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City of Austin Nature and Science Internship

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COLLEGE OF THE ENVIRONMENT

WESTERN WASHINGTON UNIVERSITY

MAKE WAVES.

Internship Title: Wildlife Husbandry and Public Education: My Work as a Wildlife Keeper for the City of Austin's Nature & Science Center

Student Name: Finnick Hampton

Internship Dates: June 2021 – September 2021

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DATE: 06/08/2022

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Introduction

Nestled between the western edge of Zilker Park and the beginning of Zilker Nature Preserve, sits the Austin Nature & Science Center (ANSC) where I worked as a Wildlife Keeper from the months of June to September 2021. Since the 1960s, the Nature Center has provided nature education through hands-on activities, exhibits and programs. Their goal has been to foster curiosity and appreciation for the natural world, especially the native flora and fauna that live in our very own backyards.

The site accomplishes this by focusing on engagement. Guests are encouraged to touch, examine, and interact with various natural objects, such as fossils, animal bones, plants, and insects, in the Naturalist Workshop beside the front desk. As they move throughout the site, they encounter a human sundial, where they can use their body to work with the sun to determine the time, the Dino pit – where they can practice excavating the bones of dinosaurs that roamed Texas long ago – the on-site pond, public art, and various wildlife exhibits.

I initially applied to work as a camp counselor for the Nature Center's summer programming, it wasn't exactly what I wanted to do, but it was closely related enough and I thought perhaps I might like working with kids and teaching them about nature, so I applied anyway. I never heard back though, and I moved onto other prospects. I even went down to Austin for some other interviews. Then, the day I came back from Austin, I got an email. Alison Cook, Wildlife Exhibit Coordinator, to Finnick Hampton: would you like to work in the wildlife area? The answer, of course, was yes.

The first thing Alison warned me about, was that the site was dated. While the Nature Center complies with federal and state regulations for all 100+ animals on site, it is not accredited with the Association of Zoos and Aquariums (AZA), which holds higher standards of care. The outdoor enclosures at the Center are all constructed of chainlink walls and concrete floors, with perching and shelter added after the fact. In many places, fencing has had to be reinforced with additional layers of wire to prevent animals from getting out, and others from getting in. The biggest change to these enclosures, since the site opened, is the addition of gravel stones overtop of the concrete, which serves a few functions. The stones are easier to clean then concrete, they make the enclosure more appealing to look at, and the stones disperses the force of impact should one of the animals fall.

The second thing Alison warned me about was that animal care wasn't easy. It wasn't going to be coddling animals all day, my primary duties were going to be manual labor. A typical day started at 7am and ran for approximately 10 hours, in which the first few were spent just on cleaning enclosures. This would mean bending, lifting, twisting, squatting, and the various other sometimes strenuous movements that came with it.

I had heard all these warnings before. I was coming to this job with almost 5 years of professional experience in animal care already, primarily with domestic animals, the bulk of which were dogs and cats. In that time I had become well attuned to the more difficult aspects of working with animals, the frequently dated or rundown facilities, the physical demands, and the inherent emotional toll of being a caretaker. My former job had been as a kennel technician for the Williamson County local government in Tennessee, where I learned firsthand not just the difficulties of working with animals, but also where I learned just how arduous the political and bureaucratic processes associated with government work could be.

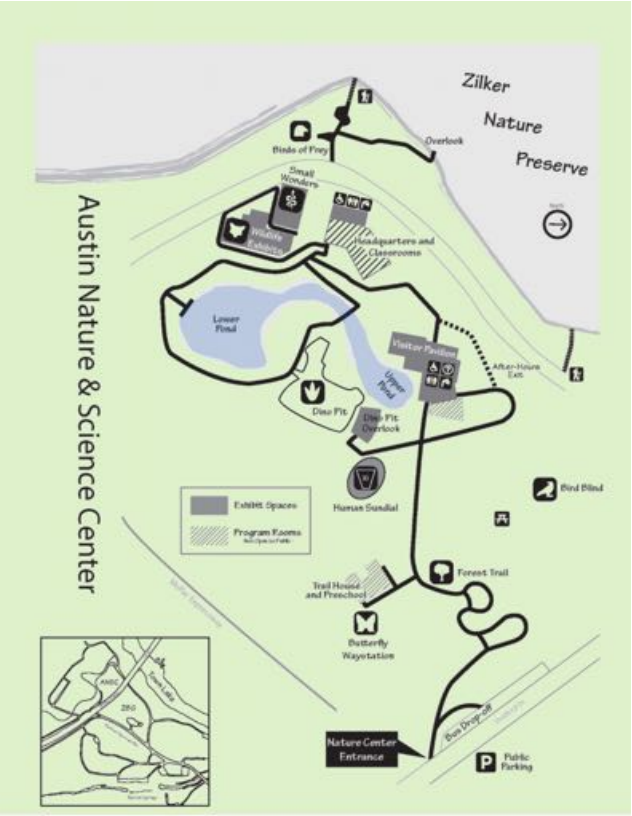


Figure 1: Map of Austin Nature and Science Center. Image provided by austintexas.gov

Despite the hazards, I fell in love with the work I was doing as a kennel technician. The opportunity to expand on that as a wildlife keeper was too good to pass up. I, like many, grew up watching Steve Irwin on Animal Planet, and daydreamed often about being a zookeeper. Not ever, did I think I would actually get to do so, let alone be *sought out* to become one. When Alison officially offered me the job, my path was set. This was *exactly* what I wanted to spend my summer doing.

Scope of Work

My drive up to the Nature Center for my first day, after a month long process of interviews, paperwork, and fingerprinting to get cleared to work under the State of Texas, I was filled with excitement and a lot of nerves. Despite my experience and my studies in environmental science, I still rolled into work that day feeling a little bit like an imposter. It all felt a little bit like a well orchestrated lie, at any minute the rug would be pulled out from under me; the dream would end. That wasn't the case though, as Alison quickly helped me find my footing.

That first day I received the full site tour, starting with what I think of as the Wildlife Area, where the animals are kept. In the Wildlife Area there are two buildings, each

attached to an exhibit space, of which there are three in total. The first is the Wildlife Exhibit Building (referred to as WEB), which houses program animals, a small prep kitchen, a laundry room, and the attached Animal Aisle outdoor exhibit space. The second is the Living Systems Building, which houses the Small Wonders exhibit space (which is why staff refers to the building as SW in shorthand) and the Wildlife Staff office. The third exhibit space is the Birds of Prey (referred to as BOP) which contains a trail that passes by eight outdoor enclosures and leads out to the preserve trails when the gates are open.

In WEB, I was first introduced to the various animals kept for educational programming. Many of these animals are domestic or exotic pet species due to the nature of their role at the Nature and Science Center. These animals need to be open to being handled on a regular basis, as these animals often accompany educators to classrooms both onsite or around town during normal operations. This room is home to three species of mammals, several arthropods, eight reptiles, and three birds (for a complete list of animals see Appendix A). I was then given a short tour of the Aisle Exhibit animals, which houses a raven, two ducks, a pigeon, an elderly Red-Tailed Hawk, an elderly Harris's Hawk, and a bobcat.

I was then introduced to the animals on and off exhibit in Small Wonders. In the coming weeks, the animals housed here would move into WEB while the building's exhibit space underwent some modifications. At the time, the space featured a mural displaying Texas ecology, from the desert and hill country to the suburban backyard. Cut into this mural were several windows into different enclosures with varying scenes, each populated with a different native organism. Here, one could get a prolonged look at the elusive animals in their backyards, not the least of which were the Texas Brown Tarantula, the Texas Spiny Lizard, the Western Hognose Snake, and the Eastern Tiger Salamander. To the side of these little vistas was a large cage, which housed a Blue Jay and a flightless Great-Tailed Grackle. Behind the scenes, the animals' enclosures were held up by worn metal shelves and illuminated by lights that were held up by chains and hooks so they were just out of site. Backstage is also where the off-exhibit animals were housed, including several fruit-bats, a pair of Northern Cardinals, a Great Roadrunner, and a colony of cockroaches and crickets kept for the purpose of feeding the other animals.

Lastly, before touring the parts of the site that were outside of my purview, I was shown the animals on exhibit in the Birds of Prey. The title of this exhibit space, however, is somewhat misleading as not all of the bird species housed here can be described as such. On exhibit here, there are two barn owls, two great horn owls, a barred owl, two red-tailed hawks, two Swainson's hawks, a black vulture, and a turkey vulture. The biggest point of contention here, is how "bird of prey" is defined by scientific literature, and whether or not to include vultures in that definition (see McClure et al. 2019).

I should also take a minute here to note that wild animals at the Austin Nature and Science Center are non-releasable for one reason or another. The primary reason animals end up as residents is due to injury or medical issues that prevent them from being able to succeed in the wild on their own. Many of the birds at the Nature Center have wing injuries or sight loss that prevent them from flying long distances or navigating terrain safely, this makes them vulnerable to predation and impacts their ability to obtain sustenance. Another major reason an animal might become non-releasable is due to behavior, or in many cases, the lack of correct species-typical behavior.

At the nature center, three exhibit animals are imprinted: the bobcat, raven, and bluejay. This means that they do not properly identify with their own species, and instead have learned a reliance on humans in a way their completely wild counterparts do not. Contrary to popular belief, imprinting an animal does not make them tame or domestic, nor does it make them easier to handle. Instead, it often eradicates the inclination for the animal to be wary of human interaction, which can be dangerous. The inability for the animal to identify as the species it is, prevents the animal from adequately communicating both to wild-types and to humans. This can lead to misplaced aggression, either by the individual towards humans and others of its species or by other animals towards the individual, as the animal continually struggles to express its needs.

Pogo, the Center's raven, is frequently visited by a group of wild ravens whom staff have to drive off. The threat, here, is not just that the wild ravens may physically injure him, but that interaction may cause undue duress as he fails to affectively communicate with his wild counterparts. Unlike pogo, the Bobcat (Moxie) and the Bluejay (Buster) are not routinely visited by wild-types, which is one less thing for keepers to worry about in caring for them.

After touring the site, Alison gave me a rundown of how to clean the outdoor enclosures (for diagrams of some of these enclosures, see Appendix B). For this, Alison remind me that I needed to be alert, ever-aware of where the animals were in their space and how they were reacting to my presence. In time, I would learn how each individual animal typically behaved during the cleaning process, but for now, I just needed to be cautious. For the most part, all of the cages in BOP could be cleaned from inside the enclosure, almost all of which had their own spigot and hose to make the job easier. Only two of the enclosures had to be cleaned from the outside: Jester's and Regal's, two Red-Tailed Hawks whose behaviors warranted added caution.

Otherwise, the procedure was rather simple, I would enter the vestibule, secure the exterior door behind me, note where the animal was, enter the enclosure, secure the interior door, and then begin the cleaning process. For this, I would need to wear disposable gloves and pick up any feathers or food remnants – bones, half-eaten or untouched rodent carcasses, or owl pellets – which I would then dispose of in a trash bag

that I had to carry with me. Once large items were clear, I would then dump out the large black water tubs and spray down all the surfaces, making sure to rinse away any excrement or food remnants that were too small to pick up. Then, I could fill the water bucket and exit the exhibit. Every two weeks I would also need to spray everything inside the cage with a disinfectant solution, which needed to sit for 5-10 minutes and then be rinsed. For my first day, however, Alison only had me work on one exhibit, and thus began my education into the care of wild birds.

On my second day, I was introduced to the care and handling of the Program and SW animals. Many of these organisms would have inhabited drastically different microclimates and utilized varying feeding strategies in the wild, caring for them meant attempting to meet those needs as best as possible. At the start of each day, each reptile's heat lamp had to be switched on. By mid-morning or early afternoon, the reptiles, amphibians, and arthropods had to be misted. These animals were fed on a rotating basis, typically a salad or a few vitamin-covered roaches two or three times a week, or in the case of the snakes, 2-3 mice every Friday. The mammals and birds, however, were fed daily, and typically needed a substrate change every few days. For all the animals, water was changed daily or as needed. The rotating procedures for this room, would take me a few weeks to get used, especially as animals continued to move around throughout the summer while SW was under renovations.

Figure 2: Herbivore diets. On the left, four song-bird dishes with a tray of bat food below them. On the right, two duck meals, dove feed in the small dish, raven feed in the upper right, and on the far right, rabbit food. Not pictured: reptile diets.

Figure 3: Carnivore diets. Pictured left, Aisle animal diets: bobcat, raven, hawks. Pictured right: BOP diets, with Red-Tail Hawk meals separated for easy administration of medications.

Around mid-day Alison showed me how to prepare diets for each of the animals, which was typically done towards the end of the day in preparation for the next day's needs. First, we would prepare the herbivore and omnivore diets (Figure 2), and then prep meals for the carnivores (Figure 3), so as to avoid cross-contamination. Meal plans for the animals

were posted above the kitchen counter and were created in consultation with a veterinarian and known literature on the dietary needs of each species (see Appendix C for an example). To keep the animals from becoming bored, the food provided generally varied day-to-day but still met the same nutritional needs. For most, supplements were added to insure they received enough vitamins and minerals. Once the meals were prepared, they would be sorted into buckets associated and labeled with the name each exhibit space, in compliance with USDA standards for the preparation and handling of food products.

Last, before we could leave for the day, we fed the birds of prey and picked up food dishes. Since the BOP exhibit houses a mix of diurnal and nocturnal animals, we typically fed them as late in the day as possible. In feeding them, generally we went inside the enclosure and placed the food items on stumps or platforms so that the birds, many of whom did not have full range of motion, could safely and reliably access their food. For added enrichment, we would change he location of where we placed the food, to give the animals the opportunity to seek it out on their own. Once all of the birds had been fed, we'd lock the gates and return to WEB to pick up and wash the remaining food dishes. After that, we'd return to the office to make any final notes and head out for the day.

After my training period, my days fell into a fairly steady rhythm. I would generally arrive at the nature center at 7:30am and unlock the street gates. Then I'd park behind the exhibit buildings and head into WEB, first turning on the lights for the program animals and then filling the sanitary foot baths at each entrance. I would then grab supplies to clean BOP and head over to the office to check that I didn't have any important emails or notes waiting for me. Then I'd set about cleaning the BOP exhibit and the enclosures in WEB, and sometimes the Aisle, though the latter was normally done by whomever I was working with that day. The only enclosures I did not clean during my time at ANSC were the bobcat and bat, which I was not allowed to enter due to the fact that I had not been vaccinated for rabies. When cleaning was done, I'd return to the staff office to work on the administrative side of things, such as writing up any significant notes. Any extra time throughout the day was spent reorganizing, restocking, or doing virtual trainings (see Opportunities section). On a typical day, I'd take a late lunch, so that when I returned I primarily just had to prepare diets, feed BOP, and clean any dishes. My days generally ended at 6:30pm, at which point I would drive down and lock the gates at the end of the road before heading home.

Opportunities

Throughout my time at ANSC I was given ample opportunities to extend my knowledge and explore the various sides of working with wildlife and public education. While most of my days were spent on general animal care, Alison made sure that I wasn't

just working as a wildlife keeper, but also extending my knowledge. We frequently spoke at length about her position as Exhibit Coordinator and what that entailed. Some of these discussions included how animals ended up at ANSC, how they were licensed or permitted at the state and federal levels, which grants had to be applied for, and how decisions were made.

Grants, permits, and licenses needed to be filed primarily with three different organizations: The U.S. Department of Agriculture (USDA), U.S. Department of Fish and Wildlife Services (USFWS), and the Texas Parks and Wildlife Department (TPWD). Some of these documents required an inventory of the animals within the collection or on exhibit, depending on which permit was being filed. These documents also typically asked a series of questions as to the status of the animals (live or deceased, such as taxidermy specimens), how they're housed and/or displayed, and their purpose in the collection. As Alison prepared to file these documents, she afforded me the opportunity to look through these documents and the laws associated with them, so that I knew their purpose.

We also went over important day-to-day operation decisions, such as how the budget operated, purchasing decisions, and how she generally determined what supplies needed to be purchased for the animals and from where. As the end of the fiscal year approached towards the end of my time at ANSC, Alison went over the yearly budget with me, and shared how expenditures were reported and filed with the department.

I was also provided with online training courses through the San Diego Zoo Wildlife Alliance Academy (formerly San Diego Zoo Global Academy). A few of the courses I took were on Animal Welfare for professionals, Nutrition, and Exhibit Design. These courses provided me with a more in-depth view of what's important for wild animals kept in captivity, laws associated with their care, and field-specific terminology, much of which I hadn't been exposed to in the coursework for my degree.

Occasionally, I got to interact with the summer camp councilors and the kids attending summer programming. Usually, interactions were limited to when camp councilors came over to WEB to pickup the animal of the day, which wildlife staff had collected into a transport container and signed out for the day prior to them leaving. Other times, we would see each other while I was cleaning the outdoor exhibits, and the kids would stop to ask me questions about the animals. Sometimes they'd ask what I was doing, so I'd explain to them that I was cleaning their enclosure and giving them water to keep them happy and healthy.

Other times, they'd ask what the animal was doing, so I'd try my best to explain the behavior they were exhibiting. For example, one of the great horn owls, Noble, didn't like when I was in the enclosure and would puff out his throat repeatedly in a sign of distress. When the youth asked about this, I'd explain his behavior and tell them that when I'm in with him, I have to be mindful of his behavior and not spend too much time in the

enclosure. These instances gave me the opportunity to share my knowledge with the next generation of curious minds.

Towards the end of the summer, as educators at ANSC prepared for the upcoming school year, I got to visit the Natures Way Preschool (NWPS) at the nature center. The preschool, which serves youth ages 3-5, operates from September to late April and aims to provide children with the opportunity to explore. The goals of the preschool are to reinforce children's natural curiosity, to connect them to the natural world, and encourage skills like making observations and experimenting (for more information, see References). During my visit Alison and I brought over several of the program animals to give oncoming staff experience handling them. Afterwards, I got to tour the facility, which operates out of a historic 1800s stone-built trail house that was donated to the city in 1931. Today the stone walls are decorated with animal diagrams and artwork of former students. Spending time at NWPS was a great way to see how the animals in the collection served the community in classrooms year-round.

One of my favorite opportunities, however, was going to ANSC's sister site, the Sheffield Education Center and the Splash! exhibit space there, which is located at the iconic Barton Springs Pool. The exhibit highlights the importance of water conservation and water quality within the Edwards Aquifer. The space is designed to look and feel like an underground cave, with walls carved and painted to look like limestone and several aquatic tanks filled with the flora and fauna of the watershed built into the walls. Other features included interactive displays that let guests explore how aquifers work and the processes by which contaminants enter the water supply. Some of these operated on current data manually entered into the operating system by the site's Exhibit Coordinator, Micheal Adair, who is also responsible for curating and maintaining the exhibit.

My favorite aspect of the exhibit was learning about the endangered aquatic salamanders that exist only in the city of Austin, two of which – the Austin Blind Salamander (*Eurycea waterlooensis*) and the Barton Springs Salamander (*Eurycea sosorum*) – reside in Barton Springs. During normal operations, a couple of these salamanders would be on exhibit, but during the COVID-19 pandemic the salamanders were returned to the research facility located on the ANSC property, where scientists continue to study the species and breed captive populations, should something happen to the wild population. Because I showed so much interest in the conservation project, Alison and Micheal tried to facilitate a visit to the research facility, but unfortunately it wasn't possible during my time there.

Reflection

My time at the Austin Nature and Science Center had profound impacts on me. Over the course of my internship I had the opportunity to develop professional goals and expand on the knowledge I'd been receiving in my courses through the College of the Environment at Western Washington University. My internship reaffirmed for my my interest in wildlife and studying animal behavior, and taught me the value of those studies. It is also through this internship that I learned proper wildlife handling and the importance of the animals in the collection for public education.

Working with ANSC also showed me just how important it was to me that the public be given affordable access to programs such as those provided by the nature center. While major zoos typically charge a fee, entrance to the Austin Nature and Science Center is free to the public, which makes learning about the natural world more accessible. I realized while working there that this is something I'm passionate about, and think more organizations should take into consideration. It is a value I plan to take with me as I move forward with my career.

Through ANSC I also learned about the extensive laws that surrounding animal collections and exhibitions in the United States and the state of Texas. Through online training programs I expanded on the history of these laws and the Animal Welfare Act, which dictates the rights of numerous animal species. It was also through ANSC that I learned how care procedures are created around each animal's environmental and behavioral needs. The time I spent here helped me build a foundational understanding of best practices in the field that I can utilize in my career. These experiences let me apply the skills I'd been learning through my studies at Western to real scenarios and added to the breadth of knowledge I had built prior. Overall, I absolutely cherish my experience at ANSC and hope I get to go back soon.

Acknowledgments

I'd like to thank Alison Cook for mentoring me throughout my time at ANSC, and whom provided me with as many opportunities as she could to aid me in my understanding and betterment of my career. She has inspired me to continue working in this field and expanding my knowledge. To her I extend much gratitude.

I'd also like to extend thanks to everyone I worked with at ANSC. It truly was a pleasure to work with everyone during my time there. I am incredibly grateful for the time they spent making me feel welcome and sharing their knowledge with me.

An additional thank you to my professors at Western Washington University for allowing me to build the knowledge and skillset required to make this all possible.

References

City of Austin. (2021). *Austin Nature and Science Center*. Austintexas.gov. https://www.austintexas.gov/department/austin-nature-science-center

City of Austin. (2021). *Austin Blind Salamander*. Austintexas.gov.https://www.austintexas.gov/department/austin-blind-salamander

City of Austin. (2021). *Barton Springs Salamander*. Austintexas.gov. https://www.austintexas.gov/department/barton-springs-salamander

City of Austin. (2021). *Beverly S Sheffield Education Center*. Austintexas.gov.https://www.austintexas.gov/page/beverly-s-sheffield-education-center-exhibits

City of Austin. (2021). *Natures Way Preschool*. Austintexas.gov.https://www.austintexas.gov/department/natures-way-preschool

Additional Figures

Figure 4: Aisle exhibit walkway.

Figure 5: Summer staff viewing Moxie the bobcat in her enclosure.

Figure 6: Sandy and Flurry the Barn Owls on perches at the top of their exhibit.

Figure 7: Duchess the Red-Tailed Hawk.

Figure 8: Jester the Red-Tailed Hawk.

Figure 9: Regal the Red-Tailed Hawk.

Figure 10: George the Leopard Gecko hunting a mealworm that escaped his food bowl.

Figure 11: Scooter the Texas Spiny Lizard

Figure 12: Sassy the Box Turtle eating salad.

Figure 13: Simon the Eastern Tiger Salamander

Figure 14: Sunny the Swainson's Hawk being handled to check for injuries.

Figure 15: Amaru the Corn Snake during her monthly weigh-in.

Appendix A: Record of Animals

Below is a listing of all animals present at ANSC at the time of my internship including their name (identifier), species common and scientific names, sex, the exhibit space they were associated with. I've broken the animals up by general groupings.

Mammals

Identifier	Common Name	Scientific Name	Sex	Exhibit
Moxie	Bobcat	*Lynx rufus*	F	Aisle
N/a	Mongolian Gerbil	*Meriones unguiculatus*	F	Programs
N/a	Mongolian Gerbil	*Meriones unguiculatus*	F	Programs
N/a	Mongolian Gerbil	*Meriones unguiculatus*	F	Programs
N/a	Short-Tailed Leaf Nosed Fruit Bat	*Corollia perspicillata*	M	N/a
N/a	Short-Tailed Leaf Nosed Fruit Bat	*Corollia perspicillata*	M	N/a
N/a	Short-Tailed Leaf Nosed Fruit Bat	*Corollia perspicillata*	M	N/a
Fiona	Domestic Ferret	*Mustela furo*	F	Programs
B Rex	Domestic Rabbit	*Oryctolagus cuniculus domesticus*	M	Programs

Birds

Identifier	Common Name	Scientific Name	Sex	Exhibit
Norma	Northern Cardinal	*Cardinals cardinalis*	F	N/a
Red	Northern Cardinal	*Cardinals cardinalis*	F	N/a
Sadie	Great Roadrunner	*Geococcyx californianus*	F	N/a
Hermione	Pigeon	*Columba livia domestica*	F	Aisle
Maude	Mallard Duck	*Anas platyrhyncos*	F	Aisle
Harold	Mallard Duck	*Anas platyrhyncos*	F	Aisle
BW	Harris' Hawk	*Parabuteo unicinctus*	F	Aisle

Identifier	Common Name	Scientific Name	Sex	Exhibit
Pogo	Common Raven	*Corvus corax*	M	Aisle
Dutchess	Red Tailed Hawk	*Buteo jamaicensis*	F	Aisle
Jester	Red Tailed Hawk	*Buteo jamaicensis*	M	BOP
Regal	Red Tailed Hawk	*Buteo jamaicensis*	F	BOP
Benji	Barred Owl	*Strix varia*	M	BOP
Emma	Swainson's Hawk	*Buteo swainsoni*	F	BOP
Sunny	Swainson's Hawk	*Buteo swainsoni*	M	BOP
Chico	Black Vulture	*Coragyps atratus*	M	BOP
Curly	Turkey Vulture	*Cathartes aura*	F	BOP
Noble	Great-Horned Owl	*Bubo virginianus*	M	BOP
Spice	Great-Horned Owl	*Bubo virginianus*	F	BOP
Flurry	Barn Owl	*Tyto alba*	M	BOP
Sandy	Barn Owl	*Tyto alba*	F	BOP
Luke	Coturnix Quail	*Corturnix japonica*	M	Programs
Han	Coturnix Quail	*Corturnix japonica*	M	Programs
Suds	Ring-Necked Dove	*Streptopelia capicola*	M	Programs
Choco	Ring-Necked Dove	*Streptopelia capicola*	M	Programs
Olive	Eastern Screech Owl	*Megascops asio*	F	Programs
Buster	Blue Jay	*Cyanocitta cristata*	M	SW
Gabby	Great-Tailed Grackle	*Quiscalus mexicanus*	F	SW

Reptiles

Identifier	Common Name	Scientific Name	Sex	Exhibit
Scooter	Texas Spiny Lizard	*Sceloporus olivaceus*	M	SW
HR	Western Hognose Snake	*Heterodon nasicus*	M	SW
Jasper	Corn Snake	*Pantherophis guttatus*	M	SW
Amaru	Corn Snake	*Pantherophis guttatus*	F	SW
Trevor	Ornate Box Turtle	*Terrapene ornata*	M	SW
N/a	Southern Painted Turtle	*Chrysemys picta*	F	SW
N/a	Southern Painted Turtle	*Chrysemys picta*	F	SW
N/a	Quachita Map Turtule	*Graptemys ouachitensis*	F	SW
Draco	Bearded Dragon	*Pogona vitticeps*	M	Programs
George	Common Leopard Gecko	*Eublepharis macularius*	F	Programs
Wilbur	Western Hognose Snake	*Heterodon nasicus*	F	Programs
Maya	Mexican Milksnake	*Lampropeltis triangulum annulata*	F	Programs
C.S.	Ornate Box Turtle	*Terrapene ornata*	F	Programs
Chewy	Three-Toed Box Turtle	*Terrapene carolina triungulis*	F	Programs
Sassy	Three-Toed Box Turtle	*Terrapene carolina triungulis*	F	Programs
Freckles	Three-Toed Box Turtle	*Terrapene carolina triungulis*	F	Programs

Amphibians

Identifier	Common Name	Scientific Name	Sex	Exhibit
Simon	Eastern Tiger Salamander	*Ambystoma tigrinum*	M	SW
N/a	Gulf Coast Toad	*Bufro valliceps*	F	SW
N/a	Gulf Coast Toad	*Bufro valliceps*	M	SW
N/a	Gulf Coast Toad	*Bufro valliceps*	M	SW
N/a	Gulf Coast Toad	*Bufro valliceps*	F	Programs

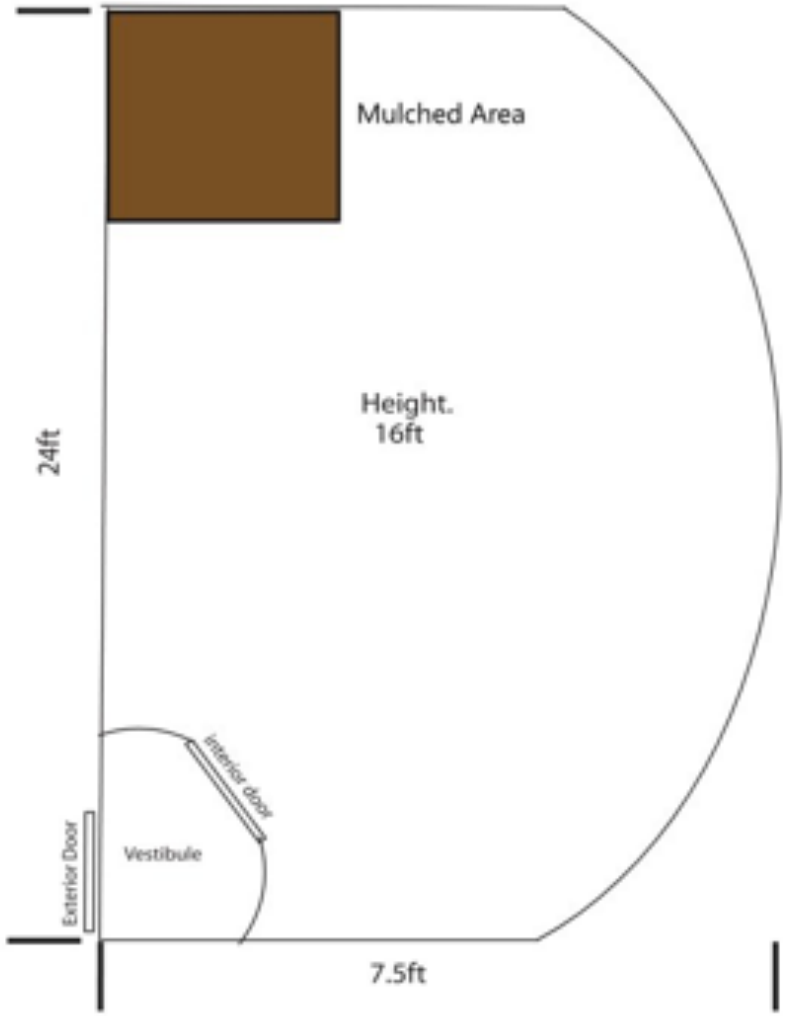
Arthropods

Identifier	Common Name	Scientific Name	Sex	Exhibit
N/a	Madagascan Hissing Cockroachs	*Gromphadorhina portentosa*	Multiple inviduals	Programs
N/a	Meal Worms	*Tenebrio molitor*	Multiple inviduals	Programs
N/a	Texas Brown Tarantula	*Aphonopelma hentzi*	F	Programs
N/a	Texas Brown Tarantula	*Aphonopelma hentzi*	M	SW
N/a	Viatnamese Centipiede	*Scolopendra gigantea*	Unknown	Programs

Appendix B: Outdoor Enclosure Diagrams

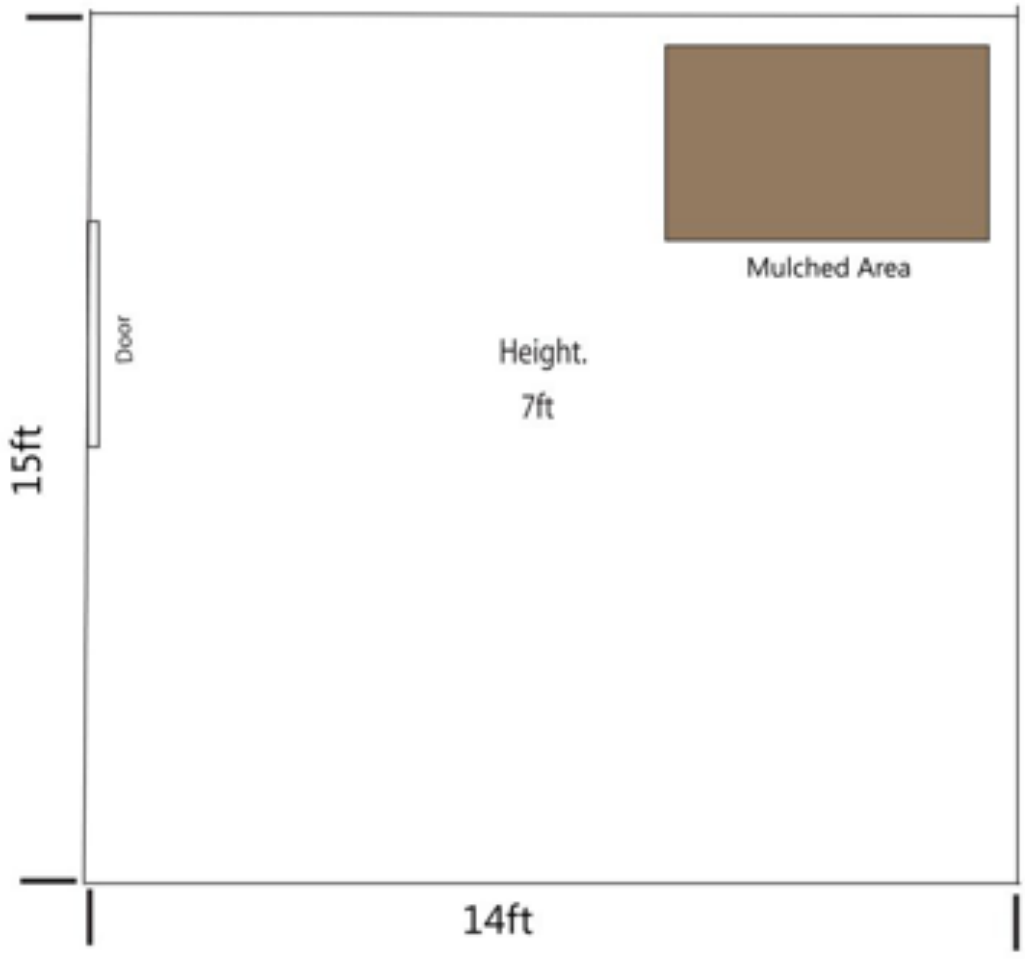
General Layout of BOP Enclosures

Enclosures for the BOP Exhibits were generally 24ft wide, 7.5ft long, and 16ft high. On one side of the enclosure was a vestibule with an interior and exterior door to ensure the animals remained contained when keepers entered and exited. The perimeter of the enclosures were constructed of chain-link and the framing was supported by metal pipes. The frontmost portion of the enclosure was curved, and the top was domed. For most enclosures, a spigot was present along the back fence. The foundation of the enclosure was poured concrete with several drains throughout. In most enclosures, a mulched area was present. All enclosures included perches, typically constructed of logs, branches, and stumps that were positioned to appear like trees in the enclosure and allow the animals to access various heights within the space. In front of the enclosures were wooden railings to provided additional distance between the animals and the public for saftey. The diagram below is provided by the Austin Nature and Science Center.



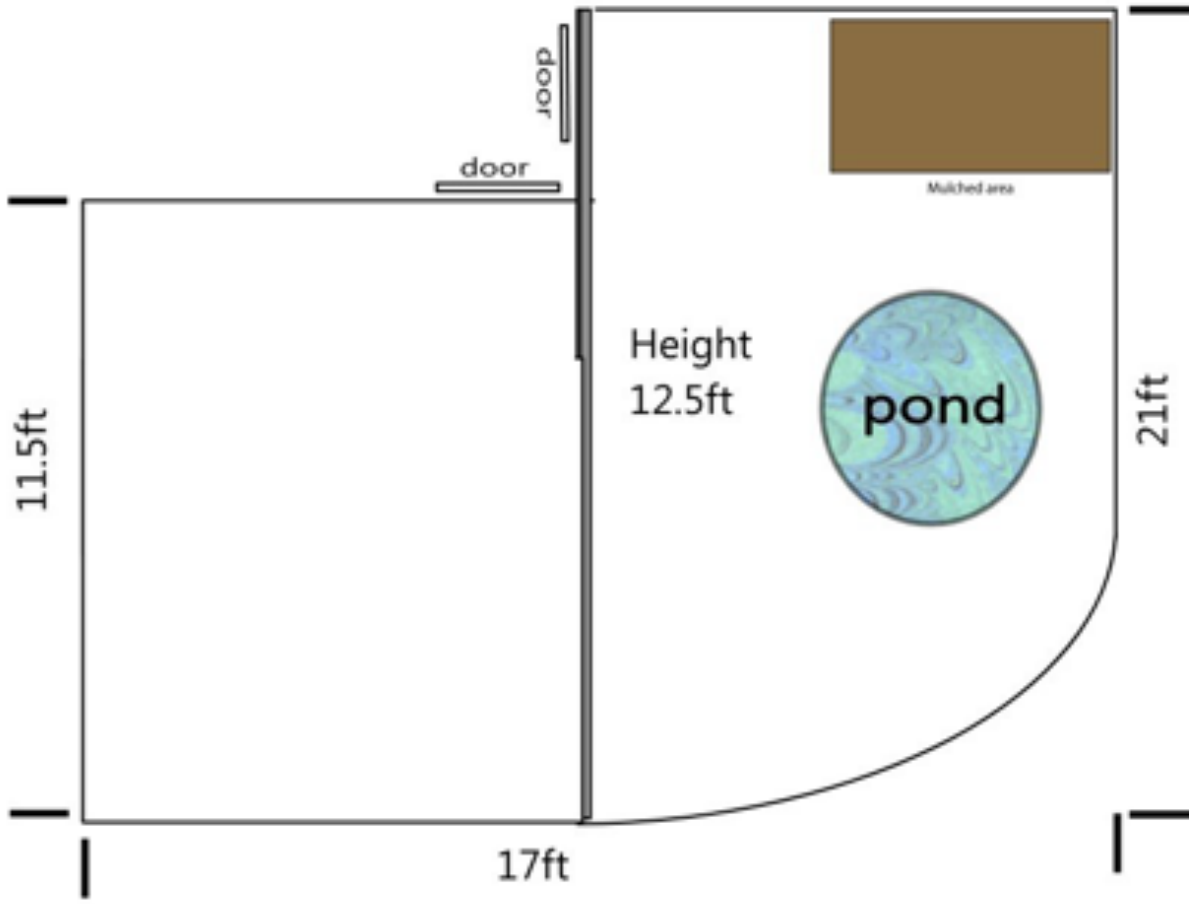
General Layout of Aisle Enclosures

Aisle exhibits were generally 14' x 15' x 7' in dimension. These exhibits were accessed through the WEB building's rear door which exited to a covered outdoor area behind the exhibit space, which was approximately 5ft wide and 50ft long. Like the BOP exhibits, the foundation of the enclosure was poured concrete with built-in drainage and a pebble substrate. In most enclosures a mulch area and a pool (built-in or a plastic one added later) were present. As with the BOP enclosures, perches were added. Most of these exhibits were also covered in ivy that had encroached from the surrounding wetland, providing additional coverage to the animals. Exhibits were viewed from a deck several feet from the front of the enclosure. The diagram below is provided by the Austin Nature and Science Center.



Layout of Bobcat and Raven Exhibit

The Bobcat and Raven enclosures exist at opposite ends of the Aisle exhibit space. The general layout is approximately the same for each enclosure. These spaces are comprised of two enclosures that have now been combined to provide the animals with more room. The two halves of the enclosure are still partially separated by a 4' wall between the two, but the animals can freely traverse over it via perches and platforms. The same general features are present as with the others aisle exhibits: concrete floors, pebble substrate, perching, and mulched areas. The diagram below is provided by the Austin Nature and Science Center.



Appendix C: Example Meal Plan

Species	SUN	MON	TUE	WED	THURS	FRI	SAT
EASO	1 mouse	1 mouse	1 mouse	1 mouse	1 mouse	1 mouse	1 mouse
RNOW	6 mice	2 rats	6 mice	2 rats	6 mice	2 rats	6 mice
BDOW	2 chicks	3 fuzzy rats	2 mice, 1 chick	1 rat	2 mice, 1 chick	3 fuzzy rats	2 chicks
GHOW	2 rats	2 rats	2 rats	2 rats	2 rats	2 rats	2 rats
RTHA	3 mice	1 rat	3 mice	1 rat	3 mice	1 rat	3 mice
HSHA	1 rat, 1 mouse	3 mice	1 rat + 1 mouse	1 rat + 1 mouse	1 rat + 1 mouse	3 mice	1 rat + 1 mouse
SWHA	2 rats	6 mice	2 rats	6 mice	2 rats	2 rats	6 mice
TUVU	1 rat	1 rat	1 rat	1 leg quarter	1 rat	1 rat	1 rat
BLVU	1 rat	1 rat	1 rat	1 leg quarter	1 rat	1 rat	1 rat
CORA	1/2 cup softbill feed, 1 mouse, 1/4 cup mixed veggies, 2 berries	1/2 cup softbill feed, 1 chick, 1/4 cup mixed veggies, 2 berries	1/2 cup softbill feed, 1 mouse, 1/4 cup mixed veggies, 2 berries	1/2 cup softbill feed, 1 chick, 1/4 cup mixed veggies, 2 berries	1/2 cup softbill feed, 1 mouse, 1/4 cup mixed veggies, 2 berries	1/2 cup softbill feed, 1 chick, 1/4 cup mixed veggies, 2 berries	1/2 cup softbill feed, 1 mouse, 1/4 cup mixed veggies, 2 berries
GRTA & BLJA	2 tbsp of fruit/veggies, 3 tbsp of softbill/seed mix	2 tbsp of fruit/veggies, 3 tbsp of softbill/seed mix	2 tbsp of fruit/veggies, 3 tbsp of softbill/seed mix	2 tbsp of fruit/veggies, 3 tbsp of softbill/seed mix	2 tbsp of fruit/veggies, 3 tbsp of softbill/seed mix	2 tbsp of fruit/veggies, 3 tbsp of softbill/seed mix	2 tbsp of fruit/veggies, 3 tbsp of softbill/seed mix
NOCA	1 tbsp fruit/veggies, 1 tbsp softbill/seed	1 tbsp fruit/veggies, 1 tbsp softbill/seed	1 tbsp fruit/veggies, 1 tbsp softbill/seed	1 tbsp fruit/veggies, 1 tbsp softbill/seed	1 tbsp fruit/veggies, 1 tbsp softbill/seed	1 tbsp fruit/veggies, 1 tbsp softbill/seed	1 tbsp fruit/veggies, 1 tbsp softbill/seed
RABIT	1/4 cup rabbit feed, handful of greens, 1/2 pepper, 1-3 fruit pieces	1/4 cup rabbit feed, handful of greens, 1/2 pepper, 1-3 fruit pieces	1/4 cup rabbit feed, handful of greens, 1/2 pepper, 1-3 fruit pieces	1/4 cup rabbit feed, handful of greens, 1/2 pepper, 1-3 fruit pieces	1/4 cup rabbit feed, handful of greens, 1/2 pepper, 1-3 fruit pieces	1/4 cup rabbit feed, handful of greens, 1/2 pepper, 1-3 fruit pieces	1/4 cup rabbit feed, handful of greens, 1/2 pepper, 1-3 fruit pieces
MALLARD DUCK	1/4 dry food, small amount of lettuce, 1-2 pieces of fruit	1/4 dry food, small amount of lettuce, 1-2 pieces of fruit	1/4 dry food, small amount of lettuce, 1-2 pieces of fruit	1/4 dry food, small amount of lettuce, 1-2 pieces of fruit	1/4 dry food, small amount of lettuce, 1-2 pieces of fruit	1/4 dry food, small amount of lettuce, 1-2 pieces of fruit	1/4 dry food, small amount of lettuce, 1-2 pieces of fruit
BOBCAT	1/4 cup feline kibble, 6 chicken necks, 4 chicks	1/2 cup feline kibble, 4 chicken necks, 4 chicks	1/4 cup feline kibble, 6 chicken necks, 4 chicks	1/2 cup feline kibble, 4 chicken necks, 4 chicks	1/4 cup feline kibble, 6 chicken necks, 4 chicks	1/2 cup feline kibble, 4 chicken necks, 4 chicks	1/4 cup feline kibble, 6 chicken necks, 4 chicks
BATS	5 fruit chunks + gel	5 fruit chunks + gel	5 fruit chunks + gel	5 fruit chunks + gel	5 fruit chunks + gel	5 fruit chunks + gel	5 fruit chunks + gel
BOX TURTLES		1/4 cup salad, mealworms or roaches		1/4 cup salad, mealworms or roaches		1/4 cup salad, mealworms or roaches	
BEARDED DRAGON		1/4 cup salad, mealworms or roaches		1/4 cup salad, mealworms or roaches		1/4 cup salad, mealworms or roaches	
SNAKES						2-3 mice	

Add supplements to all diets EXCEPT rabbit and bats

Substitutes if needed:
1 chick = 1 mouse = 1 fuzzy rat

2 chicks = 2 mice = 2 fuzzy rats = 1 rat

Terms and Acronyms

Animal Welfare Act: 1966 Federal law that regulates the treatment of animals in research and exhibition within the United States

ANSC: Austin Nature and Science Center

Aisle: Outdoor exhibit space attached to the Wildlife Exhibit (WEB) building

BOP: Birds of Prey; exhibit space

BDOW: Barred Owl

BLJA: Blue Jay

BLVU: Black Vulture

BNOW: Barn Owl

CORA: Common Raven

EASO: Eastern Screech Owl

GHOW: Great Horned Owl

GRTA: Great Tailed Grackle

HSHA: Harris' Hawk

Imprinting: a rapid learning response that bonds animals to their parents or caretakers.

NOCA: Northern Cardinal

NWPS: Nature's Way Preschool

RTHA: Red-Tailed Hawk

SW: Small Wonders; exhibit space

SWHA: Swainson's Hawk

Species Typical Behavior: behaviors or characteristics that are normal or expected and shared by members of a species

Splash!: Exhibit space associated with the Barton Springs Pool in Zilker Park

TPWD: Texas Parks and Wildlife Department

TUVU: Turkey Vulture

USDA: United States Department of Agriculture

USFWS: United States Fish and Wildlife Service

WEB: Wildlife Exhibit Building; exhibit space