

Magazine of the
NC Zoo Society
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ALIVE

Summer
2020



All About the Rhinos

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This ISSUE

Dear Readers,

If you think that your summer issue of *Alive* feels lighter than usual, you are right. This issue is half the standard size—an austerity measure we implemented in response to the devastating income losses COVID-19 inflicted on the Zoo and Zoo Society.

Like you—and families and businesses across America and the world—this pandemic forced us to tighten budgets and refocus our attention on protecting our most precious assets. For the Zoo Society, that meant cutting expenses and strategically realigning our spending to keep the Zoo and the Zoo Society sustainable.

This harsh partitioning of funds will allow us to protect our core values—our commitment to animal welfare and to the health and well-being of the people who make up the Zoo and Zoo Society: our employees, our guests, and our members. Guarding these principles now will fortify us with hope and will ensure that, when this nightmare ends, we can resume our services to you and nature with our integrity intact and our missions clearly defined.

Jayne Owen Parker, Editor



Prehensile lips of black rhino

On the Cover

Black Rhinoceros

Kwazulu Natal, South Africa

Ann and Steve Toon / Alamy Stock Photo

*Please go to nczoo.com to purchase any items listed in the *Alive* magazine or to make a donation to the Zoo Society. If you have questions, or need help, please give us a call at 336-879-7273.*

The North Carolina Zoo is open every day, weather permitting, except on Christmas Day and Thanksgiving Day. Summer admission hours begin April 1 and extend from 9 a.m. until 4 p.m. Winter admission hours begin November 1 and extend from 9 a.m. through 3 p.m.

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If We Could Really Talk to the Animals...

What might we tell the Zoo's infant rhinoceros JoJo about her future and the future of her kind?

*The Zoo's
White Rhinos
JoJo and her
mother*

Jayne Owen Parker, Ph.D., Director of Communications & Education

JoJo's Future Could Hardly Look Brighter

JoJo's herd (or "crash")—a collection of a single bull (her father), four cows (including her mother), and three other youngsters—is secure, well-fed, and free to wander on 40 acres of Piedmont prairie inside the North Carolina Zoo. Her three playmates are also her half-sisters. One, Mguu, is nearly six months old. The other two—Bonnie and Nandi—will turn three in July.

Every member of this congenial unit can expect to live comfortably under the protective umbrella afforded by the North Carolina Zoo or, in the future, by some other AZA-accredited* institution. AZA unfurls its protective shield by binding accredited institutions to a strict set of management and husbandry standards.

AZA awards accreditation only after a team of zoo professionals visits and evaluates all levels of an applying institution's operations. The team swarms in to evaluate holding spaces, habitats, financial statements, management documents, and veterinary facilities. Animal welfare, field conservation, and education programs are scrutinized; and the team interviews staff, observes operations, and pokes through maintenance records and business and fundraising operations to verify that an institution meets or exceeds AZA's professional standards. These standards are rivaled only by those required by the European Association of Zoos and Aquaria. Once AZA bestows accreditation on a zoo, it must undergo the same evaluation process every five years to hold onto its accreditation status.

From JoJo's perspective, this process helps ensure a

future flush with healthy food, exemplary zookeepers, and outstanding veterinary care. And, because JoJo belongs to AZA's Species Survival Plan for White Rhinos, she can also anticipate professional help in securing a very suitable mate when the time is right. AZA professionals oversee thoughtful matches and breeding plans for every individual enrolled in a Species Survival Plan (and for many, or most, other zoo animals as well). Currently, JoJo's program oversees about 264 White Rhinos dispersed among 56 North American facilities. Managers oversee this population with the goal of retaining its genetic diversity and keeping the group sustainable for at least the next 100 years.

JoJo's Relatives Face a Less Certain Future

As a White Rhinoceros, JoJo can take cold comfort from belonging to the least endangered of all five rhinoceros species. The world population of White Rhinos currently numbers about 18,000. All but two of these 18,000 rhinos belong to the same rhinoceros subspecies (think "race") as JoJo: the Southern White Rhinoceros branch of the family tree. The other White Rhino subspecies, the Northern, is all but gone. Its total population consists of two females.

Africa's other rhino species, the Black Rhinoceros, is Critically Endangered. Its total population numbers around 5,500. Unfortunately, though, much of this population is highly fragmented. About half of these rhinos live in small, isolated herds that are scattered across much of sub-Saharan Africa. Rhinos living in these isolated groups have a hard time finding suitable mates and avoiding inbreeding.

* Association of Zoos and Aquariums

Despite these problems, the current population numbers reflect a success story. In the early 1990s, the best estimates available found fewer than 2,000 Black Rhinos. Alarmed by these numbers, several African governments joined forces to implement massive anti-poaching programs to protect these animals. Since these efforts began in 1993, the species has seen a slow, but still positive, rise in its population size.

Three rhinoceros species live in Asia. One, the Sumatran Rhino, has two horns so it strikes a profile similar to Africa's Black and White rhinoceroses (which, confusingly, are neither black nor white, respectively). Sumatran Rhinos are smaller in stature and hairier in pelage than any of the world's other rhinos. As a species, it is Critically Endangered with a world population of fewer than 80 members. The only viable population of Sumatran Rhinos is confined to protected areas inside Indonesia. Rhino Protection Units guard these animals continuously.

Asia's other two rhino species, the Greater One-horned and the Javan rhinoceroses, both have a single horn. The Javan rhino is significantly smaller in stature than the Greater One-horned variety. The Critically Endangered Javan species has a world population of around 72 animals. The entire group lives only in Indonesia's Ujung Kulon National Park, which is strictly guarded by Rhino Protection Units. These units have kept poachers from harming a rhino inside this park for more than 20 years.

About 3,600 Greater One-horned Rhinos make up the species' current wild population. Despite the low number, Greater One-horned Rhinos are no longer classified as Endangered. Rather, international conservation groups have elevated the species into the less troublesome Vulnerable category. This uptick in population and potential is quite remarkable given that, at its lowest point, this population contained a scarce 100 animals. This population owes its growth, and the

species owes its future, to the brave and relentless anti-poaching patrols that protect them in India and Nepal.

Saving Rhinos

Regardless of the population numbers and conservation status currently assigned to any of these species, clearly all of the Earth's rhinoceros species sit perilously close to extinction. Habitat degradation, pollution, and climate change all contribute to the struggles these animals face. But, the impact of these factors is minuscule relative to the devastation inflicted by poaching.

Criminals kill nearly 900 African rhinos every year—a number that would rise exponentially without the enormous protection afforded by rangers, wildlife officials, research scientists, wildlife veterinarians, government agencies, non-profit conservation groups, zoos, and reserves. If you want to see good in the world or bravery in human nature, all you have to do is follow the lives and works of these committed heroes. They are good people, the helpers, who are working to make the world a better place.

The North Carolina Zoo's Contributions to Rhinoceros Conservation

The Zoo's Conservation and Research Staff: The North Carolina Zoo puts boots on the ground and researchers in the field to help wildlife officials protect rhinos from poachers. The Zoo's most extensive rhino protection services take place in northern Namibia, a southwestern Africa nation that harbors nearly half of the world's remaining Black Rhinos. Most of the countries' Black Rhinos congregate in Etosha National Park and Damaraland. These two complex biological communities also sustain populations of Southern White Rhinos, Elephants, Lions, Leopards, and other species targeted by poachers. Consequently, any action that thwarts Black Rhino poachers protects these other species as well.

The Zoo's Namibia work started in 2016 when staff provided SMART** technology and training to local wildlife officials and conservation groups. SMART is the brainchild of a conservation consortium that the Zoo helped form about nine years ago. This system provides foot and vehicle patrols, K9 units, helicopter pilots, and other conservation personnel with a quick, easy, and effective method of recording, statistically analyzing, and sharing the observational data they collect in the field. (As an aside, the consortium has implemented SMART in more than 800 sites that are scattered throughout some 50 nations worldwide.)

In 2017, the Zoo helped launch a





Greater One-horned Rhino

INGRAMS/GES

pilot project—one of the first of its kind in Africa—called “SMART Connect,” that established a secure cloud-based version of SMART at one of Namibia’s ranger bases. Implementing cloud-based storage sealed the incoming data inside an extra layer of protection. It also gave high-level conservation managers quick and easy access to information as it streamed in from ranger patrols. Compiling these data at the speed of light slashed the time managers needed to notice and react to emergencies, generate reports, and send them out to officials connected to the internet. This uptick in productivity was significant enough to prompt Namibia to add SMART Connect to two other patrol stations in mid-2018.

Zookeepers Help Fund Rhino Conservation: Back in 1990, the North Carolina Chapter for the American Association of Zoo Keepers began hosting an annual event, **Bowling for Rhinos**, to raise money for rhinoceros conservation. Other state-based chapters of the American Association of Zoo Keepers hold similar events at locations across North America. Funds raised through these events support the Lewa Wildlife Conservancy, the International Rhino Foundation, and Action for Cheetahs in Kenya.

To date, the North Carolina Chapter has already raised more than \$177,000 through its Bowling for Rhino events. Nationwide, the organization’s bowling events have raised over \$7 million.

Zoos Collaborate to Raise Rhinos Responsibly: During the last three years, the North Carolina Zoo has celebrated the birth of four Southern White Rhinoceroses—all female. AZA professionals thoughtfully designed their arrival to help maintain the genetic diversity and sustainability of the White Rhino population under the care of professionals in North American zoos. And, the births indicate the level of the Zoo’s commitment to follow the guidelines and recommendations

made by the AZA’s Southern White Rhinoceros Species Survival Plan. This plan choreographs White Rhino breeding activities and transfers among zoos to help ensure that the total population remains healthy, genetically diverse, and demographically appropriate.

Other Actions Being Taken to Protect the World’s Rhinos

Worldwide, responsible governments and brave wildlife officials are on the lines every day trying to stop the scourge of poachers hunting down rhinos and thousands of other creatures. And, while these efforts are crucial to rhinoceros recovery, other organizations and people have undertaken activities that contribute to rhinoceros conservation, too.

Assisted Reproduction

Rhinos, like all large mammals, reproduce slowly. A female will usually drop her first calf at age seven or eight. Later, her calves will often occur at two-and-a-half to five year intervals. Within accredited zoological parks, though, staff carefully manages reproduction levels to ensure that every calf will have a safe and healthy place to grow up. This level of management requires zoos to keep the size of their herds below the carrying capacity of their exhibit space. And, it means that managers must plan for every calf’s future. If a youngster needs to disperse from its family when it matures, then managers must reserve a place for it at another AZA approved location.

Additionally, every available rhino needs to have a chance to pass its genes on to the next generation. Because zoo rhinos live in widely separated locations, shipping a male or female to meet a new mate can be wildly—or prohibitively—expensive.

Consequently, researchers hope to develop reliable techniques for artificially inseminating female rhinos. So far,

three rhino births have resulted from these research efforts. Once scientists perfect procedures that reliably end in healthy rhino births, they can manage breeding programs by shipping sperm, not bulls, to various locations.

In addition, researchers hope that perfecting this technique will someday lead to the recovery of the now functionally extinct Northern White Rhinoceros subspecies. The long-term plan is to implant a Northern White Rhino embryo in a Southern White Rhino surrogate.

This recovery may eventually come to pass because a group of European scientists harvested several eggs from the last surviving female Northern White Rhinos. Later, the scientists fertilized the eggs with frozen-thawed sperm from two deceased Northern White Rhino bulls. As luck would have it, two of these eggs matured into early-stage embryos that have been frozen and set aside for use at some later date.

Education and Economic Partnerships

Rhinos bring in tourists. Tourists arrive with money to spend. Ensuring that local people benefit from these economic gains is one of the best ways to consolidate support for rhinoceros and other wildlife conservation efforts.

Whenever possible, the North Carolina Zoo and many other field conservation groups work closely with local communities to include their citizens in planning and monitoring conservation programs and in providing new employment and economic opportunities. Some opportunities evolve as a natural consequence of working in small businesses that cater to tourists. Additionally, though, the Zoo and other conservation groups enhance the capacity of local wildlife



Sumatran Rhino

officials by providing training and equipment that elevates their ability to keep poachers at bay.

You can help, too, by supporting the North Carolina Zoo and other legitimate organizations working to protect rhinoceros species. These programs include units that help families live and farm sustainably and contribute in other ways to conservation programs.

Protecting Orphans

Wild rhino calves usually linger with their mothers for at least three, sometimes four years. The calves gain protection from their mothers' company and use this time to learn many of the life skills they will need to survive when they strike out on their own.

If a mother dies for any reason, the calf she leaves behind has little chance for survival. The calf will usually succumb quickly, falling victim to injuries, predators, dehydration, and other misfortunes. As a consequence, people often set up all manner of orphanages, some good and some not so good, to try to rescue and rehabilitate these youngsters.

Good orphanages ease the suffering of youngsters in their care, and given the extent of rhino poaching in many areas, these institutions make it possible to try to save as many individuals as possible. When an orphan's life is saved and the animal is returned to the wild, that individual has the potential to contribute to its species' survival by contributing to the entire population's genetic diversity. When run well, these organizations also advance human understanding of the nutritional, behavioral, and other needs of developing rhino calves.



Javan Rhinoceros

© Robin Moore/GWC



Javan Rhinoceros photo courtesy of Robin Moore/GWC, Global Wildlife Conservation.

What's Next?

The struggle to save the world's rhinos is far from over. There is still much to be done, but a growing number of individuals and governments have joined together to put a halt to rhino poaching and to do whatever is necessary to keep these species safe and viable well into the future. Working together, we have a chance, even a good chance, to save these species from extinction.

You can help with this process, too, by supporting any of the legitimate conservation groups working to protect rhinoceros species. Your donations help them, and the conservation staff at the North Carolina Zoo, carry out their work.

You can also help by speaking out against poaching and condemning the sale or purchasing of any poached animal parts—both at home and abroad. The only way to truly end poaching is to destroy the markets that sustain the crimes.

Orphan Rescues

South Africa's extensive, stringently guarded national parks and reserves harbor almost 80 percent of the world's rhinos. Kruger National Park, the largest, covers an area of about 77,000 square miles and harbors both Black and White rhinoceros. Its immense size and long porous border with poacher-infested Mozambique makes the park challenging to defend. Poachers invade it often enough to kill more than half of the rhinos that die from poaching, worldwide, annually.

While each of these losses is tragic on its own, these crimes are even more grotesque when poachers kill a mother cow and leave her traumatized, helpless calf to die alone from starvation, dehydration, or predation. The plight of the resulting orphans, often several hundred a year, has caused many rhinoceros orphanages—some good, some not so good—to spring up around the country to rescue, rehabilitate, and release these orphans. This work is noble, but its challenges are unimaginable.

Every calf rescue requires advanced technology and a carefully choreographed team of experts. Highly-trained rangers, veterinarians, law enforcement officers, pilots, community organizers, technicians, wildlife managers, and park officials have to cooperate across vast expanses of space and time to complete a successful rescue. Some of these challenges become evident in the story below. It describes an actual rescue that happened near Kruger National Park.

Saving Rubybelle

This rescue began just after the sun set on a chilly winter's evening in South Africa. It was August 8, 2017, in Sabi Sands, a private reserve next to Kruger National Park. That evening had Sabi



Sands' rangers on high alert—their nerves rattled by a full moon rising in a clear night sky. The light would help poachers make their way during the night.

Sure enough, the sun was barely gone when gunshots cut through the reserve. The sounds sent Warden Dave Powrie and his team dashing onto a Jet Ranger Helicopter™ and streaking toward the noise. Crisscrossing the reserve, they spotted the crime scene—a grassy patch where a traumatized month-old calf belted near its murdered and dehorned mother.

The siting set Warden Powrie's team into motion. Some of the men debarked to charge after the poachers. The others dug out their thermal imaging equipment to use in following the calf. They trailed behind it to frighten away prowling lions and to keep Warden Powrie informed of its location. They let him know it was heading into another private reserve—Manyeleti Park.

Immediately, the warden called Manyeleti's park officials to ask for help in capturing the fleeing calf. Within minutes, park officials had contacted the nonprofit Saving the Rhinos, which quickly dispatched an ace veterinary team to dart and retrieve the calf.

Meanwhile, Warden Powrie alerted Care for Wild Rhino Sanctuary, South Africa's largest rhino orphanage, to ask for help in transporting the rhino to the orphanage and, if all goes well, to care for it until it could return to the wild.

Within minutes, the Wild Rhino Sanctuary's own rescue team clambered aboard a Jet Ranger Helicopter, and the group—composed of veterinary staff and the sanctuary's director Petronel Nieuwoudt—took off for Manyeleti Park. Just before midnight, the two groups converged and loaded the calf into the sanctuary helicopter. Within minutes, the

aircraft set down at the sanctuary, and the calf was recovering in a pre-warmed Intensive Care Unit. For every moment of the trip, trained veterinary staff stayed by its side, monitoring its vital signs and keeping it warm.

By 7 a.m., the calf had acquired a name, "Rubybelle," and she had consumed two liters of milk and electrolytes. Within three days, she was well enough to join a group with two other orphans.

Since then, Rubybelle has prospered. Last October, she and several other sanctuary orphans left the protected bomas near the rehabilitation hospital to enter a safe natural zone nearby. Here, they can roam freely as they take their first steps toward returning to the wild. Security teams bolstered with rhino monitors, canine units, mounted patrols, and armed reaction units guard these protected zones day and night.

Besides caring for some 50 orphans, the sanctuary also protects its human neighbors. Sanctuary staff provides education, training, jobs, and economic opportunities for local people. These programs help establish vibrant, sustainable communities and provide powerful incentives for everyone to protect rhinos and other wildlife, too.



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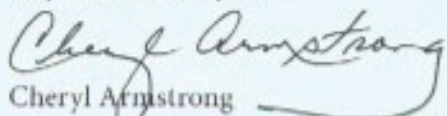
Dear Society Member,

It broke our hearts when the COVID-19 pandemic forced the Zoo to close its doors to the public temporarily. Be assured, though, that while you cannot visit us yet, the park is not empty. Keepers and other staff come in every day to care for the animals and protect the grounds. All of us will continue to carry out our work even while the Zoo must operate without a source of daily income.

We know that this pandemic has hurt everyone. We hope, though, that if you are able, you will consider making a gift—no matter how small—to help the Zoo keep going until this nightmare ends. You can donate by visiting nczoo.com and clicking on the COVID-19 Emergency Fund button.

Your donation will help us keep the animals safe and make sure that we are ready to welcome you—our Zoo family—back as soon as it is safe to see you again. We miss you, and the Zoo's animals miss you, too.

Stay well, and stay safe.


Cheryl Armstrong
Director, North Carolina Zoo Society

