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The Columbus Zoo and
Aquarium Volunteer
Newsletter

ZooNews





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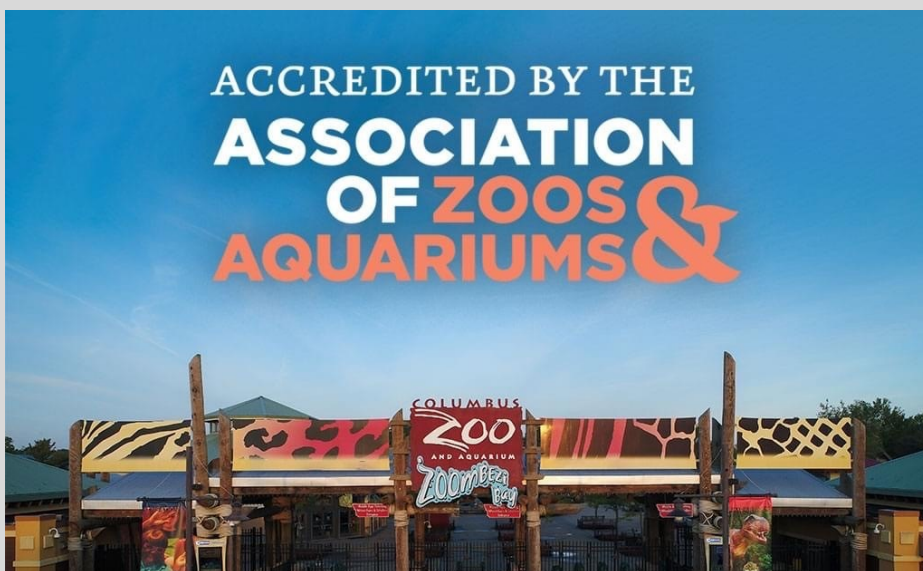
SALLY RUDMANN

The mission of ZooNews is to promote awareness, education, preservation and conservation of our natural world.

To submit an article, please email us at: cbuszoonews@gmail.com

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Zoo Spotlight

Commitment to Conservation Award



The Columbus Zoo and Aquarium has named Greg Lipps of The Ohio State University as recipient of its 2023 Commitment to Conservation Award.

The professional herpetologist is the sixth recipient of the Commitment to Conservation Award which recognizes and rewards global conservation heroes who have made a measurable impact on wildlife conservation, and honors the lifetime achievements and dedication of field partners who have shared a long-term working relationship with the Columbus Zoo.

Established in 2011, this biennial honor includes a \$50,000 grant, funded by Kim and Steve Germain of New Albany, Ohio, to support the recipients' conservation work.

— Columbus Zoo News Release

Above photo of Greg holding a hellbender
Photo: Columbus Zoo News Release



The Legacy of Colo: The Columbus Zoo and Aquarium Gorilla Program

The birth of Colo in 1956 brought the Columbus Zoo to the attention of the world's zoos. She was born when little was known about behaviors of the western lowland gorilla, and her birth made headlines around the world. She was the first gorilla born in human care. According to *Life Magazine's* January 14, 1957 issue "Within the first few weeks of the celebrity's life, officials from ten different zoos visited her. Director of Toledo Zoo, Philip Skeldon, called the birth 'world shaking,' and Robert Bean of the Brookfield Zoo described her as "the most beautiful ugly thing I've ever seen."



Colo 1957—Columbus Zoo photo

In 2027, the Columbus Zoo celebrates its 100th anniversary and will have been involved with the care and health of gorillas for 76 years --- since the first gorillas arrived at the Columbus Zoo in 1951. Colo was born during a time when few zoos housed gorillas. Over her life, attitudes toward zoos changed from considering the zoo a place of entertainment only to a place of education, conservation, outreach and research, with zoos engaging with the public in person, and online through webcams and social media. If you search for "Colo" on the internet, you will find hundreds of articles, photos, and videos of her, with her distinctive brow ridge, throughout her lifetime.

The gorilla breeding program began with Colo's birth, leading to the evolution of one of the most respected gorilla programs in the world. In 1951, young gorillas, Millie Christina (thought to be 2 years old) and Baron Macombo (about 5 years old), arrived at the Columbus Zoo. Mac became quite large and aggressive as he grew older. "The staff were

given strict orders from the zoo's director, Earl Davis, to keep the two gorillas in separate enclosures for fear that they would injure each other, even though the ultimate goal was to breed them."

In her book *Voices from the Ape House*, former keeper Beth Armstrong explained that without the initiative of OSU veterinary student Warren Thomas, "Who routinely opened the doors and allowed...Millie and Mac (Macombo) in together,...allowing them access to one another overnight in spite of the fact that little was known about gorilla behavior in the 1950's," Colo's birth might never have happened. Thomas defied the "clear and unequivocal mandate of then zoo director Earl Davis to not let gorillas Millie and Mac in together." He saw behavior he thought was flirtatious and secretly started allowing the gorillas, now 8 yrs. and 11 yrs. old, to spend the night together, but he separated them in the morning.

Baby Colo was born on December 22, 1956. Warren Thomas discovered the 3-pound baby girl nearly dead, still in the amniotic sac at the feet of her mother. Thomas hurriedly gave the baby mouth-to-mouth resuscitation and the baby survived. Colo's life became a great experiment. Keepers soon realized that her mother had no parenting skills and that they would have to fill in for her. With no protocol for caring for baby gorillas, her caretakers treated her as a human baby.

Colo's caretakers were learning from her as they went along. Gradually gorilla care evolved from a time when a gorilla baby was pulled from its mother to be cared for by humans, never learning mothering skills, to gorillas' fostering babies. Observations and a lot of thought went into the foster care program with many changes over the years, according to Congo Curator Audra Meinelt, "The program is always evolving. An important change is that instead of all babies needing foster care coming to the Zoo, the gorilla team has traveled to other zoos to

help them when infants cannot be reared by their mothers (at least initially) and they work to see if they can be introduced to their natal group." 16 gorillas have been in the Columbus Zoo Foster Care program, 7 from other zoos.

Much of what we know today about gorillas in professional care can be credited to Colo. The dedication and creativity of gorilla caretakers Adele Absi (Dodge), Beth Armstrong, Diana Frisch, and Charlene Jendry, who used unconventional husbandry methods, helped to make the Columbus Zoo's husbandry program

a success. In the mid 1980's, these ladies' concluded that early socialization of gorilla infants "was in the best interest of the next generation of gorillas....Thus began the commitment of our staff to create an age-diversified group through the use of alternative means beginning with surrogates." Credit must also be given to Jack Hanna, who supported the ideas and suggestions of these ladies. His help and support for the ideas

and suggestions of the Zoo's gorilla caretakers changed the trajectory of animal care at the Columbus Zoo. And committed caretakers who followed have expanded the Columbus Zoo's understanding of gorilla behavior and improved the standard of care at all zoos.

Several other events added luster to the gorilla program as it is today.

In 1983, the birth of twin gorillas, Mac and Mosuba, the first gorilla twins born in the western hemisphere, brought the Columbus Zoo gorillas to the attention of the world. It was the beginning of television appearances by Jack that raised awareness of the Columbus Zoo gorilla program, as well as wildlife conservation issues.



*Photo courtesy of Graham S. Jones,
Columbus Zoo and Aquarium*

A visit to Columbus of gorilla researcher, Dian Fossey--a visit that inspired keeper Charlene Jendry, who had cared for gorillas in the zoo setting, but had never seen them in the wild, to visit Karisoke Research Center, established by primatologist Fossey inside Volcanoes National Park in 1992. Charlene's visit inspired the idea for the creation of Partners in Conservation, the Columbus Zoo's well-respected gorilla conservation organization.

While the name of the program has changed from Gorilla Surrogacy to Foster Care, the idea is the same. According to Audra Meinelt, the name change was adopted by the Ape Taxon Advisory Group prior to COVID. "The terminology changed to reflect what we actually do as the gorillas adopt the new offspring and become foster mothers. Surrogate mothers would imply that they carried the baby and birthed it."

When she died, Colo was the oldest gorilla on record and exceeded a female gorilla's MLE by more than two decades. At the time of her death, Colo was the matriarch of a huge gorilla family, having lived to see the birth of 3 children, 16 grandchildren, 12 great-grandchildren and 3 great-great-grandchildren. Her descendants now live all over the country, many of whom have inherited her signature protruding eyebrows. All her life she was an ambassador for gorillas and inspired people to learn more about how critically endangered the species is and to motivate them to protect gorillas in their native ranges.



Even after her death, Colo contributed to gorilla research. Samples of her heart tissue were sent to the [Great Ape Heart Project](#), a nonprofit research group based at Zoo Atlanta. Its goal is to reduce the number of gorillas in professional care who die from heart disease and also improve their overall health and welfare.

Colo's spirit lives on!

— Sheila Campbell

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The Elephant Crisis at Home

The Asian elephant is critically endangered in its home range. The same could almost be said for these animals living in North American zoos. The number of zoos housing them is dwindling, the death rate exceeds the birth rate by a large margin and the number of reproductively-viable females is too low to maintain a self-sustaining population.

Demographics of the Asian Elephant in the United States and Canada:

	Number of Animals
AZA and ZAA institutions in the United States and Canada	299
Zoos housing Asian elephants *	28
Total animals, 39.94	133
Zoos with males and females	14
Average births per year since 2001	1.9
Average deaths per year since 2001	4.0
Deaths attributed to EEHV	25
Reproductively-viable females recommended for breeding	20
Males old enough for breeding	21



* Facilities open to the public. The Asian Elephant SSP includes some additional, privately-owned animals.

The Population Dilemma – Older Animals, Not Enough Babies

- 🐘 Forty-four elephant calves have been born since 2001, but 96 elephants have died during this same period.
- 🐘 The small number of females in the breeding population, the long birth interval, and the disparity between the number of breeding-age males and females at the same zoo have resulted in fewer elephants in zoos today than any time in the last 50 years.
- 🐘 Typical breeding age for females is from the early teens to the mid-forties. However, if a female does not have her first calf by the time she is in her early twenties, she will not be placed in a breeding situation. There can be significant health concerns for first-time moms after this age.
- 🐘 Elephant Endotheliotropic Herpes Virus (EEHV) is primarily a disease of young Asian elephants. Twenty-four of the 25 Asian elephant deaths from this disease have been animals aged 13 and under, negatively affecting the next generation of potential breeders.
- 🐘 Artificial insemination offers *some* hope for some zoos without compatible males and females, but is not a panacea. The procedure is expensive, time consuming, relatively new and less successful than natural breeding.

Continued on page 7

 Elephants are slow to reproduce. Females are in estrous only three to four times a year. They have the longest gestation of any mammal species and a long, usually five-to-seven-year, birth interval between calves. Calves do not become part of a breeding program until they are teenagers, at best.

Increasing the population is a monumental task.

A Zoo without Elephants?

If you love elephants, you are fortunate to live in Ohio. Four zoos house elephants; two have the African species and two have the Asian. There are 17 individuals, a calf is expected at Toledo next year and Cincinnati is in the middle of a major habitat expansion and will increase its herd when completed. This is not typical. Twenty-six zoos, housing both African and Asian elephants, have closed their exhibits since the early 1990's. Three more

have announced they intend to close. Aging facilities, new regulations about square footage and herd size and the lack of animals to fill space are the main reasons. Some of the zoos are prominent institutions in large metropolitan areas. They include Seattle, Philadelphia, Detroit, Chicago, San Francisco and Toronto.

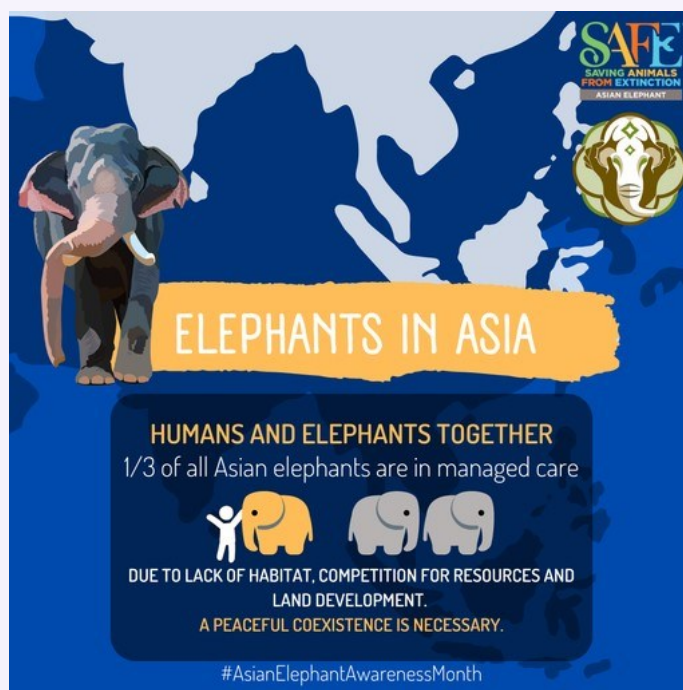
The African species in zoos is also not self-sustaining. However, there are more animals in more zoos and more young females. This species has not been as severely affected by EEHV as the Asian species has and artificial insemination has been more successful.

Sources: Adam Felts, Animal Care staff; Accredited Facilities, retrieved 6/15/23 from <http://Zaa.org>; Accredited and Certified Facilities, retrieved 6/15/23 from <http://AZA.org>; Various zoo web sites.

— Nancy Mulholand

Visit the Elephants

Personal experiences with animals often have a profound effect on people's lives. Zoos help people learn first-hand how majestic elephants are and how threatened they are in the wild. If people learn to appreciate and care for elephants through their zoo experience, they will care more about elephant conservation. With fewer elephants available for people to see in person, our role in educating the public becomes more important.





Miniature Donkeys (*Equus asinus*) – New Residents in Heart of Africa

Origin: Miniature donkeys are believed to have descended from wild donkeys in Mediterranean areas of **Northern Africa**. More recently, sub-species were found in Sicily and Sardinia off the coast of Italy. Species differences between the Sicilian and Sardinian sub-species are no longer clear, and they are now considered to be one breed, *Miniature Mediterranean Donkeys*. In the U.S. they are simply referred to as *Miniature Donkeys*.

Reproduction: Males are referred to as “jacks”, females as “jennets”, and babies as “foals”. The jennets are generally not bred until they are 3 years of age. They give birth to a single foal, which averages from 20 – 30 lbs. at birth. Foals nurse approximately 30 minutes after birth and are weaned at approximately 6 months of age.

General Information: Miniature donkeys are generally hardy and healthy and require little in the way of medical care with the exception of preventive vaccinations, worming, and hoof care. They are “herd animals” and best kept with at least one other miniature donkey in order to avoid loneliness and stress.

GENERAL FACTS:

- **MLE:** 25 – 35+ years
- **Average weight:** 200 – 350 lbs.
- **Average Height:** 32 – 34 inches (maximum 36 inches)
- **Colors:** Variable (black, white paint and shades of brown). The most common color is solid grey (also called dun grey)

They are intelligent, affectionate, docile animals making them popular in the U.S. as companion animals for humans or for other livestock. They often seek attention from humans using gentle nudges.

Heritage Breeds: Miniature donkeys are considered to be a “heritage breed” meaning that they were carefully bred over time to meet the needs of local farming practices and cultural conditions that differ from modern agriculture. Due to the changes in agricultural practices many heritage breeds are in danger of extinction. Because they were bred and selected over time, many of these breeds are hardy and disease-resistant and are well-suited for small, grass-based farms.



Cocoa (left) and Melon (right). Photo courtesy of Alyssa Baxter, Heart of Africa animal care staff.

Population: The Livestock Conservancy has moved miniature donkeys from the “recovering” status to the “watch” status due to declining populations. Although a few small donkeys continue to be used as pack and cart animals, they are nearly extinct in their native areas. It is estimated that the global population is less than 10,000 with fewer than 2500 registrations in the U.S. IUCN has not evaluated the conservation status of miniature donkeys and they are listed as Data Deficient (DD).

Diet: Donkeys are entirely herbivorous. In the wild they feed mostly on grass. Given that they can break down nearly inedible vegetation and extract water from it, they are well adapted for a very dry natural range. At Columbus Zoo and Aquarium, the main component of their diet is timothy hay, which is higher in fiber and lower in caloric content than other types of hay. Feedings are spread out across the day, which is beneficial for their digestive system.

Feral Donkeys: If left, feral miniature donkeys will populate desert regions. In the U.S. feral miniature donkeys can be found in the back country of Death Valley National Park, CA, where they are considered to be an “invasive species”. Their population in the park is growing at an estimated 20% per year. Donkeys can eat up to 6000 pounds of foliage per year and often over-browse areas, especially near water sources; thus, they compete with native species for the limited resources. In Death Valley, they have the greatest impact on native Bighorn Sheep.

Miniature Donkeys at CZA: Two miniature donkeys can be found in the **Heart of Africa** region. Both donkeys are females (Melon 5/23/15 and Cocoa 11/1/22). Cocoa is a small chocolate brown donkey and Melon is more reddish-brown and has white on her face and throughout her coat.

According to Alyssa Baxter, a member of the HOA animal care staff, Cocoa has a “big attitude in a tiny body” while Melon is more “laid back.” Both are affectionate and like to be petted.

Training consists of hoof trims, blood draws and scale-training.

Enrichment is varied and includes extracts and spices that they can sniff and taste. They have “toys” such as jolly balls, boomer balls and nose-its. They are also provided with different substrates to roll around on.

— Sally Rudmann

Donkey Talking Points:

- In order to be classified as a *Miniature Donkey*, they must not be more than 36 inches tall from the highest point on the withers to the ground.
- Miniature donkeys can be used for many jobs in agriculture such as plowing. They can also pull carts and be ridden.
- The terms “Burro” and “Miniature Donkey” are used interchangeably in the U.S.
- Our girls LOVE snacks: apples and carrots are among their favorites.

Continued on page 10

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10th August
World Lion
Day

“Our Pride Has Changed a Lot in the Last Few Years” Understanding the Zoo’s Lions

If you’ve attended a lion keeper talk anytime in the last two years you probably heard comments like “Our job is to adjust to them, not them to us” and “Our pride has changed a lot in the last few years” from the Animal Care staff. A look at the history of the Zoo’s lion pride since the opening of Heart of Africa 10 years ago resembles a reality television show: stable family; kids arrive, grow and challenge their parents; patriarch dies; family hierarchy changes; new member arrives to the dislike of some but not all etc.

Family dynamics are a central theme of our message to guests and to the lion management program. Knowing our individual lions will help you understand the behavior we see. Lions are most social cat species, but prides are not static, turnover and change happen frequently.

Photo of Roary courtesy of Cindy Wesney

The changes we have seen recently in the Zoo’s small pride mimic to some extent those that happen to wild prides with one exception, our initial group was more stable for a longer period of time than most in the wild. Tomo, Asali and Kazi arrived in Columbus in 1996 and 1997 respectively. All were young at the time of their arrival, Kazi only nine months old. Asali and Kazi were tightly bonded half-sisters that had been raised together. The three formed a small, cohesive pride, raised three litters of cubs and lived together in Asia Quest and then Heart of Africa for over 11 years. This is an extremely long time.

Prides are fission-fusion societies, members come and go and are rarely all together at the same time. Pride takeover happens frequently, the dominant male is usually in control for only about 2 ½ years.

By the time Tomo passed away in 2019 the pride contained four females, sisters Imara and Nyasi born at

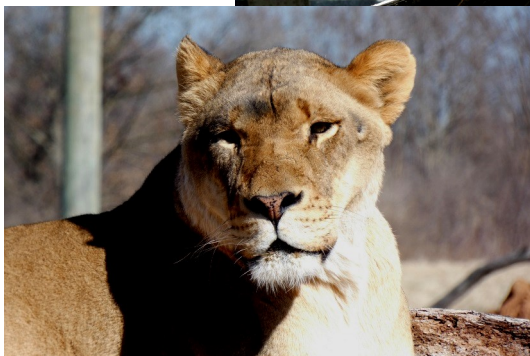
the Zoo in 2015 stayed here to live with their mother and aunt while litter mates moved to other zoos. This is when the social dynamics began to change, without a male Asali became the most dominant of the group. The Covid pandemic delayed the arrival of a new male somewhat and by the time Roary arrived in 2020 and introductions began the girls had been alone for almost a year and a half. Although they were 14 and 13 at the time, neither Asali or Kazi had never been through a pride takeover before. Asali, in particular, wasn't impressed with this new guy that moved in. Unlike a strong, virile male that would take over and protect a group of females, Roary was socially awkward, somewhat submissive, did not understand the girls and was unsure how to act around four strong women.



Introductions and efforts to integrate them all together took over a year. During this time Roary started slowly maturing, there was less tension among the group and he was eventually accepted by three of the females. However, the frosty relationship with Asali never improved. Animal Care staff split the pride into various groupings that maintained the cohesion among all the individuals, but Roary and Asali were never together. Asali was not slated to breed again, there was no reason to force them into a situation uncomfortable for both animals.



When Kazi passed away in 2022 the Animal Care staff had to once again rearrange the social groupings. Imara had now become the most dominant of the females and Asali, now almost 18 years old, played the part of a contented retiree. It was important that all the lions continue their social interactions, but with one less animal the size and arrangement of the groups changed once again. There are 11 different combinations of which lions(s) you might see in the habitat at any particular time, individuals are rotated several times every day.

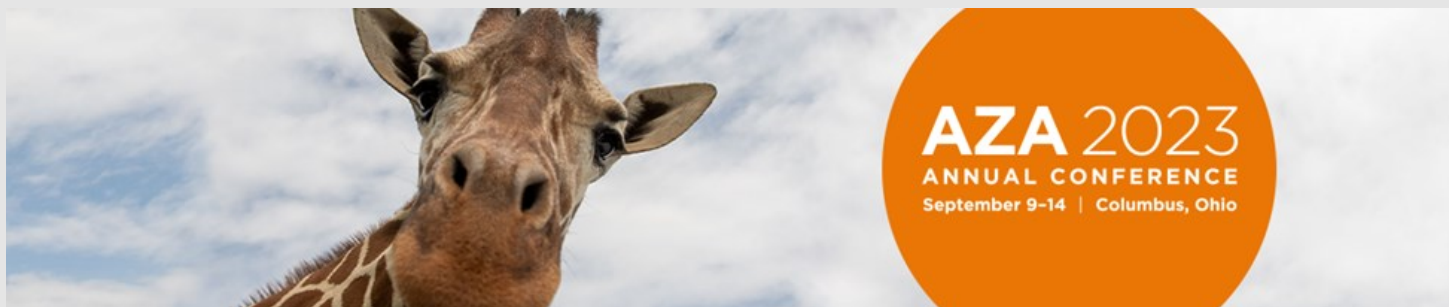


Photos courtesy of Nancy Mulholand

Sources: Animal Care staff in Heart of Africa; Heather Sinn, former keeper, Columbus Zoo and Aquarium; Majestic Creatures of the Wild by John Seidensticker, Rodale Press, 1991



—Nancy Mulholand



Where to Find Animal Information on Zoo Web Pages

Blog

What to Feed a Hyena **Blog** June 12, 2023

Snakes-Neck Turtle Nutrition **Blog** May 8, 2023

Axolotls **Blog** April 10, 2023

That's Not My Relative **Blog**

Vol. 1 Sept. 22, 2022

Vol. 2 Nov. 22, 2022

Vol. 3 Jan. 27, 2023

Great Ape Heart Project **Blog** April 4, 2023

Training Tales: Scale Training **Blog** May 18, 2023

A Gorilla Birth Brings Two Surprises for the Columbus Zoo **Blog** July 20, 2023

Beastly Banner

<https://www.columbuszoo.org/beastly-banner>

North America Aviary— Breakfast with the Birds



What do birds eat in their natural habitat?

In the wild, birds go about their natural modes of foraging choosing from a variety of food sources available to them in their habitat. Birds have evolved a tremendous number of physical adaptations and foraging methods. In general, they find food by sight, smell, taste, touch, and hearing. Birds' primary food-handling device is their bill and the size, shape and strength of the bill will determine what they are able to eat. Birds also rely on their tongues to help manipulate food, and, as with bills, tongues have evolved into several specialized forms. Foraging styles also vary with species, some birds catch insects in flight, some lure their prey while others scratch the ground.

What do birds eat in the North America Aviary?

Although the birds can forage for insects in the aviary, they do not have access to all the food sources that they would have in their natural habitat. Animal care staff in the North America Aviary are faced with many challenges when they prepare and distribute food for the resident birds. Many of the birds in the aviary have sustained injuries and have different levels of flight capability. Since they do not have access to their natural habitat, most of the dietary requirements of each resident species must be made available by the staff. Food must be presented in such a way that it can be accessed by the birds despite any physical limitations they may have. Birds have very high metabolisms and may lose as much as 10% of their body weight each night resulting in a high food demand for the aviary birds. As an example, it is estimated that an American Robin can eat up to 14 feet of earthworms in one day. So much for the statement "eating like a bird."

In addition to their routine diet, the animal care staff provide various nutritional enrichment items daily. The focus of enrichment is to provide items that stimulate natural behaviors, provide variety, and offer cognitive and physical challenges.

The "bird buffet"



The solution is a "bird buffet." Feeding consists of multiple types of food accommodating varying beak/tongue types, species preferences, and basic nutritional needs. Seeds are provided for those hard-beaked birds who can crack seeds such as the Rose-breasted Grosbeaks. Worm-eaters, such as the American Robin, are provided with live worms, fruit-eaters are given various fresh fruits, and soft-billed birds are given softer food products. The vitamin/mineral needs of the birds are considered and supplements are provided. Particularly important is calcium, necessary for the development of eggshells.

During daily food preparation, a bowl is layered with a variety of foods as illustrated below.



Sequential layers of carrots and greens (left) with added raisins, peas and corn (right)

Additional layers include apples, pears, grapes, and oranges. The items are mixed in a bucket and distributed into shallow feeding dishes. The dishes are topped with a final layer of chopped, softened *Mazuri Softbill Diet**, chopped hard-boiled eggs (with shells), banana, and a mixture of seeds (finch, sunflower, and wild bird). Bowls are topped with hot pepper flakes to deter other critters from eating the food. Vitamins and mineral supplements are added on a predetermined schedule.



Bowls at aviary



Super worms**

Once the prepared feeding bowls arrive at the aviary (above), live worms, such as meal worms and super worms are distributed in small bowls. Water is provided along with the food. Food and water are distributed across the aviary, mainly on the ground inside hollow “logs” to protect them from the elements (below left) or in hanging tray feeders (below right). According to animal care staff member, Josh Keller, it is sometimes difficult for the birds to wait for the dishes to be distributed. The Cedar Waxwings for example love to be the first to reach the food bowls to pick out their favorite food, soaked raisins.



Photos courtesy of Sally Rudmann

Nutritional enrichment:

In addition to their routine diet, the animal care staff provide various nutritional enrichment items daily. The focus of enrichment is to provide items that stimulate natural behaviors, provide variety, and offer cognitive and physical challenges.

Food enrichment items include such things as sweet potatoes, sprouts, melon, tomatoes, suet, and popcorn. Other enrichment items include egg cartons, toys, piles of mulch, antlers, music, and mirrors.

One intriguing concept in nutritional enrichment is “contra-freeloading.” Interestingly, when animals are presented with food that is easy to access or food sources that require work, animals almost exclusively choose the food that requires work. This defies the concept of “path of least resistance.” There are several theories that attempt to explain this behavior, most of which center around the fact that working for food more closely reflects natural species-specific feeding behaviors and encourages more extended foraging. Contra-freeloading items include fruit hanging in trees, bugs in a mulch pile, a cricket feeder, produce on skewers, bugs in Kongs, or a birdseed bell. These items require a bit more effort on the part of the birds and extend foraging.

Take home thoughts:

So, it becomes apparent that providing for birds in professional care is much more complex than it might appear on the surface. Providing clean water and necessary nutrients along with stimulating natural behaviors are all considered when determining the bird menu. Enrichment is an important element of daily bird care and feeding.

Visitors to the North America Aviary generally come to locate and identify resident birds but may overlook the very interesting process of feeding and enrichment. Pointing this out to our visitors may result in added interest in the birds and their unique needs and behaviors.

Talking Points:

- Seed diets lack several essential nutrients including vitamins A and D, calcium and several trace minerals.
- If calcium is not provided in an avian diet, birds may develop disorders of bone development; females may have egg or reproductive abnormalities such as soft-shelled eggs
- Birds have dry mouths because they produce very little saliva. Powdered dietary supplements are generally moistened to allow for ingestion.

* *Mazuri Softbill Diet* is a commercially available product formulated for iron-sensitive birds.

** Superworms (*Zophobas morio*) – Larval form of a species of darkling beetle. They are also known as king worms or morio worms.

— Sally Rudmann

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On the Path to Becoming Carbon Neutral



Recently, the Zoo has welcomed to the team Kristeena Blaser, Director of Sustainability. This newly-created position, with Kristeena's insight and leadership, will help to spotlight the commitment of Zoo staff as they focus on the goal of carbon neutrality by 2040.

Of note: SSA, the Zoo's retail and food service partner, is incorporating sustainability into all retail locations. Watch for toys without plastic bubbles and T-shirts made from recycled plastic or organic cotton. Fair Trade, Certified Organic, and Cradle to Cradle will also be priorities when sourcing items.

By the numbers: Currently, 75% of Zoo waste is recycled or composted. The goal is to have a 90% diversion rate, which would make the Zoo a zero-waste facility. Progress towards that goal will be tracked annually.

Zoom in: Catered events at the Zoo during the AZA conference will be zero waste. Capital project contractors, such as those who will be working on North America, will be given expectations of sustainability.

Please:

- ✓ Bring your compostable kitchen scraps to the barrels at the west end of the parking lot behind the business office. Only have a few scraps? There is a container outside of the education building.
- ✓ Put the WAZA Palm Oil Scan app on your phone. It's a great new way to find products made with sustainable palm oil. Compare items - from make up to salad dressing - as you shop - easy! Just type "WAZA palm oil" in your app's search engine.
- ✓ Go to [columbuszoo.org/sustainability](https://www.columbuszoo.org/sustainability) (<https://www.columbuszoo.org/sustainability>) and link to the EveryDayActions page at the bottom. One suggestion is an easy way to choose the sunscreen ingredient that will not affect corals.



— Sue Allen

Thanks to: Kristeena Blaser, Director of Sustainability, for her help with this article

*Peter Boyd, Resident Fellow at the Center for Business and the Environment and Mentor-in-Residence at the Tsai Center for Innovative Thinking, states that **carbon neutrality** is not about "achieving absolute zero" but instead "reducing our human-caused emissions to the level where the natural world has an ability to absorb it so we can observe a planet in an equilibrium."*

[Yale Experts Explain Carbon Neutrality | Yale Sustainability](#)



The Wilds Restoration and More



In the April issue of this newsletter, we discussed the effects of animals, especially keystone species, on ecosystems. In the past the land that is now The Wilds

was drastically changed by humans through strip mining. Humans have now become a keystone species of sorts, working to bring the land back to a healthier state. Habitat restoration at The Wilds has been an ongoing process for decades with amazing positive results. Recently I met with Genelle Uhrig, Director of Ecology at the Wilds, to learn of recent accomplishments and future goals.

Restoration projects include all of the following: Wetlands, Streams, Prairie, Forest understory, and Reforestation. Removal of invasive plants is key to all these projects. The most problematic plant is the autumn olive. These were planted during the original reclamation efforts of the coal mine land. At the time they seemed like a good option – they grow and spread rapidly and have berries that wildlife enjoy eating. However, little was known about the problems of nonnative invasive species.

Removing autumn olive is an ongoing project. The plants are spread everywhere when birds eat the berries and then spread the seeds. Removal of young plants that have not yet produced berries slows the spread. We drove along a forest edge where the plants had been removed, opening up the understory for the growth of native plants. Further along we saw how the invasive plants totally choke out the understory. Some of the cut plants are used for brush piles to create habitat for resident wildlife.

The Wilds property was naturally forested land before farms and then the coal mine caused deforestation throughout the area. Nearly 10,000 native tree seedlings have been planted since 2014 to return parts of the property back to its natural state.

One of the first prairie restoration projects was the Butterfly Habitat, located across the road from the main entrance.



Ten acres were planted with a high concentration of flowers to provide pollen and nectar for pollinators such as butterflies and bees. Approximately 525 additional acres have been converted from low-diversity grasslands into prairie. I also spotted some areas that currently look like the areas around the Zoo that will become pollinator havens. Controlled burns and mowing help prevent unwanted species from popping up. Prairie grasses are important in breaking up the compacted soil from the mining days and by providing vital habitat for many wildlife species.

Wetlands and streams have been and still are being restored by both humans and wildlife. One wetland area next to the Butterfly Habitat contains a beaver lodge and dam that has expanded what was once a very small stream and wetland into a thriving ecosystem. The 16-acre Miller Valley Wetland was restored after having been choked down to a stream. This wetland supports a variety of vegetation, waterfowl and aquatic wildlife. Presently wetland areas are being cleared of invasive species such as cattail to increase native vegetation.

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Since 2014 about 20,000 linear feet of stream and 100 acres of riparian buffer along Miller Creek have been restored. These are monitored annually to determine the effects of restoration activity on stream health.

Nesting boxes and platforms for tree swallows, bluebirds, purple martins, kestrels, and osprey have been placed throughout the area. Two retired ODNR biologists, who happen to be brothers, volunteer their time to monitor 10 barn owl boxes and band owlets and adults. Many volunteers are involved in the restoration work going on.

The Wilds works with various agencies and organizations to complete restoration projects and to conduct research on the effects of the projects. These include the Natural Resource Conservation Service, ODNR, the Arthur L. and Elaine V. Johnson Foundation, JFNew, Cardno, and the Columbus Zoo, to name just a few.

And More

Genelle also took me behind the scenes of two projects that are very important to her and to conservation. We first stopped by a small building that houses the American Burying Beetle project. One close up look at these charismatic, colorful insects and I was instantly one of their biggest fans. Their antennae topped by little orange balls are extremely cute. I also learned something new about their lifestyle. They do not just drop a dead rat or bird into the hole for their larvae to feed on. They remove all the hair or feathers and then turn the carcass into a meatball.



American Burying Beetle



Tagged Beetle



Release parents on a rat

Our next stop was at the building full of hellbenders. The Wilds' project is with West Virginia hellbenders, adding to conservation efforts with the Zoo's Ohio project. The room was full of hellbenders of all sizes being raised until they are large enough for release. I even was introduced to the breeding pair, Mittens, who came part way out to see me, and Bryan, who chose to remain hidden.



My thanks go out to Genelle for taking the time in her busy day to provide a very comprehensive look at what is happening at the Wilds beyond the fabulous work with so many endangered animals and for her careful editing to ensure the accuracy of this article.

— Karen Linn

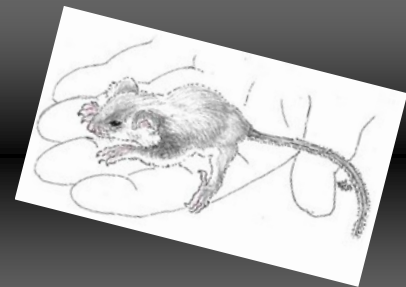
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Genelle Uhrig, Director of Wildlife Ecology



Tiny Flash Dancers



What speedy nocturnal mammal fits into your hand, weighs only five-tenths ounce, climbs smooth surfaces, lives an average of four years in the wild, and glides effortlessly up to 91 feet though 45 feet is average? How many hints did it take for you to guess a feathertail glider from the forests of Australia?

How does it move? This unusual marsupial glides using a membrane connected from its elbow to its knees and its unique tail. The three-inch tail is a half-inch longer than its body and has a fringe of stiff hairs edging it. This structure helps in gliding, steering, braking, and anchoring when landing. The glider has large grooved foot pads and sweat glands, making the feet

moist so the tiny mammal can use surface tension to climb smooth surfaces.

What does it eat? This daredevil hurls itself from a tree up to five times an hour to feed on honeydew, pollen, seeds, and insects or avoid predators like kookaburra, owls, bats, and reptiles. Though a glider usually stays in the treetops, if threatened, it will drop to the ground and freeze.

Does it live with others? A feathertail lives in a communal group of up to 30 individuals. It uses fern and eucalyptus leaves to form a half-inch nest and may nest in abandoned bird nests, palms, and even telephone junction boxes. Communal living helps this tiny animal stay warm, but it will go through torpor to conserve energy. In that state, it becomes unresponsive and drops its body temperature to near that of its surroundings.

What about breeding? Another plus of group living is that females will share caring for young. Breeding season is late winter in the southern area and year-round in the northern area. Not all females in the nest breed at the same time. The joey spends nine weeks in the pouch, and a female may produce three to four young in a litter. She may have several litters in a year.

Information about our gliders was provided by Jessica Linek. Currently, at the Columbus Zoo and Aquarium, we have around 20 adults with several joeys. We



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will not do an official count until the joeys are a little older for their wellbeing. While gliders typically have designated breeding seasons, ours seem to not be following this exactly. They are actively breeding now in early summer. Favorite treats are corn on the cob and branches with flowers. A few of my favorite facts about gliders are that we are one of only four zoos in the U.S. to house feathertail gliders and that they are the smallest marsupial.

— Juliann Breeding

Photos courtesy of Australia & the Islands Animal Care Staff

Sources:

Jessica Linek, Columbus Zoo and Aquarium.

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Wild Encounters Pinnipeds

Did you know that Sea Lions "walk" on land using their large flippers and Seals have small flippers and wriggle on their bellies on land? The way Seals move is called galumphing.



Tide Pool Encounter

Did you know that Sea Urchins lack eyes, but can "see" with their tentacle-like tube feet instead?