the Coral Restoration Foundation. They take coral fragments and grow them in controlled ocean “nursery” habitats until they are big enough to transplant to a reef. They then plant the corals in an area where a reef may have died or in a new area to start a new reef. While corals are not plants, but animals, the terminology like nursery and plant are used.

## Herpetology

Herpetology is the study and care of reptiles and amphibians. The word comes from the Greek, *herpein*, which means to creep.” The general conservation for the herps at the Zoo is plastic or paper. However, there are significant issues facing many herps due to the pet trade, frogs due to chytrid fungus, and snakes face irrational fears and culling

### Outdoor Reptiles

**Komodo Dragon (Phoenix inside/Boga outside)**– The largest lizard, Komodos are in the monitor family. They have excellent eyesight and can run quickly for a short distance. Young Komodos are green and live in trees to avoid being eaten by older, terrestrial Komodos.

**Crocodile Monitor (Adiri, Kaydi)** - This species of large monitor is native to New Guinea. Ours were both hatched on 2/19/13 and we do not know their sex. These are arboreal lizards, so they’re most likely to be seen in the tree or rock work in their enclosure. They are carnivorous.

**Galapagos Tortoise (Ernie, Hannibal and Shackleton)** Adult males can weigh more than 600 pounds and live more than 150 years. Tortoises shells are made of keratin, like your fingernails. They can feel when scratched on their backs and will stretch their necks out if you hit a good spot.

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As it turns out, our 3 males are actually females. We did not know until they were x-rayed in 2017 as part of a checkup.

**African Spurred Tortoise (Bubbles and Bobbi)** These tortoises can live over 100 years. Adult males can weigh more than 220 pounds. We have 2 females and have had them since 1988! Their ages are unknown since they were adults upon arrival.

**Madagascar Big-Headed Turtle** - (Lemur Moat, hatchlings are sometimes in the reptile house). Houston is the first zoo to successfully produce 2 clutches of eggs, one in 2015 and one in 2016.

**Radiated tortoise** (Orangutan exhibit)- This animal is critically endangered due to habitat loss and collection for the international pet trade. It lives in thorny brush and can survive up to 60 years. It is found in southern Madagascar. Named for the radiating lines on its shell.

### Frogs and Toads

Both frogs and toads are amphibians. Amphibians generally hatch in the water and begin their lives with gills, which they lose as they grow up into adults, where they have lungs and breathe air. Houston Zoo has a number of species of both frogs and toads. They need their skin to help them breathe and many of them are covered in a sticky mucous, which may or may not be poisonous. Due to their short lifespans, the animals on exhibit may vary at any time. Frogs around the world are facing extinction as a human-spread, naturally occurring fungus called chytrid (kit-red). The fungus was first identified to kill amphibians in 1993 in Australia. From there it has spread around the world, causing significant declines and extinctions in frogs. For that reason, scientists breed frogs in the hopes of destroying the fungus and being able to reintroduce the frogs into the wild.

Panamanian Golden Frog - This species is believed to be extinct in the wild. There are breeding populations in zoos around N. America and our Herp team is helping Panamanian conservation efforts. In the wild, they are poisonous.

Poison arrow frogs – These frogs come in many different colors. Each one is a sub-species and they can be found in the wild in red, green, blue, yellow and black. Recently, scientists have discovered several medicinal uses for the poison these frogs excrete through their skin. Juvenile yellow poison dart frogs are brown until they reach adulthood.

Common Marsupial frog - This frog is one of several marsupial frogs; the eggs develop in a pouch on their mother! This enables her to be out of the water as needed. When the tadpoles hatch, she moves to the water to let them swim away.

Bornean eared frog - Also called the file-eared tree frog. These frogs have prominent ridges above and behind their eye and ear area. The females construct a foam nest and attach it to plants above the water. When the tadpoles hatch, they fall into the water.

Houston Toad - This toad originally stretched across central and east Texas. There are only 4 small patches of frogs left in the wild, all near Bastrop, Texas. Approximately 4,000 toads call the Houston Zoo home and their eggs and toadlets are released into the wild each year.

### Salamanders and newts

Salamanders look like lizards, but they're more closely related to frogs, as they are amphibians. Like frogs, they lay eggs in the water, their young hatch with gills and evolve to breathe air through lungs. Although, some species of salamander never lose their gills completely and live in the water most of their lives. Houston Zoo has a few different salamanders. Newts are a species of salamander. Due to their short lifespans, the animals on exhibit may vary at any time.

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Hellbender – This is the largest salamander in US. Most salamanders in the US are found in the southeastern US. The largest salamander species are found in Asia.

Alligator newt – These highly-endangered amphibians are found in Japan. Recent deforestation and other forms of land development, as well as road and drainage ditch construction, have been causing population declines on each island. It is also collected illegally for the pet trade.

Aquatic Caecilian - This caecilian is known as a 'rubber eel' even though it is an amphibian. They are found in South America.

### Lizards

Lizards are reptiles. They are ectothermic (cold-blooded) and lay eggs. They eat a variety of diets including meat, fish, insects and plants. They are mostly active during the day, although there are a few nocturnal species. There are more than 4,600 species of lizards in the world. Only a few lizards are venomous, although Houston Zoo has all 3 species (Komodo, Mexican beaded and gila monster).

Mexican beaded lizard – These are venomous lizards. Their venom glands in lower jaw as opposed to upper jaw in snakes. To inject venom, they have to chew on their prey. Teeth are grooved, not hollow. They spend most of their time underground, only coming out for an hour or so per day, usually at dusk.

Gila monster – This is another venomous lizard. They are found in the SW USA and northern Mexico deserts. They spend most of their time in underground burrows. They are named after the Gila River basin in Arizona.

Caiman Lizard – The males are more brightly colored. The lizards don't eat the fish on exhibit and will grow to 3' in length. The water in the exhibit is 70F and under the basking lamp is 100F.

Anegada iguana – There are 9 species of iguana native to the Caribbean, all endangered, due to habitat loss, dogs and cats, cars, invasive green iguanas.

Prehensile-tailed skink – This is the largest species of skink, exhibits guarding of young.

Panther chameleon - Chameleons in general have independent eyes, specialized feet, color changing isn't as extreme as people think (cuttlefish blow them away), color changes often caused by stress or courtship. Not a good pet lizard for beginners.

Collared lizard - Collared lizards have two prominent black bands around their necks, hence the name. The males are green to tan with patterns of spots and bars across their backs. They can also exhibit vivid yellow and orange head colorations. Females tend to be less colorful, except during breeding season, when they exhibit bright orange side spots or bars.

Chuckwalla - The chuckwalla belong to the iguana family of animals. The desert exhibit may have a common chuckwalla or San Esteban Island sub-species. San Esteban Island chuckwallas are the largest of the five species of chuckwalla and are endangered due to the tiny range of their habitat. They do not drink water and get all water they need to survive from the plants they eat. They excrete salty crystals when they sneeze!

Chinese crocodile lizard - This lizard gets its name from the appearance of its tail, which has an enlarged pair of scales running most of its length, similar to the tail of a crocodile. It is an endangered species due to habitat loss as well as being harvested for the pet trade and Chinese medicine. It was thought to inhabit only one mountainous province of China, where it lives in and around clear pools of slow-moving, shallow water. However, in 2003 a population was also discovered in the Quang Ninh Province of north-eastern Vietnam. Called "the lizard of great

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sleepiness” by local people, this species often remains motionless for hours on end, and can even submerge itself underwater for long periods of time, reducing its respiratory rate.

### Snakes

Snakes are also reptiles. They are ectothermic (cold-blooded) and lay eggs. All snakes eat meat. Some snakes will also eat eggs or insects. Snakes are found on every continent, except Antarctica. All snakes have no legs, although some species retain a pair of vestigial claws. There are also species of snakes which live in the ocean. There are far more non-venomous species of snakes (2,250) than venomous snakes. And, of the 750 species of venomous snakes, only about half are harmful to humans. Most snakes only have one functioning lung. They also have no eyelids or external ears. By flicking its tongue, a snake is able to pick up scent molecules which are analyzed using a special organ known as Jacobson’s organ. Some species have heat sensitive pits in the scales around their mouth which can help them to detect warm-blooded prey.

Big Pythons (Sue is Reticulated) - Sue is 18 feet long and weighs 160lbs. She eats chickens and rabbits. She can grow to 33’ in length, which makes this species the longest snake. Her exhibit reflects a Buddhist temple.

Green tree python - Primarily tree-dwelling, this snake has a particular way of resting on tree branches, looping its coils in a saddle shape and then resting its head in the middle. The green tree python is not thought to be threatened in its natural habitat. They have more turquoise blue on their skin than the emerald tree boa. The green tree python is found in SE Asia and Australia.

Boelen’s python - Baby Boelen’s pythons are reddish brown when they hatch from eggs, and they turn black when about two years old. Their habitat is montane rainforest. They have an iridescent rainbow shimmer that is caused by micro serrated edges on their scales that reflects the light like a prism.

Emerald tree boa - These brilliantly green snakes have white markings on their backs some describe as lightning bolts. Hatchlings vary in color from brick red to green, and all become green in color at about 9-12 months of age. The emerald boa is from South America

Green anaconda – These are in the boa family and are the heaviest snake, but not the longest. Only females get really huge.

Mambas – Black mambas are not black, but their name comes from the inside of their mouth, which is black. Our black mamba is the first one to be born in captivity in the USA. Our green mamba is extremely active after a shed and can be found interacting with guests right against the glass.

Western/Eastern Diamondback Rattlesnake – The western diamondback is found west of Houston all the way to California. The Eastern diamondback rattlesnake historically was found Houston area, but one has not been seen in the Houston for decades. The eastern diamondback is found all the way to Florida. The western species is smaller than the eastern. Both species are pit vipers, and have heat sensing pits on their face to detect prey. They are both venomous and their venom is potent enough to be lethal to humans. There are 35+ species of rattlesnakes and 65+ sub-species. They are native only to the Americas – with habitats from Canada to Argentina.

Hognose snake - These snakes are often called puff adders or spreading adders, but they are harmless to people. They will hiss and spread their necks out like a cobra to appear frightening. They will also play dead to avoid being eaten by a predator.



Cottonmouth/ Water moccasin Found in lowland swamps, lakes, and rivers, the cottonmouth eats reptiles, amphibians, and mammals. It is also known as the water moccasin – and they are venomous. This snake gets its name from the white coloration on the inside of its mouth.

**Texas Snakes exhibit houses copperheads, Texas rat snakes and a canebrake rattlesnake in the same exhibit.**

Canebrake rattlesnake is threatened. There are no rattlesnake species found in the Houston Metro area. They are found in Fort Bend and Montgomery county, although the most common is the diamondback.

Copperhead - You can identify a copperhead by their cross bands, which have an hourglass shape or “Hershey’s kisses.” . They are native to Texas and can be found in some lowland and pine forest habitats. This animal is the most common venomous snake in Harris County. Copperheads are tiny snakes, usually only a few feet long.

Texas rat snake - This rat snake can grow up to 7 feet in length and helps keep the local population of rats and mice in check. You’ll find it snacking on mammals, birds, and reptiles. Texas rat snakes are excellent climbers. Because of their coloration, they are often confused with copperheads or rattle snakes. They are harmless.

King cobra – This is the longest venomous snake. King cobras are the only snake that builds a nest for its eggs. The “king” means they are snake eaters. Many “king” snakes are immune to the venom of snakes in their geographic region. King cobras eat mostly other snakes.

Brown tree snake- These snakes are invasive on the US territory island of Guam. They are responsible for eating native birds into extinction, including the Micronesian kingfisher found in the Tropical Bird house. This is good example of an invasive species.

African bush vipers- These small snakes come in a variety of colors from green, to yellow, orange and even red. They give birth to live young and Houston Zoo had 12 born in the spring of 2017.

Chinese mountain pit viper - These rare and beautiful snakes are only found on and around Mangshan Mountain in the Hunan Province of China. Mangshan mountain vipers can grow up to seven feet long. These snakes were just discovered in 1989!

Gaboon viper – Found in West and Central African rainforests. They have both hemotoxic and neurotoxic venom, the longest fangs for their size of any snake and inject large quantities of it into prey. They are not known to be aggressive, but bites in humans are often fatal, or at least require amputation. They are the largest of the African vipers and the heaviest venomous snake in Africa.

Armenian viper - These are called true vipers, as opposed to pit vipers like rattlesnakes, since they lack heat-sensing pits. These animals live on rocky slopes with sparse vegetation in the fertile crescent of Iran, Iraq, Turkey and Armenia. They give birth to live young.

### **Chelonians (Turtles and Tortoises)**

The terms turtle and tortoise are not scientific. In the USA, turtle generally refers to all chelonians, whereas other parts of the world refer only to swimming chelonians as turtles. The largest “turtle” is the leatherback sea turtle, which can reach over 2,000 pounds. Galapagos tortoises are the largest land-dwelling turtles. No matter what you call them, they do have some similarities. All of them have a shell, which is made of keratin and attached to the backbone. The top of the shell is called the carapace

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and the bottom the plastron. Turtles are reptiles, so they have scales and shed them like other reptiles as they grow. The scales of the shell are just modified scales. Turtles eat a variety of things from insects, to mollusks, fish, algae, plants and meat.

Matamata turtle – These turtles grow to an impressive size in their aquatic habitats; males can be up to 27lbs and 18 inches long. Matamatas will sit on the bottom of a river and wait for fish or aquatic invertebrates to swim close and then they will quickly open their mouths wide, sucking in both water and prey. The turtles eject the water and swallow their food. This is called suction feeding. While these turtles prefer to spend a majority of their time underwater, they are not good swimmers. Their odd body shape helps them camouflage in their environment.

Indian star tortoise - The eye-catching star pattern on the shells of these tortoises provides excellent camouflage in their native habitat. Found in a range of habitats, from the semideserts in the outskirts of the Thar area in India and Pakistan to the savannahs and the more moist deciduous forests of southern and western Sri Lanka. They are herbivores. These animals are popular as pets. If you get one, make sure it is captive bred and not taken out of its wild habitat.

Egyptian tortoise - This tortoise is critically endangered. They are actually extinct in Egypt and can only be found in Libya today. Their shells can range from ivory and pale yellow to dark brown and anything in-between.

## Wortham World of Primates (WWP)

**Ring-tailed Lemur (Tully, Tango Jr, Cairrean)** – Will have “stink fights” with one another, using scents from glands that create quite a smell. They also walk with their tails raised so groups can stay together when moving through the brush. Houston Zoo is helping save lemurs, sifakas and fossas of Madagascar by supporting local conservation efforts to replant forests. Conservation: Pollinator

**Madagascar Big-Headed Turtle** (Lemur Moat, hatchlings are sometimes in the reptile house). Houston is the first zoo to successfully produce 2 clutches of eggs, one in 2015 and one in 2016. They are often seen on the far right of the exhibit in the lemur pond, but near the shore. Conservation: Plastic

**Howler Monkey (Ramone, Vida, Garcia)** Found in South and Central America. Their howl is a loud, booming hoot sound that can be heard all over the zoo (the shrill calls heard on grounds are likely siamangs). They like to call early in the morning. Our group likes to call to the leaf blowers we use to clear paths before the zoo opens. Conservation: Paper.

**Goeldis Monkey (AJ, Opie, Peach, Benjamin)** – These monkeys live in the Amazon rain forest. Goeldi’s monkeys came to the Zoo after Houston Zoo guests chose them – they are our first ever crowd-curated exhibit. The youngest of the group, Benjamin, was born in February 2017. They can communicate through ultrasonic sounds. Conservation: Paper

**Tamarins (Pied, Cotton Top, Golden Lion may be in NE)**- These small monkeys are found in South America and all of our species are critically endangered. They can climb like a squirrel in a tree. Their tail is not used to help them hold onto branches (not prehensile) Conservation: Paper

**Coquerel’s Sifaka (Gulliver, Zenobia, Gaius, Athena)** – These are a type of lemur found in Madagascar. Hop forward when moving around in place of walking. Sifakas do not swing through the trees, but leap from branch to branch. They are named for the sound they make. They eat leaves, flowers and fruit. Houston Zoo is helping save lemurs, sifakas and fossas of Madagascar by supporting local conservation

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efforts. Last year several hundred local children in Madagascar learned about lemurs and how important they are to their community. Conservation: Paper

**Patatas Monkey (Alice, Cassie, Mojo, Mosey, Ripley, Troi)** This is the only primate at Houston Zoo not endangered (according to our database, although the sign says they are). They are the fastest monkey, able to run 34 mph. They live mostly on the ground, but do sleep in trees. Males are twice as large as females. Conservation: Paper

**De Brazza's Guenon (Albert, Amelia, Flint, Mica, Ruby)**– Do not vocalize, as to not draw attention from predators as they forage close to the ground. Store food in cheek pouches to eat when they move into the trees. They communicate with sounds and shaking tree branches. You may see ours playing by shaking tree branches. Conservation: Paper

**Allen's Swamp Monkey (Calvin, Naku, Pepper)** - These monkeys are good swimmers and will dive into a river to avoid predators. They have webbing between their toes to help them swim. They are a pollinator in their native forests. Baby Pepper was born in February 2017. When she was young, she liked to ride the tortoise in their exhibit around. Calvin and Pepper are female. Conservation: Pollinators

**Schmidt's Red-Tailed Guenon (Nagano, Bongo)** The tail of the Schmidt's guenon is red and longer than its body, giving it the additional common name of the red-tailed monkey. They are also called the spot-nosed monkey because of their face markings. We have 2 females. Conservation: Paper

**Mandrill (Cleo, Louise, Ushindi)** – The largest of the monkeys, they spend most of their time on the ground, but will nest at night in the trees. They are related to baboons, but not the same animal. They have brightly colored rumps to help them follow each other through the thick forests where they live. When excited or angry, the male will get brighter. Conservation: Cell Phones

**Siamangs (Berani, Jambi)** – Native to SE Asia, Also able to brachiate or swing on branches, and have arm length of up to 2.5 times their body length. If Mr. Nick had arms that long, his hands would drag the ground when he walked. They have throat sacs that can enlarge to the size of their heads. These sacs allow their calls to be amplified and cover large distances. They have a complicated vocal system and will call to each other for hours. Conservation: Palm oil

**Barbirusa (Jambi, Remley)** Not a primate at all, these relatives of the pig are found in SE Asia. Their tusks keep growing throughout their life and can grow so long, they grow into the skull. Their tusks are brittle and do not appear to have any useful purpose. Their name means pig-deer. Our female, Remley, loves to paint. Conservation: Palm Oil.

**Orangutans (Aurora, Cheyenne, Kelly, Pumpkin, and Rudy)**– We have Both Bornean and Sumatran Orangutans. We are only breeding the Bornean. Bornean Orangutans cannot swim. Brachiate, or swing from branch to branch. They are the largest tree-dwelling mammals. Their name means “person of the forest” and is not related to their color. They can live over 50 years. Conservation issue: Palm oil

## African Forest

**Chimpanzees (Abe, Annie, Chaos, Charlie, Kenya, Kira, Lucy, Lulu, Maizey, Riley, Sally, Sierra, Tanzee, Toby, Willie)** – They make use of a variety of tools, including dip sticks for fishing termites out of their mounds and spears. Generally, they do not like water and cannot swim. When they smile, it is to show

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fear or anxiousness. Excitement is shown through grunts. Houston Zoo is a proud supporter of Jane Goodall Institute, dedicated to providing support, prevent poaching and sanctuary to chimpanzees. Conservation issue: Cell Phones

**Gorillas (Ajari, Angel, Binti, Chaka, Holly, Mike, Zuri)** – Can climb trees, but prefer to stay on the ground. Their young spend their time playing games, chasing one another, climbing trees, and throwing things. We have two groups of gorillas, a dominant male with three females and a bachelor group of 3 males. Houston Zoo is helping save gorillas in Africa by working with local communities to plant more than 1000 trees to maintain the gorilla’s forest home. Conservation issue: Cell Phones

**Red River Hogs (Neptune, Luna, Vidalia, Artemis and Ophelia)** These relatives of the pig share their habitat with gorillas in the wild, although Houston is the first zoo to exhibit these animals together. Both males and females have tusks. They have great eyesight and smell. They can smell an earthworm hiding in the ground! Artemis and Ophelia were born in July 2017. Conservation: Cell phones

**Maribu Stork (Clyde, Eugene)** These are one of the largest flying birds in the world. They eat anything and everything in the wild. In fact, they get in front of grass fires and eat anything fleeing the burning. Conservation: Paper

## Natural Encounters

Natural Encounters has a number of mixed-species exhibits both outside and inside. The inside is designed to look at different habitats and their relationship to water.

### Outside Exhibits

Outside exhibits are located in 3 spaces around the building.

**Meerkats (lots of them)** These tiny predators may look cute, but they are a true carnivore. They live in a very complex social family and can make about 20 different sounds to communicate. The black around their eyes is used like sunglasses to protect their eyes from the sun’s glare. Meerkats love to dig and create tunnels. Our NE team has to break up their tunnels so they create new ones as a means of enrichment. Smoots, a male, had his front leg amputated in the summer of 2017. This has not slowed him down one bit. He’s ornery and able to keep up with all of his 4-limbed siblings.

**Red Panda (Take and Li Ming)** Red pandas are not related to Giant Pandas. The word panda means “bamboo eater” in Nepal. In China, they are called the fire fox, due to their red coloring. Their diet is mostly bamboo and they can eat up to 200,000 bamboo leaves each day! They are almost as slow as sloths. They use their tails to help stay warm. Conservation: Paper

### South/Central American Forest Exhibit

Pygmy marmoset (Bjorn, Santiago, Cali, Teek) These are the smallest “true monkey” and are found in the Amazon basin which includes Brazil, Colombia, Ecuador, Peru and Bolivia. The smallest primate is the mouse lemur. They are found in South America and live in a troop of up to 15 individuals. They are most active in the daylight. They are a “gummivore” preferring to dig holes in trees and eat the gum or sap. Conservation: Paper

White-faced Saki Monkey (Dale, Toumi) These monkeys are from South America. They rarely crawl down from the safety of the trees. They mark territory by rubbing their chest on a tree. We have 2 males. Conservation: Paper

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Tamarins (Pied, Cotton Top, Golden Lion is in NE) These small monkeys are found in South America and all of our species are critically endangered. Tamarin fathers help care for infants by carrying them for the mothers. More than 500 golden-lion tamarins born in zoos have been released into the wild to help boost their population. Conservation: Paper

Collared aracari (Pico) - This relative of the toucan bird is a frugivore. They are found from Mexico to Venezuela. They are monogamous and will mate for life. We have one male, named Pico. When they are hatched, young aracari are blind and have very short beaks. They grow rapidly and look like small adults within 6 weeks.

### **Entry pool (These animals are found in the pool when you first enter)**

Snake-neck turtle (Max, Mr. Richard Belding, Screech Powers, Squishy and Ms. Carrie Bliss) – These turtles are threatened. They are found in Indonesia and Papua New Guinea. All of our turtles are in their late teens to early 20s.

Giraffe Catfish – The largest catfish in this tank is a giraffe catfish. He is very friendly and loves to get belly rubs from his keeper when the keeper is cleaning this tank.

**Hoffman's 2-toed Sloth (Succotash)** Sloths spend their entire life upside down in the trees. The only come to the ground once a week to go to the bathroom. They sleep more than 15 hours a day to save energy and are more active at night than the day. Conservation: Paper

**Victoria Crown Pigeon**- These large birds are native to New Guinea. They were named for the British queen, Victoria. They spend most of their life on the ground, only flying up into the trees when startled or roosting overnight. They typically eat fruit and seeds off the forest floor. They are important seed dispersers. Conservation: Paper

**Asian Small Claw Otter (Hope and DhanTu)** They are found along rivers in SE Asia. They form monogamous pairs and bond for life. Ours love to collect pretty rocks and the keepers leave out different pebbles for them to collect. Conservation: Paper

### **Rivers Edge Fish**

Pacu – The huge fish near the otters are pacu. Like the lionfish in the aquarium, these are an invasive species. They are purchased for home aquariums, but as you can see, they get huge! They have teeth that look very similar to a human's teeth.

Redtail catfish – The other huge fish in the exhibit with the pacu are redtail catfish. They can grow to just under 6 feet in length.

Red Belly Piranhas – These piranhas are more widely distributed in South America than the ones in the Aquarium. They are found in the Amazon River and many other freshwater rivers in Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay and Venezuela. Sharp teeth for stripping flesh from bones. Like the San Francisco piranha, they are omnivores. In the wild, a bulk of their diet is the tails of larger fish! The tank in NE houses parents and their offspring from a few years ago. Conservation: Plastic

White Blotched Stingrays – We had 10 born in the summer of 2017. The male lives in Natural Encounters and the female lives in the Kipp Aquarium.

Electric eels are freshwater fish, closely related to catfish, not eels, and have no scales. They look like finless, scale-less catfish. Electric eels use the electric charge they produce to stun their prey. Though their stun is not strong enough to kill a human, it would hurt and has been compared to an electric stun gun sensation. The electric eel is found in Natural Encounters. It lives in the small tank between the piranhas and 4-eyed fish.

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Four-Eyed Fish – Spend most of their time at the water's surface. Over time, their pupils split, hence the name "four eyed". One portion remains below the water, allowing the fish to watch for predators, while the upper portion remains above the water, scanning for tasty bugs.

Conservation: Plastic

**Straw-colored fruit Bats (lots)** Native to sub-Saharan Africa and the 2<sup>nd</sup> largest bat in Africa. These are fruit bats and do not have echolocation, since they do not hunt insects. Our group is all male, so no babies, which are called pups. If he is in there, the big bat, is an Indian Flying Fox and weighs over 4 pounds, with a wingspan of 4-5 feet. Conservation: Pollinator

**Mole Rats** – We have 2 different species of mole rats (Naked and Dama). They are not really naked; their body is covered with very thin hair to help them feel around in the dark. They can live in a group, called a colony, of 200 individuals, with a social structure similar to bees. They have a female queen and she is the only female to have pups. They have separate chambers for eating, sleeping and eliminating waste. They can live to be over 40 years old! Their jaws are so strong they can chew through concrete. All of the Damara mole rats have names (Triscuit, Spade, Popeye, Booberry, Mac, Pipsqueak, Uno, Sparklehorse, Brongs, Danger Mouse, Harry Potter, Wheat Thin, Ritz, Master Shfu and Punkin to name a few. The oldest rat was born in 2004 and is named Hattie)

**Leopard tortoise** - Named for the pattern on this tortoise's shell, some say it resembles leopard spots. They are found in southern and eastern Africa in grassland and scrub habitats Status in the Wild: Unknown This animal is one of the largest mainland tortoises and may live up to 75 years in captivity

**Coral Reef and Jellyfish** The reef was excavated from an actual reef and all the anemone and corals on it are alive.

Clown fish – Are able to resist the sting of the sea anemone, and can be fiercely territorial. Anemones benefit from the clown fish by having the clown fish protect the anemone from animals that may want to eat it and keeping it parasite free. The clown fish benefits from the protection the anemone offers against their own predators. Conservation issue: Sustainable seafood

The moon jellys in the exhibit are found around the world, close to shore. You can see them washed ashore in Galveston. Conservation: Plastic or Seafood

## Carnivores

**Cheetahs (Kito , Kiburi, Dash and Dinari)** – Kito and Kiburi are brothers. Dash and Dinari (means star) are not related. The fastest land animals, in the wild can reach speeds of 65 – 70 mph. Our adult cheetahs are not as quick, topping out at about 56 mph. They run around on the dynamo practice field. Kito is thought to be faster than Kiburi. Their claws are semi-retractable, always staying out but able to be pulled up slightly off the ground. Cheetah's are "scardey cats" and very cautious. Of the two brothers, Kiburi is more afraid of things, including birds. All of our cheetahs were rejected by their cheetah mothers and hand-reared. The Houston Zoo protects cheetahs in the wild by providing support for trained African anti-poaching scouts to walk around the areas where cheetahs live in Africa, to remove wire traps and arrest illegal hunters.

**Lions (Matungulu "Mattie", Nimue, Zima)** – Can roar loud enough to be heard 5 miles away. They spend most of their time asleep and will be active four roughly 4-5 hours a day. Babies have spots, which disappear as they age. Females will hunt, while males protect the young and their territory. Our 3 lionesses are all sisters. Of the 3, Mattie is the most dominant. She loves to play with balls of all sizes. Nemu is very bouncy and full of energy. Nemu is the most social with her keepers. Zima is a typical cat.

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She's aloof and does not care what you think. She is usually the one by herself. Houston Zoo supports conservation of more than 20% of all lions remaining in Africa.

**Tigers (Berani, Satu)** – Largest of the cats. Tigers are solitary, living alone unless it is mating season. Tiger stripes are like human finger prints, with no two being the same. Berani's stripes split at the top and bottom, forming elongated but connected sets of stripes. One of the few cat species to enjoy swimming. Tigers are naturally solitary. Satu and Berani have showed no interest in sharing habitat space. They are rotated outside throughout the day. Berani is about 100lbs larger than Satu and has a "mane" around his cheeks (typical of male tigers). As a cub his mother did not seem to take care of him. He ended up fostering with a Sumatran tiger and was supplemented food by keepers. Berani seems to prefer his female staff and greets them every day with chuffs. Conservation issue: Palm oil

**Jaguar (Kan Balam, Maya, Tesoro, Fitz and Emma)** – Found in South America, jaguars have "chocolate chip cookie" spots. They are also good swimmers, though Kan Balam does not enjoy the water as much. He is also missing a portion of his front paw as a result of another jaguar before he came to the Houston Zoo. They have very strong jaws and can bite through a turtle shell. Fitz and Emma were born to Maya and Tesoro in the summer 2017. These are the first cubs for both cats. Of the two, Emma is more adventurous and loves to explore. The Houston Zoo is protecting jaguars in the wild by providing support to conservation partners in Brazil who work with the Brazilian government on saving the forested homes of these beautiful cats. **Update: Kan Balam passed away in January 2018**

**Clouded Leopards (Suksn, Tarak)** – These cats spend most of their time up in the trees, rarely coming down to the ground except to get water. Their teeth can be up to two inches long, making them the longest teeth of any cat when compared to their body size. Males and females are usually territorial, but our two were introduced at a young enough age that they can be placed on exhibit together without much fuss. Tarak is very social and likes his keepers. He makes "maw" sounds like a cat meowing, but a little gruffer. His name means "Warrior". He also loves corn on the cobb. Suksun is more aloof and behaves more like a wild clouded leopard. Her name means "Mischievous." She loves perfume and spices. We are one of only 6 institutions in the US breeding clouded leopards. Conservation issue: Palm oil

**Cougar (Shasta, Haley)** – Also called a mountain lion or puma, cougars can be found in Texas. They lack the ability to roar, classifying them as a "small cat" vs a "large cat". Young cougars also have spots that they lose as they age. Haley is orphaned and was found by the side of a road in Idaho. She was too young to hunt for herself and was taken in by Fish and Wildlife before she came here to Houston. Her name comes from the name of a county in Idaho. Haley is the smaller and more slender of the two. Shasta was one of three male cubs who were out with their mother one day when she was illegally shot by a hunter. A friend of the hunter notified officials and the first two cubs were quickly found. It took several days before they could locate Shasta. Searchers were successful when one of them chirped like a mother cougar and he chirped back. The Houston Zoo partners with the university of Houston and Shasta is their official mascot "Shasta VI". Cougars used to be housed on campus and taken to football games on a leash, but Shasta now makes appearances via webcams. Alumni can also have their class rings guarded overnight by Shasta. The rings are brought into the habitat in a large UofH box and Shasta will guard them overnight. The school officials will then remove the box the following morning so the rings can be distributed.

**Black Bears – (Belle and Willow)** These "sisters" came to the Houston Zoo when they were very young orphans from California. We are not 100% certain they are sisters, but they were found in the same area, eating ice cream out of a dumpster. Because they associated people with food, they could not be returned to the wild. Black bears can be found in Texas. Despite the name, they can be any color from

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light brown to black. Belle is the larger and smarter of the two. She has figured out how to smash the ice pops and get to the goodies. Willow is smaller, and more likely the one who is pacing around. Most of a bear's diet is (85%) is fruit and vegetables. Our girls love honey and peanut butter, which they will lick from a spoon. They will slow down during the winter, but do not hibernate. Conservation issue: Paper

**Fossa (Fu-sa) (Hansel and Rhiana)** These are the largest carnivore in Madagascar. They are perfectly adapted to hunt lemurs, their primary diet. They have retractable claws, reversible ankles and nocturnal eyesight. Rhiana has allergies to cockroaches and will sometimes lose her hair! Hansel used to live next to Kadu, but he would stalk the much larger leopard. Kadu could care less, but we moved him anyway. Both Hansel and Rhiana love cat toys and will get very excited when a keeper dangles one. Their favorite treat is raw eggs. Houston Zoo is helping save lemurs, sifakas and fossas of Madagascar by supporting local conservation efforts to prevent poaching of lemurs, which is the primary diet of fossas. Conservation issue: Paper

**Leopard (Kadu)** Leopards are the smallest of the roaring cats (other cats that roar are tigers, lions and jaguars). They are nocturnal, which is why ours is always sleeping. They can carry 2 times their weight up into a tree. Our leopard, Kadu, had a part of his tail amputated. Kadu was rescued from a "photo cat" situation where he had been de-clawed. He was also extremely overweight. Because he has no claws, we have built special ramps to help him climb. Kadu loves melons, his favorite being watermelon.

**Raccoon (Gus and Gracie)** Raccoons are found right here in Texas. They're omnivores, although a majority of their diet in the wild is insects. Our two raccoons are different sub species, which is why there are different sizes. Gracie LOVES blueberries and mealworms. Although we give Gus a variety of enrichment, his favorite thing to play with is rocks! Conservation: Paper

**Painted Dogs (Ghost, Amara, Akilah)** Sometimes called Wild dogs, the painted dog is a very social canine in Africa. They take care of their old, young and sick members in a pack. In fact, wild dogs cannot live alone. They bond over food, so they are always fed together. Their large ears are to help keep them cool. Their coat patterns are unique, like a fingerprint, and used to identify each other. They have excellent eyesight. They are the most successful hunters in Africa, with a 70-90% success rate, compared to lions, which is only successful 30-40% of the time. Our pack is 3 females, who came from England. We conduct training along the fence near their night house.

## Children's Zoo

**Ocelot (Jack)** This Texas native cat is critically endangered in the state, although across its entire range, it is not endangered. Ocelots are found as far south as Argentina and can live in just about any habitat above elevation of 1200 meters. Their primary habitat is one with dense vegetation or trees. They sleep during the day, coming to the ground to hunt at night. Conservation: Paper

**Bald Eagle (Liberty)** Bald Eagles are not bald; the term comes from the Old English word "balde", which meant white. Bald Eagles are not born/hatched with a white head, their feathers start turning white around 3-4 years of age. Bald Eagles are the only eagle unique to North America. They pair for life and may return to the same nest year after year. Liberty recognizes different keepers and has various vocalizations for them, depending on if they are her favorite keeper or not. She recognizes keepers even out of uniform. She loves to eat fish. Conservation: Paper



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**Coati (Star and Pearl)** –Unlike raccoons, they are active during the day and sleep at night. So, they are usually moving around.

**North American Porcupine (Cody on exhibit, Ernie is an Ambassador)** These are the 2<sup>nd</sup> largest rodents in North America and the 3<sup>rd</sup> largest rodent, behind the Capybara. The largest in N. America is the beaver. They do not shoot their quills, which are modified hairs. But, they are loose and can back into a predator and leave their quills behind. They have 5 different kinds of hair! Porcupines are nocturnal. Adult males can weigh up to 30 pounds!

**North American River Otters (Belle)** Native to North America, including Texas Have webbed feet, water resistant fur to keep them dry and warm, and ears and nostrils that close underwater. They can hold their breath long enough to swim ¼ mile. Otter pups are blind and cannot swim when they are born. They get swimming lessons when they are around 2 months old. Belle loves to play with a yellow plastic ball. Conservation: Plastic (in addition to marine habitats, plastic can clog rivers and streams where otters live)

**Eastern White Pelican (Gilligan, The Skipper).** Brown pelicans are native to Texas. These birds are native to Eastern Europe and Africa. Their pouch can hold up to 3 ½ gallons of water and 9 pounds of fish at one time. They live, breed and migrate together in large colonies. They are efficient fishers and fishing can take only a few hours of their day. The rest of the time, they preen, loaf and bathe. They can live to be over 50 years old, so our 2 males, hatched in 2013, can be here for a very long time. Conservation: Plastic

**Banded Mongoose (Shtua, Fupi, Jasiri, Nuru, Jozi, Kesi, Mosi, Hatari, Robo, Tatu, Hakuna and more)** Some species of mongoose are immune to snake venom. They have special receptors that don't allow the venom neurotoxin to kill them. They are very social animals and can live in groups of up to 50 mongooses. They are known for taking off with items that are dropped into their exhibit, so hold onto your phones tightly (unless you want your phone back stinky).

**Dwarf zebu (Zamir)** This domesticated cattle breed is native to India. Ours is a dwarf and about 2/3 the size of a standard Zebu. They are not bred for their milk or meat, but instead are a draft animal and pull wagons and plows. Their skin is covered in dark oil to protect it from drying out in the monsoon season. Zamir was born in 2005.

**Llama (Finn and Fiesta)** They are related to camels and found in South America. They domesticated by Incas and used as a pack animal to haul items up steep mountain trails. Llamas can spit, up to 15 feet away. Our llamas do not like to be touched, but do like to smell people, especially women. Fiesta has a long-distance love-affair with Nubian goat Alvin. When Alvin goes for walks, he stops to give her a nose kiss.

**Goats (Breeds: Anglo-Nubian, Nigerian Dwarf, Saanen, Alpine, Pygmy and mix-breeds)** Goats are very intelligent and inquisitive. They explore by putting things in their mouths. Goats are friendly and enjoy human interaction. All our goats get some form of enrichment –whether it is walking on a leash, painting, training, or exploring puzzle feeders.

**Jacob's Sheep (Levi is in the pen with the llamas)** They can have 2-6 horns, although most have 4 horns. Sheep are much shyer than goats and like the safety of a herd. Ours are sheared once a year. Their wool is used as enrichment in the carnivore department.

**Mexican Free-tailed Bats-** The Mexican free-tailed bat is a medium sized bat. Their fur is reddish to dark brown or gray in color. They have broad, black, forward pointing ears, and wrinkled lips. Their tails

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extend more than one third beyond the tail membranes; most other bats have tails that are completely enclosed within the tail membranes. Their wings are long and narrow. Mexican free-tailed bats prefer to roost in caves, but will also choose attics, under bridges, or in abandoned buildings. They choose roosts near water. The water attracts the insects they eat, as well as allowing them the opportunity to drink. Mexican free-tailed bats consume enormous amounts of moths and other insects. Some roosts are known to contain millions of bats. In those colonies it is estimated that 250 tons of insects can be consumed every night. Houston has a colony living under Waugh Street bridge.

## Bug House

**General Bug stuff:** Our bug house is regulated by the USDA. All waste must be properly destroyed to ensure no bugs escape. Most bugs have a short lifespan, so they tend to rotate what is on exhibit. Our water bug exhibit is unique and few insectariums have one. Most kids stop learning about bugs by age 8 and start picking up the attitudes about bugs from the adults around them. Bugs are very important to the natural world and are very fascinating. Conservation issues are paper or pollinators.

**Gooty Sapphire Tarantula** – This beautiful tarantula is blue because of light reflection. They live in less than 40 square kilometers in India. They have strong, potent venom and can move very fast. Like most tarantulas, the females live longer than the males.

**Tarantula general** – Females live longer than males. The hair on the “new world” tarantulas of North and South America can be removed by the tarantula using their back legs (urticating hair). The hair is flung at the face of the attacker and gets embedded. All tarantulas have venom. In general, tree tarantulas and colorful tarantulas have more potent venom than ground tarantulas.

**Leaf-Cutter Ants** – Our colony is several million insects. The queen, which is never seen, keeps the colony going. They do not eat the leaves they cut. They use it to cultivate a fungus, which they eat. So, these ants are farmers!

**Roaches (Domino, Cave, Madagascar Hissing)** All of our roach species play a vital role in their environment. These species are very clean and if touched by a keeper will spend hours removing the “dirty human” from their body.

**Stick Insects** – All eat only plants. We have stick insects in the grasshopper and phasmid families.

**Mantids** – These are carnivorous. The orchid mantis looks like an orchid and will hide in plain sight and snatch any bug coming to drink the flower’s nectar.

**Katydid**s can hear. Most bugs cannot. These bugs will make noises to communicate with each other.

**Beetles** – The largest beetles (rhinoceros, Hercules, elephant) have a very short lifespan. Their huge size means that they don’t usually fly, although they can! They spend 2 years in the larval state, which is larger than their final form.

**Scorpions** are arachnids like spiders. Both arachnids and insects are considered “bugs.” Other arachnids include ticks, lice and mites. Arachnids range in size from microscopic mites to the goliath bird eating tarantula.

## East Hoof Run

**Baird's Tapir (Noah, Moli and Antonio)** Tapirs are the largest mammal in South/Central America. Their nose is used like a snorkel, allowing them to stay under water for long periods of time. Baby tapir's look like an orange watermelon with legs. Houston Zoo supports conservation efforts to save tapirs in Brazil, by funding research and tagging efforts in the Pantanal. Conservation: Paper

**Capybara (Mathilda, Mr. Pibb, Pop, Squirt and Sunkist)** They are the largest rodent and related to the guinea pig. Adult males can weigh more than 100 pounds! They can swim and keep only their eyes and nostrils out of the water. They live in large family groups and communally raise their young.

**Rhea (Omlet, Meringue, Quiche, Huevo)** They are ratites and in the same family as ostriches and cassowaries. The male builds the nest, incubates the eggs and raises the chicks. We have 4 females.

**Bongo (Bernadette, Howard, Lily, Mgdo, Mosby, Penelope)** These critically-endangered antelope are not named after the drum. Their name means antelope. Both males and females have horns. Conservation: Cell phones

**Maned Wolf (Seis)** Called the skunk-wolf, the terrible smell in the area is the maned wolf.

**Giant Anteater (Olive, Pablo, Rio)** They have no teeth! Their tongue can be over 2' long. They can eat up to 30,000 ants in one day! They have huge claws for digging and walk on their knuckles. Olive loves to be sprayed with the water hose.

**Ankole Cattle (Danny Boy, Luni Toon and Ali Oop)** These domesticate cattle are found in Africa, where they are bred as a status symbol and not used for meat. Their horns can grow to over 6' in length.

**Okapi (Kwame, Tulia, or Sukari)** Sometimes called the forest giraffe, these shy animals are endangered. They are so shy, they were not discovered until 1901. Females are taller than males. Their horns are called ossicones, and only male okapi and giraffes have these. Okapi have a really long tongue – it is so long, they can lick their own eyeball! Houston Zoo supports education programs that reach 35,000 children living near okapi forests. Conservation: Cell phones

## West Hoof Run

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**Nyala (Opal, Pearl)** These antelope are perfectly camouflaged in the grasslands where they live. Males and females look very different, with males being larger and having shaggy hair. Only the males have horns and we only have 2 females. Conservation: Paper

**Yellow-Backed Duiker (Komet, Dot, Murray)** These antelope are critical to dispersing seeds in their habitat. They are known to eat meat. While this is a rare quality for an antelope, scientists are learning more about various hoofed mammals that eat meat. Their name means diver, as they are known to dive into the bushes to hide when threatened. Murray was born in the summer of 2017. Conservation: Pollinator

**Warthog (Akoko, Lenny and Marge and Gus)** Although they look fierce, warthogs are shy and prefer to flee, rather than fight. Herds walk in a single-file line with their tails raised. Each one following the tail of the one in front. Their tusks are used to battle each other for dominance. Males have warts on their faces to help protect their eyes in these battles. Gus was born over the summer 2017. Conservation: Paper

## Center Hoofstock

**Masai Giraffe (Tyra, Asali, Camili, Gigi, Joshua, Zinzhi and Mara)** Known as the “watchtower of the savanna” the giraffe’s height helps them spot predators before other hoofed mammals. Their tongue is 18” long and used to strip leaves from branches. Camili loves to use her tongue to groom the manes of the giraffes in our herd, making her our budding fashionista. Joshua is the only male we have and the only giraffe aside from Tyra not born at the Houston Zoo. He is very friendly and loves to get lettuce from the feeding platform. Giraffes only sleep about 6 hours a day, in the form of catnaps taken throughout the day. They can sleep standing or laying down. Conservation: Paper

**Ostrich (Henrietta, Blanche, Agatha and Gertrude)** We have only girls and they lay eggs. Since there are no males, the eggs are just like the chicken eggs you eat at home, only really big! Each egg is equal to about 24 chicken eggs. We feed these eggs to some of our animals as a special treat. They can run really fast (45 mph). They do not “bury their head in the sand” and when frightened will either run away or attack. They do sometimes lay on the ground.

**White Rhino (Indy, Mumbles and George)** Their horn is made of keratin, which is the same thing as our hair and fingernails. They are the biggest land mammals after elephants. They have terrible eyesight, but excellent hearing and smell. Their skin is very sensitive and our boys love to be scratched with a broom. Indy and Mumbles like to spar with one another. This is natural behavior as they would be fighting for females, if we had any. Houston Zoo supports conservation efforts of both white and black rhinos in Africa. All conservation efforts are focused on eliminating poaching of rhinos for their horn. Conservation: Poaching

**Grant’s Zebra (Kapuki and Ziggy)** These fierce hoofed mammals can kill a leopard or wild dog with a kick. They take turns sleeping and watching over the herd, so no one sleeps at once. Will groom each other socially by nibbling on each other’s necks. The male will curl his upper lip in order to improve his sense of smell in a motion called flehmen response. Big cats also do this. Our two zebras rule the rhino yard and are quite capable of standing their ground. Conservation: Paper

## Birds found in several places:

**Curassow (various species exhibited at various times throughout birds - helmeted, blue billed, wattled)** – All species of curassow at the zoo are endangered. All of the different species are found in South America. The bird department is very involved in the SSP to save each of these species. Keeper Chris in birds was honored for his work in blue-billed curassows at AZA last year. We had a blue-billed curassow chick hatched last summer. She was raised by domestic chicken Ruby!.

**Argus pheasant** – Rather than using their tails to attract mates, like peafowl, the Argus pheasant uses their wings. They fold them up in an elaborate dance around their head. These feathers get so heavy,

## Animal Collection for 2017 Camps

the males have difficulty flying. They are named for the Argus, a monster in Greek mythology covered in 100 eyes, as the spots on their feathers look like eyes.

**Turaco (various species exhibited at various times throughout birds – Fisher’s, Lady Ross, Red crested)**  
– These birds are found in Africa. Of the 3 species at the zoo, only the Fisher’s is threatened. Turacos are the only birds to possess true red and green pigments from copper in their feathers. All other bird feather colors are a reflection of light off the feather structure. If you take a red turaco feather and put it in a glass of water, the water will turn pink!

**Peafowl (we have Javan and Green)**– Males, or peacocks, have the beautiful tail feathers that are used in courtship displays. Despite the large tail, peacocks can still fly, though not very far, as the tails weigh them down. Females are known as peahens and lack the colorful tail feathers.

## Birds of the World:

**Double-Wattled Cassowary** – They eat fruit whole, and “deposit” the seeds in other areas, allowing the rainforests where they live to thrive. Their coarse feathers help protect them from the undergrowth, as they cannot fly. They are excellent jumpers, and territorial. Their middle toe has a sharp claw, which they can use as a dagger if threatened or when defending their territory (not unlike the raptors in Jurassic Park).

**Chilean Flamingo** – Gain their pink coloration from the food that they eat (algae, crustaceans, and aquatic insects). They have the longest necks and legs of any bird in relation to their body size. At the Zoo, they nest every summer.

**Laughing Kookaburra** – Found in Australia, the laughing kookaburra is one of the largest birds in the kingfisher family. They kill large prey by repeatedly beating it against rocks or tree limbs. Their call is similar in sound to a laugh, and has been used in film to replace the sounds of primates calling out through the jungle.

The **blue-winged kookaburra** around the corner from the laughing kookaburra are a breeding pair and have had several clutches of offspring. Their most recent chicks were hatched in April 2017. These birds are very territorial and do not like people. Their keepers have to wear hard hats to enter their exhibit.

**Shoebill (Binti, Jimmy Shoo)** These large, unusual birds are rarely seen in the wild, so little is known about them. They spend hours standing still by the water’s edge, waiting for their food to swim by. They eat anything in the water that is small enough, including baby crocodiles. Our female is the only shoebill born in captivity in the US.

**Kagu** is carnivorous, feeding on a variety of animals with worms, snails and lizards being most common. It is nearly flightless, spending the majority of its life on the ground, which has caused it to become highly vulnerable to introduced predators. Cool Animal Fact: This bird possesses ‘nasal corns,’ structures covering its nostrils, which are a feature not shared by any other bird. These are believed to prevent particles from entering the nostrils while digging in the soil for its prey.

**Cock of the Rock** - The males of this species display their bright red-orange head and bodies and black wingtips and tail. You might see the female in with this male; look for a brown bird with a similarly rounded head crest, not quite as large as the male. Cool Animal Fact: This pair of rare birds was gifted by the Dallas World Aquarium to honor former CEO of the Houston Zoo Deborah Cannon for her years of dedicated service.

## Animal Collection for 2017 Camps

**Waldrapp ibis** – Also called the northern bald ibis, these pretty birds are critically endangered. Ancient Egyptians worshipped the ibis. These birds live in social colonies. There are fewer than 250 left in the wild, although there are over 2000 in Zoos around the world.

**Peafowl (We have Javan and Congo)**– Males, or peacocks, have the beautiful tail feathers that are used in courtship displays. Despite the large tail, peacocks can still fly, though not very far, as the tails weigh them down. Females are known as peahens and lack the colorful tail feathers.

**Green Aracari** is one of the smallest species of toucans, and is named for the dark green feathers on its back. Its brilliantly colored beak is typically four inches in length as an adult. The serrated edges of the green aracari's large bill help the bird to grip and gather fruit.

**St. Vincent Amazon** In 1972, the Houston Zoo was the first in the world to hatch this species in captivity. We have 3 pair of them breeding and 2 individuals on exhibit.

## Tropical Bird House

**Luzom bleeding-heart dove** – Like other doves, this species secrete a “milk” from their crop to feed their chicks. Their chicks begin eating solid food after a few days. They are named because the red feathers on their breast resemble a bleeding wound. They are found on the Island of Luzon in the Philippines. They are monogamous and pair together for life. They play a crucial role in their native environment, spreading seeds and keeping their islands from eroding.

**Micronesian kingfisher** – This bird is extinct in the wild. In 1984, 29 birds were removed from the island of Guam and placed in zoos around the world. Houston Zoo has raised 30 birds. They were decimated by invasive/imported brown tree snakes.

**Tawny Frogmouth** – These birds are perfectly camouflaged during the day, hiding in plain sight by looking like a part of a tree. They have huge, frog-like mouths to catch insects. While they look a little like owls, they are not at all related to owls. Their closest relative is the nightjar.

**Marianas fruit dove** – These animals are critically endangered due to introduced brown tree snakes on the Mariana Islands. Our staff have traveled to the Mariana Islands in the Pacific for years, surveying, collecting, and transporting these birds to safe islands not inhabited by the invasive snake.

**Sunbittern** – While they look like a grebe, they cannot swim or dive well, so they live along the shore of streams, hunting by thrusting their neck and spear-like beak in the water. They are not flock birds and live solitary most of the year, unless raising a chick. Their feathers form a large eye shape when they spread their wings, which they do to fend off predators.

**Golden-headed quetzal** – This bird is the national symbol of Guatemala. They were worshipped by ancient Aztecs and Mayans as a god.

**White-bellied go away bird** – These birds don't fly very well. They climb trees and vines like squirrels. Males and females look identical except their bill. The male's is black and females is green. They are named for their song, which sounds like “go-wayeer”

**African pigmy falcon** – These small raptors are found on southern and eastern Africa. They will take over empty nests left by weavers in their range and raise their young in them.

## Bird Gardens

**Blue-throated macaw** - We are the only Zoo that parent-raises these critically endangered birds! There is a fledged chick in the exhibit with its parents.

**Bald Ibis** – These birds are listed as vulnerable. They are omnivores.

**Rhinoceros Hornbill and Indian Great Hornbill** – The casque on their beak acts as a resonating chamber, amplifying their calls. When nesting, the females will seal herself in a cavity in a tree and leave only a small opening through which her mate will bring her food. This keeps her and the eggs safe from predators. Both of these species of hornbill are found in SE Asia and are some of the largest species of hornbill, but not the largest. Hornbills are also found in Africa.

**Hamerkop** – These African birds are found throughout sub-Saharan Africa. They are not endangered. We have a male and female. They are known as lightening birds in the Kalahari because they believe they will be struck by lightning for disturbing their nest. They build huge nests, some of them can even withstand a human's weight. We have a male.

**Cape Thickknee** – These nocturnal birds are native to sub-Saharan Africa. When a predator threatens their nest, the adults will perform an elaborate injury display to draw the predator away from the nest and their chicks.

**Maleo** – These birds are very endangered with fewer than 15,000 total birds left. After females lay eggs, they bury them and then abandon them. The chicks hatch and immediately have to fend for themselves. The baby birds can immediately fly after hatching. We currently have 2 females and are looking for a male.