

A Mask Fit for a Princess
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When caring for animals, you often have to think outside the box. With some modifications, some things that work well for domestic animals could also work well for the animals in your care. That's why, in 2017, the Elephant and Rhino team at Utah's Hogle Zoo started a partnership with Horsecare Ireland® to come up with a solution for geriatric Southern white rhino (*Ceratotherium simum simum*), "Princess". "Princess" experiences seasonal allergies, which present as watery and swollen eyes. Flies can cause additional irritation as well as transmit unwanted bacteria, so the animal care staff thought a fly mask, similar to those used on horses, could work well for "Princess". The keepers reached out to a local equine supply company, and they connected us with their partner, Horsecare Ireland®. Measurements were taken of "Princess's" head, and prototype masks were made. For the next eight months, keepers trained "Princess" to station her head in a specific spot to safely enable trainers to put the mask on, desensitize her to the sensation of cloth on her face, and ultimately, where "Princess" would wear the mask comfortably. Training also had to accommodate for her herdmate, "George", working to desensitize him to the presence of the mask as well. Through much trial and error, this has become a very successful preventative for "Princess's" allergies during the summer months over the past five years. Utah's Hogle Zoo continues to have a great partnership with Horsecare Ireland®, who generously created and donated the masks for "Princess" in hopes of sharing and benefiting other species.

"Princess" and her sibling "George" have lived at Utah's Hogle Zoo since the late 1970s. Their current habitat is located in the central part of the Zoo, it is about a quarter of an acre, with dirt covering the entirety of the habitat. A large mud wallow is located within the habitat. The perimeter fence is four heavy duty cables through large bollards, with about 2 feet between each cable. (Photo 1) The rhinos can also be housed within the Elephant Barn, which has four stalls total, with two stalls mainly for rhino use. The front of the stalls have mesh panel doors of differing sizes that can be opened from the outside by Animal Care Staff. (Photo 2) "Princess" and "George" have participated in a training program, as well as a guest encounter program, for many years. They are conditioned to take apples, oranges, and bananas from both keepers and guests, from a feed stick or by hand. These can take place either in the barn or outside by their habitat.



Photo 1



Photo 2

During the summer of 2016, keepers noticed that “Princess’s” eyes were watery, swollen, and sometimes would bleed, presumably from “Princess” rubbing her eyes on different things in her habitat. Flies were also causing irritation, and perhaps worsening her symptoms. Veterinary staff thought it might be an allergic reaction to something in the environment, and prescribed ointment and fly spray to be applied on and around her eyes. This seemed to help somewhat, but keepers wanted a better, more permanent solution for “Princess”. One of the keepers thought of a horse fly mask, and how that could be modified to fit on “Princess’s” head. That keeper then reached out to a local horse ware company, who then was able to put the team in contact with a company called Horseware Ireland®.

Horseware Ireland® agreed to make a prototype mask for “Princess”. They would need measurements of her head, so keepers got to work. Since “Princess” knew how to target to a plastic, blue and white boat buoy, keepers were able to target her head through two bollards at the front of the stalls. Once positioned, keepers desensitized “Princess” to a soft measuring tape on and around her face, horns, and ears. The

measurements were sent to Horseware Ireland®, and the team waited for the mask to arrive. In the meantime, the keepers knew that “Princess” would need more desensitization to cloth on her face, so additional desensitization to that step was started. This started with a strip of cloth, and would drape it over the horn and other parts of the face. (Photo 3) The trainer would also put it over “Princess’s” eyes, and cue additional behaviors with the cloth hanging between her horns. The sound of Velcro® was also used to help desensitize “Princess” to how the mask would be secured.



Photo 3

Once the team received the mask in mid-summer 2017, training continued to progress. This mask was gray mesh on the bottom and gray fabric on top, but with bright pink trim. There were holes for the ears, and holes for both horns. (Photo 4) Rhinos do not have very good eyesight, so the team knew that it might take some time to get used to this large piece of fabric. The trainer started with having the folded mask next to “Princess” during training sessions, then would slowly unfold the mask as sessions went on. The trainer would also wear the mask during training sessions, to further help with desensitization. Once “Princess” had no reaction to the mask being around her, the mask was put onto her face in sections, slowly working up to putting the whole thing

over her face and ears. The team utilized the Elephant Restraint Device (ERD) for this. The ERD has doors on the East and West sides, and two doors in the middle that can be squeezed down. Both rhinos are used to entering the ERD, where the scale is housed and regular weights are obtained. The team used the ERD to put the mask on all the way for the first time for ease of access. "Princess" showed calm tolerance, good duration, and steady hold with the mask being on her face, so training progressed back in the stalls. Two keepers were required to put the mask on at first, one to feed "Princess", and one to put the mask on and take it off.



Photo 4

It was also important to the team to have many options on where to put on and take off the mask. Because the elephant barn has hydraulic doors, staff were able to creep certain doors open wide enough for “Princess’s” head, and to practice the mechanics of putting on and taking off the mask through the doors. Staff also worked on putting the mask on and off in the outdoor exhibit through the cables.

While all of this training was happening with “Princess”, “George” was also going through desensitization with the mask. Staff thought that “George” might be startled or show aversion to the mask on “Princess’s” face and react adversely, so trainers wore the mask while training with “George”. “George” was never very comfortable with the mask being worn by trainers, but when “Princess” was wearing it, and “George” could see her through the mesh shift doors, he showed no reaction. A short, uneventful introduction was done with “Princess” wearing the mask. Since “George” did not react adversely, keepers decided it was time to see how “Princess” would do outside.

The first time “Princess” was given access outside with the mask on was to a small, off exhibit yard. The mesh on the mask is easy to see through, somewhat like looking through a screen door, but with rhino’s poor eyesight, the team was not sure how it would go. “Princess” was given access to the yard by herself, and had no trouble getting around and finding hay piles scattered throughout the yard. She was then given access to the main habitat for a short time. “Princess” did well navigating the habitat with the fly mask on. It was decided that she could wear the fly mask all day.

After some days wearing the mask, the keepers noticed that the bottom was a little too long, as it would drag on the ground, and make it a little difficult for “Princess” to eat and drink. The mask was modified by cutting the bottom hole off, and having it only go around the top horn. The modifications were sent to Horseware Ireland®, and they were able to make a few new masks with these modifications. (Photo 5) Over the years, the mask has gone through a few additional generations with help of some volunteers who sew. These volunteers are also able to repair the masks as needed when they get holes in them, or the Velcro® straps rip off. Horseware Ireland® has sent “Princess” new fly masks every year since 2017.

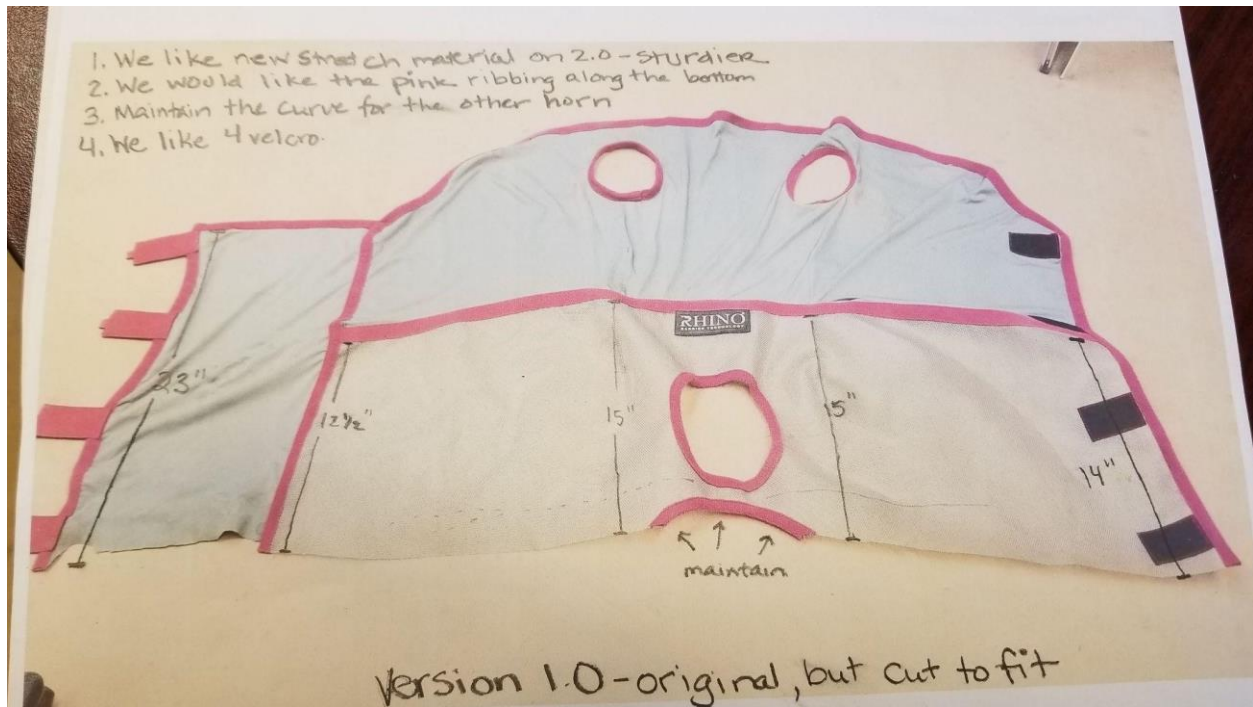


Photo 5

Over the summer, when overnight temperatures are warmer, the rhinos are able to stay in their habitat overnight. They are shifted inside in the morning for hay and a ration of Mazuri Hay Enhancer pellet. When “Princess” needs her fly mask on, keepers save the preferred pellets to help with putting on the mask. Keepers place the pellets in a tub on the outside of the stall, “Princess” positions her head between the bollards, and the mask is put on while she eats. The rhinos are then shifted back into the outdoor habitat for the day. Late shift keepers then take the mask off when they feed the rhinos their last ration of hay.

When “Princess” first went out with her fly mask on, an all staff email was sent out explaining the mask and communicate why she was wearing it. Signage was also utilized to inform the guests. Keepers are able to have many great conversations with guests about the fly mask, and how the team was able to train “Princess” to wear it. Keepers brainstormed a good idea to have a sample of the mesh section for guests to look at, since many people asked if “Princess” can see through it. Some sunglasses were repurposed from Lost and Found and were made into “Fly Mask Glasses”. The lenses were taken out and some of the mesh glued over the frames. (Photo 6) These are a huge hit with guests, especially children, as they are able to see what “Princess” sees.



Photo 6

The fly mask has greatly reduced the allergy symptoms throughout the summer months. “Princess” no longer needs ointment or fly spray applied around her eyes. “Princess” and her fly mask has even garnered some media attention via a few local news stories, and countless guest connections throughout the years. The Elephant and Rhino team at Utah’s Hogle Zoo and Horseware Ireland® hope to help other rhinos, or any other animal that has eye allergies, and have willingly shared this information with many facilities around the country. All of the training and modifications were well worth it, because “Princess” now has a better quality of life.

I would like to thank Melissa Farr, who had the original idea for the mask. Lisa Ellison, who is an amazing trainer and the primary trainer for the mask behavior. The rest of the Elephant team at Utah’s Hogle Zoo, who are always looking for ways to enhance the welfare for the animals in our care. Lastly, Horseware Ireland® who have been so generous and great to work with.