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SAN DIEGO ZOO



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## COVER

The Zoo's giant pandas *Ailuropoda melanoleuca*, Shi Shi and Bai Yun, spent several weeks getting acquainted this spring, as staff members anticipated Bai Yun's estrus and hoped that the pair would mate. Although actual mating did not occur, the staff learned a great deal. San Diego Zoo photo by Ron Gordon Garrison.



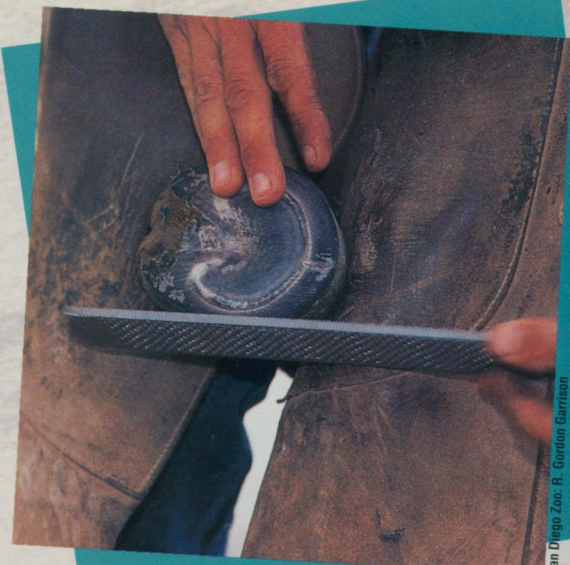


# Fancy F in the Field twork



By  
**Cynthia  
Queen**

Regular hoof trims can be very important for animals at the Zoo and the Wild Animal Park—they can prevent infections, injuries, and other medical problems. At right, a rasp is used to file down a zebra's hoof, and the photo below shows one hoof with work completed and the other without.



San Diego Zoo: R. Gordon Garrison



San Diego Zoo: R. Gordon Garrison

**F**or humans, manicures and pedicures may sometimes be a hygienic necessity but are usually only for the sake of appearance. For hoofed animals, like the hundreds maintained by the Zoological Society of San Diego, foot and nail care is vital to overall health and well-being. Yet despite the obvious differences, there are actually a variety of similarities between the care of the nails of two-legged folks and the hooves of four-legged mammals.

Anyone who has ever had an ingrown toenail knows that such a condition can cause pain when walking and can result

in infection. Hoofed stock with overgrown hooves suffer similar maladies, such as hoof infections, tendon problems caused by a hampered gait, and even damaging changes in posture or stance due to the misshapen foot. Overgrown hooves also become dry and hard, like untended feet, which can cause the animal to trip and fall, possibly resulting in further injury. The care of animal hooves utilizes clippers and files, but they are large and rough—most people wouldn't want them used during a manicure!

Although the rocky substrate covering most of the Wild Animal Park's large



Some of the tools a farrier, or professional hoof trimmer, uses are similar to the ones used for human manicures—but much larger, heavier, and rougher!



San Diego Zoo: R. Gordon Garrison

Because aggressive animals like zebras must be anesthetized for a hoof-trim procedure, the farriers work as a team, each handling two of the hooves. The work must be done quickly, and with their expertise, Dave Heier and Tony Torretto (seen here) can complete the procedure in under 15 minutes.

field enclosures and some of the Zoo's exhibits is similar to that found in many natural habitats, the animals still require additional care to keep their hooves in proper condition. Healthy feet are especially important for elephants, and the Zoo and Park keepers check and clean their feet daily. The elephants have their feet and toenails trimmed and filed about every six weeks. Because the elephant keepers work so closely with the intelligent pachyderms, they ask the elephants to raise their feet, in return for a food reward, and the procedure is done fairly easily.

Most hoofed stock, such as zebras, Przewalski's horses, okapis, and antelopes, have their hooves trimmed about twice a year, and the animals are usually immobilized for this procedure, according to Wild Animal Park animal care manager Rich Massena. But this schedule can vary, and the work is often done opportunistically, when another procedure requires that the animal be restrained for care. Most domestic horses have their hooves trimmed every four to six weeks—which bears a similarity to the typical schedule for human haircuts!

Hoof care is handled by Zoological Society keepers and animal care managers, as well as outside farriers, or professional hoof trimmers. Nola, a 25-year-old northern white rhinoceros at the Wild Animal Park, is perhaps one of the most accommodating subjects. This is a

good thing, because she requires a bit more care than others. Nola suffers from a condition that causes her toenails and her horns to grow excessively. Her horn and her toenails are made of keratin, just like human fingernails, which ordinarily grow slowly. But Nola's grow too quickly. Her top horn grows so much that it has to be trimmed to keep it from growing into her lower horn. Her toenails have the same problem.



San Diego Zoo: R. Gordon Garrison



San Diego Zoo: R. Gordon Garrison





San Diego Zoo: K. Kelley

If you look closely, you can see that a rhino has three toes on each foot, with toenails that need trimming just like any other hoofed animal. Dirt and old tissue are also removed, because they can accumulate between the toes.

After many years of human contact, Nola is approachable and even amicable, if one knows how she likes her massage. About twice a month, keepers in the East Africa exhibit pay her a visit. Park keepers Elliot Handrus and Matt Hohne have worked with Nola, and they know her routine. Mid-morning is usually a good time to find her resting. Approaching slowly, Hohne and Handrus are able to perform their chore with Nola's approval by offering snacks of apples and carrots and by rubbing her rough skin, particularly her hindquarters. Working as a team, the two keepers carefully inspect her large, flat, three-toed feet. Dirt is removed from between her

toes, and her feet are checked for any cracking or injury. Then, using large clippers called hoof nippers, the excessive nail is cut away, and it is filed down with a rasp to a smooth, even finish. When Nola decides to get up, the treatment is finished.

Much of the hoof work done at the Park is performed by local farriers, whose main business is to care for domestic horses. Jim Carr, a well-known and respected farrier since 1973, comes to the Park every other week with his apprentice, Cory Pinkerton. On alternate weeks, Dave Heier, formerly an apprentice of Carr's, makes his rounds at the Park. "This is our hobby, just something for fun," said Carr on one brisk, early morning as he prepared to work on a Hartmann's mountain zebra. The work is tough, and the task is embarked upon carefully.

Unlike Nola the rhino or the cooperative elephants, the aggressive zebra must be immobilized for this procedure. Using a dart gun, a Park veterinarian administers a narcotic drug that will allow 20 minutes to an hour for the team to do their work. With the animal sedated and lying on its side, Carr and Pinkerton spring into action. But it is much different than the horse work they will do later in the day. "That's what is tricky," Carr explained. "Horses will bend their legs. With the zebras, they are lying down, so we have to work sideways."

With leather chaps strapped on, Carr and Pinkerton each bend down, pick up a foot, and begin their work. Using a hoof knife, the outer hoof—the part that looks like a horseshoe—is trimmed. They remove the dead, flaky sole, being careful not to hit the live sole, which could be painful to the animal. Using hoof nippers,

Curby Simerson (far left), animal care manager at the Zoo, is a certified farrier and does most of the Zoo's hoof work. Here, he and veterinary hospital keeper Tom Sica work on the feet of a black rhino named Dillon.





Continued from page 16

the hoof wall is then trimmed so that it is level to the sole of the foot. Then, using a rasp (this rough tool would definitely not be substituted for a nail file!), they file the hoof to a smooth finish, making sure the bottom is flat.

Although zebras are equines, their feet are different than those of domestic horses: they do not possess the frog, a central portion of the foot that acts as a cushion, or shock absorber. In approaching the feet of any of the Society's exotic animals, the farriers apply the same basic rules they use on horses, making adjustments for the differing anatomies. "Generally, we don't do cloven-hoofed animals like okapis, but the basics are still the same—they carry across," Carr says. "Even with rhinos, the three toes are similar to domestic horse hooves."

Curby Simerson, an animal care manager at the Zoo, is also a certified farrier, and he performs many of the hoof trims there, along with veterinary hospital keeper Tom Sica. Simerson says that there are more animals at the Zoo that do not require hoof trims than ones that do, and outside farriers are usually not needed.

Most Zoo animals that require hoof trims have the procedure done one to four times a year, depending on the animal's foot care needs and staff scheduling.

"It's very interesting," Simerson says. "There doesn't seem to be any rhyme or reason to it. We had one group of animals in an exhibit that we never did any hoof trims on. Then we moved them and we had to do them every six months. There are a lot of factors: the size of the enclosure, the substrate, whether the exhibit is on a hill or a flat plain. It's hard to pinpoint the reasons."

Sometimes an animal has something that predisposes it to a continual need for hoof trims, such as an injury. One giraffe was unable to use its foot properly because of an injured ligament, and it needed to have that hoof trimmed more often. Hooves grow continually, but they are usually worn away by walking. According to Simerson, "The hoof is designed to renew itself. If the animal is walking properly and has enough area to walk in, it should wear down the hoof as it regrows." Animals that are injured or those that do not walk on rough ground



Dillon was anesthetized for this procedure, because work would be done to clean out a potential infection—unlike the usual trims for Nola, a northern white rhino at the Park that tolerates hoof trims in exchange for massages and apples. Top: A close look at Dillon's overgrown toenails. Below: Curby Simerson at work, with plenty of shavings and clippings.



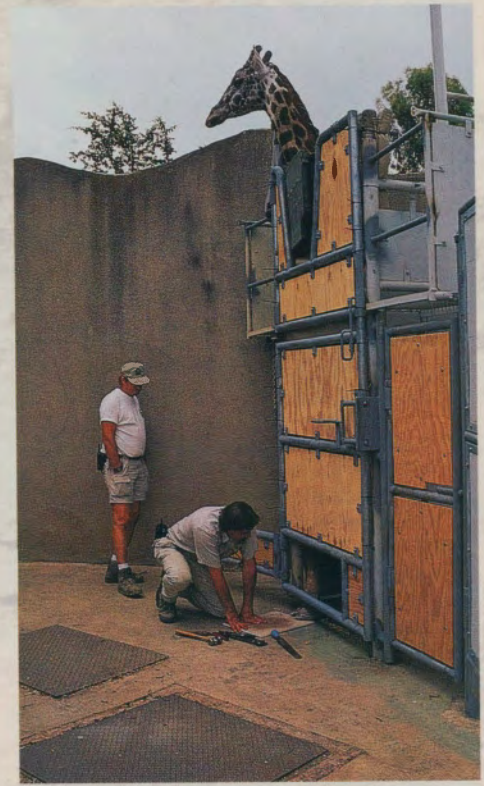
After the procedure was completed, Dillon woke up and was back on his feet, the antibiotic on his newly trimmed toenails looking a bit like fingernail polish.





Overgrown hooves, like these on a giraffe at the Zoo, can make walking difficult and may even cause damage to muscles or tendons because of a hampered gait. Here, Curby Simerson begins to sculpt the hooves back into shape with a hammer and chisel.

A special, padded chute has been built in the giraffe enclosure at the Zoo for work like hoof trims. The giraffes are rewarded for entering the chute and standing quietly, and because they are in a contained space, they do not need anesthesia.




San Diego Zoo: R. Gordon Garrison

tend to need more hoof trims.

The most difficult part about trimming the hooves of animals at the Park and the Zoo is the need to do it right the first time, Simerson said. While trained domestic horses simply stand in a stall and can be worked on repeatedly, most exotic species can have their feet cared for only a few times a year. A farrier hopes to sculpt the foot into its ideal shape for proper balance, and with exotic species there is only a limited amount of time in which to do this.

Giraffes are one exotic species at the Zoo that have their hooves trimmed while standing in a padded containment chute. As the animal stands calmly, the foot can be raised and trimmed. This type of apparatus is being researched

further for other animals, to replace the need for some immobilizations.

With experience comes improved results, and sometimes solutions that can be applied to other animals as well. For instance, now there is new technology to repair hoof horns, the hard, outer surface of the hoof. This is also used on an animal that is a far cry from any type of horse—the tortoise. Hoof horn repair materials are used to fix tortoise shells that become cracked or damaged, often during mating. By the way, tortoises do not need their nails trimmed very often. Not surprisingly, they grow very slowly! 





Curby Simerson sands down the hoof on one of the giraffe's front feet. The chute is comfortable for the giraffes, but it is hard work for the farrier!



A giraffe's hooves are cloven, and they must be shaped so that there is not an excess of hoof growing out on the sides or to the front that might cause the animal to trip or stumble.



San Diego Zoo: K. Kelley