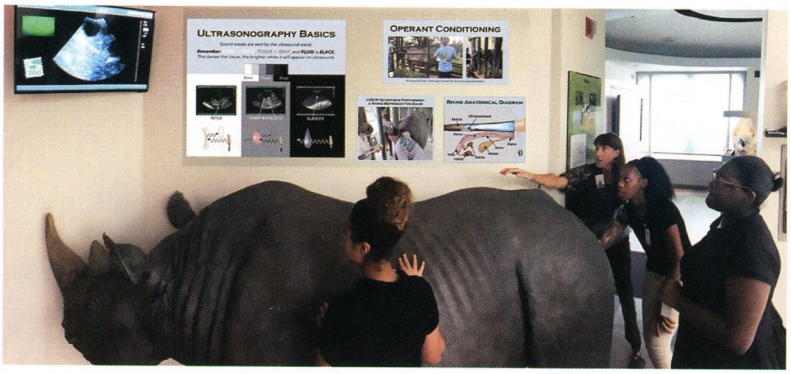
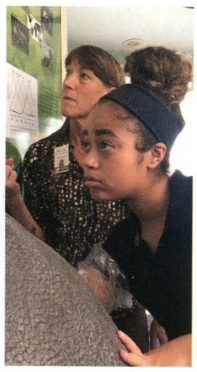
A World's First Rhino Immersion Experience – Only at CREW!

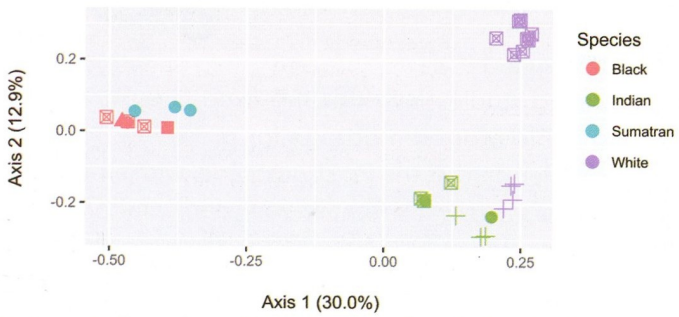
Researchers involved in cutting edge reproductive science often proudly tout that they have produced the "world's first" this or that. Although such achievements are noteworthy, in conservation it is not the "first" but the "many" that are necessary for saving a species. Something accomplished once never to be repeated generally has little conservation impact. However, if a "world's first" significantly impacts many, there could be great value in that one particular creation. Charlotte, CREW's new interactive black rhino, is just such an invention. Charlotte offers kids and adults alike the opportunity to experience being a CREW rhino scientist…safely. Sheltered in CREW's Public Exhibit, Charlotte stands calmly while volunteers and educators teach program participants how rhinos are being trained by animal care staff at zoos across North America to stand voluntarily for rectal ultrasound exams, how ultrasound technology works, and why the information from these exams is so critical to CREW's rhino reproductive research. And then the moment comes when one or two lucky participants are chosen to actually perform a rectal ultrasound exam on Charlotte. Yes – complete with plastic sleeve! The ultimate goal of this "immersion" experience is to locate the rhino fetus with beating heart, and our program leaders make sure that no participant leaves disappointed. Our hope is that the Charlotte experience inspires many budding young scientists to pursue a career in conservation research. If Charlotte does that, the impact of this one unique creation could indeed help to save endangered species. *(This one-of-a-kind interactive exhibit was made possible by a generous donation from the Hilton Family in honor of Elisabeth and Reagan Hilton. Charlotte was created by American Visionary.)*





De-bugging Iron Overload Disease Susceptibility by Studying the Bugs

The gut microbiome (the hundred trillion friends you never knew you had) has received a lot of scientific attention in recent years because it plays a significant role in the overall health of organisms. Because two of the four rhino species are susceptible to iron overload disease (IOD), and iron gets absorbed from the diet in the intestine, the gut microbiome also is of interest to CREW scientists as a potential differential between IOD-resistant and IOD-susceptible rhino species. Furthermore, we know that interactions between an organism, iron availability and gut microbial populations can impact host health and susceptibility to disease. In a 5-yr collaborative research effort between CREW, Stanford University and Cincinnati Children's Hospital Medical Center, the rhino gut microbiome was characterized and compared among four rhino species, and the results were profound. We found a striking similarity in microbial community composition within IOD-susceptible black rhinos and Sumatran rhinos that differed significantly from that of the IOD-resistant rhino species (white and Indian) despite the fact that the IOD susceptible species live on two different continents with substantially different diets. Furthermore, the microbiota of black rhinos and Sumatran rhinos are much less diverse than those of the white and Indian rhinos, despite the fact that as browsers their diets are more complex and variable. It is well documented that diverse gut microbial composition is associated with better health. These initial, intriguing results support the hypothesis that gut microbiome may be involved with IOD-susceptibility in the rhinoceros taxon.



Data point locations demonstrate the similarities/ differences in gut microbiota between individual rhinos of four different species.