Pearson

Your future in STEM: A-Z

Where might **science** take you?

C is for Conservationist

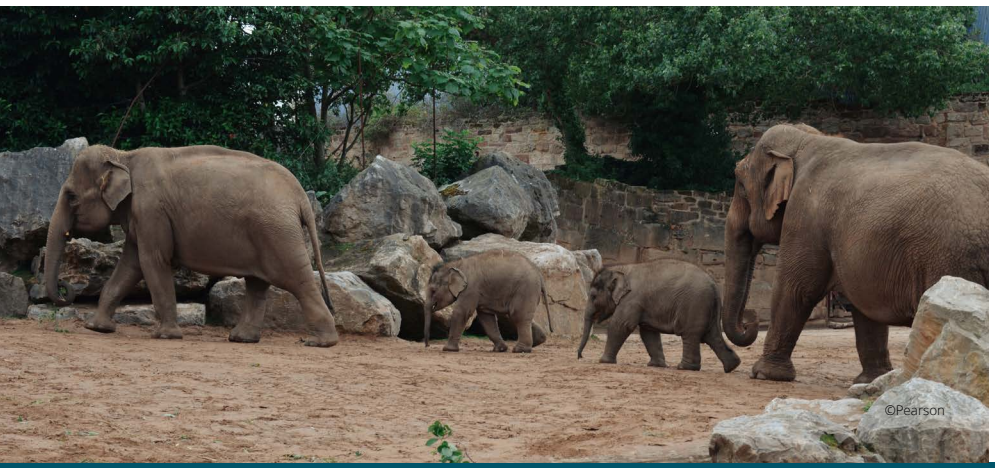
Please can you introduce yourself and tell us a bit about your job?

Hi, my name is Rutendo and I'm a conservation scientist based in the UK and have recently completed my PhD in elephant social welfare in zoos. After high school, I moved to the UK to study Veterinary Medical Sciences at the University of Nottingham, and after 3 years I went on to do a Master's degree in Veterinary Sciences at the University of Liverpool. During my Masters studies, I chose the Conservation Medicine route, which allowed me to do fieldwork supporting the conservation and health of endangered species, and it introduced me to zoo-based conservation which led me to do PhD research on the social welfare of Asian elephants in zoos as a conservation scholar at Chester Zoo.

As a PhD student and conservation scientist I had different types of days.

On some days I spent my mornings researching scientific studies about the health, behaviour and welfare of wild and zoo elephants. Then in the afternoon I would go to the zoo and spend some hours observing and recording the elephant herd's behaviour – this was my favorite part of the day! Other days were spent in the laboratory analyzing hormones from elephant faecal samples – super smelly, but very important for understanding elephant health. My days could also be spent analyzing all the data I had collected, looking for important patterns and then putting all of the information together to share with the zookeepers, zoo scientists and other conservation professionals.

Although this may sound busy, the best part of being a conservation scientist is the variation. I am constantly learning new information and skills, and I get to work with so many different conservation professionals.



How did you get into this line of work?

I have always loved animals and growing up in Zimbabwe my father always took my siblings and I on amazing safari adventures during our school holidays. We also grew up on a farm that neighboured the local wildlife park, and the best thing was hearing the lions roar early in the mornings! So, it was only natural for me to go to university to study veterinary medicine. Unfortunately, during my third year I experienced a family tragedy which affected my ability to progress into my final years. However, this opened the door to a Master's degree in Veterinary Sciences programme that focused on Conservation Medicine and Science. It's during this time that I had the opportunity to intern on a lion research and management program in Zimbabwe and was introduced to zoo-based research at Chester Zoo. ▶

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My Masters research project on Chester Zoo's Asian elephants was so fascinating and revealed such important patterns, that I felt it deserved more time than just the month I was given, and so I decided to pursue it as my PhD research for four years. My PhD allowed me to develop and grow my scientific skills to support conservation work in zoos and in the field. I am as much a people person as I am an animal person and my time as a PhD researcher allowed me to meet and work with zookeepers, scientists, academics and animal enthusiasts who are all as passionate as I am for wildlife.

What qualifications did you study, or what experience did you gather to enable you to become a Research Conservationist?

I have a bit of an interesting journey to becoming a Conservation Scientist. Initially, I studied veterinary medicine for three years, but during my third year I experienced a family tragedy which affected my ability to progress into my final years. Thankfully, I was still able to graduate with a Bachelor's degree in Veterinary Medical Sciences, and this opened the door to a Master's degree in Veterinary Sciences programme that focused on Conservation Medicine and Science. As well as learning the theory of conservation science and medicine, I also had the opportunity to intern at a lion research and management program in Zimbabwe for a month and a half. The programme allowed me to learn both field research skills and hands-on health management of the lions. Chester Zoo had a great relationship with my university and gave regular conservation talks on campus or at the zoo – I attended many if not all of these as a Masters student. So, when they offered a research project studying their elephants, I jumped at the opportunity.

After completing my Master's research on the Chester Zoo elephants, both my university and Chester Zoo supervisors supported my decision to pursue the topic as a PhD. They helped me submit my PhD proposal and once it was accepted, I became a conservation scholar at Chester Zoo. My PhD work covered all aspects of elephant social welfare and it included other zoos in the UK.

Are there any particular science practical's, teachers or other moments in schools you fondly remember to this day?

When I was in high school, I took very thorough notes, I never wanted to miss anything that my teachers said – especially in Chemistry. When my Chemistry teacher told us that we didn't need worry about learning something he had written on the board, I would still write every detail down. My Chemistry teacher knew this, and sometimes he would write or draw something silly on the board as he was teaching us, and then say, "How many of you bet that Rutendo has drawn this stickman in her notebook?" And the class would place their bets, and most often than not I would have drawn the stickman in my notes! He made Chemistry, the subject I struggled with the most, so enjoyable. ▶

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Were there any moments or events that inspired you and led you down this path, either as a child, a student or since entering work?

As a child going on safari with my family, I was always in awe of the game rangers we met who share interesting stories and information about the animals we saw on our game drives. They knew the science of the whole ecosystem and they knew how to take care of each animal's needs. Their passion for the wildlife made me want to take care of wildlife too.

Were there any people who has inspired you into this line of work?

Although I loved watching conservationists such as Dr Brady Barr, Steve Irwin and Sir David Attenborough, none of the conservationists on I saw on television looked like me. So, my family took it upon themselves to help fuel my passion. My mother and father took us on safari holidays during school breaks and we visited each national park. My uncle was a P.E. teacher at a primary school and when whenever the school library was making space for new books, he would bring me home a box full of the National Geographic magazines which would have otherwise been thrown out.

How has your line of work changed to when you first started as a Research Conservationist to now? Perhaps around: technology advancements, climate change, gender and diversity in the industry, changing elephant habits/behaviors/threat levels etc.

Since I started my PhD research in elephant social welfare, there has been an explosion of knowledge and technology surrounding elephant welfare in zoos. Studying and tracking animal behaviour has quickly become digital which makes it easy to access store data wherever you are. Instead of standing and recording behaviour manually, we can use powerful yet simple-to-use apps on our phones, where we can store extensive data about the animals we study. These advances have made conservation research accessible for everyone involved – zookeepers, wildlife rangers, community volunteers, researchers and academics.

I also think zoos have improved the way they share their conservation work with the public in accessible ways such as television program and social media campaigns, and that in turn has changed public perception on the purpose of zoos. After Chester Zoo shared the sad story of losing the elephant calves to Elephant Endotheliotropic Herpes virus (EEHV) on their television program, and explained the threat of EEHV on conservation efforts, there was a massive surge in public support. This public support actually helped fund advances in research of the virus and the development of a treatment strategy for the elephants in zoos across the UK.

I have also witnessed more and more evidence-based animal management decisions in zoos being led by zookeepers. More and more I am sitting in workshops and conferences where passionate zookeepers are sharing scientific data and work that they have conducted themselves in order to advocate for and improve the welfare of the animals their care for.

How has studying Science at school prepared you to become such a successful Research Conservationist?

Studying Biology and Chemistry helped me appreciate how important every part of an ▶

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environmental system is, from how a single plant performs photosynthesis to how that plant is a source of food or habitat for other habitats. As a conservation scientist, if you want to conserve a species or habitat, you must first understand the basic biology first to get to the bigger picture. Chemistry and Maths in school were not always easy for me, but both subjects taught me how to be resilient and work until my weakness became a strength.

Were there any obstacles or factors that put you off this route at any point?

Most often, I am the only Black person in a room of conservation scientists; usually this is not an issue and I have enjoyed working with many colleagues from all walks of life. However, there have been moments in my journey as a conservation scientist where I have been made to feel uncomfortable or have missed opportunities because of the colour of my skin. The thought of missing opportunities because of how I look discouraged me from working in conservation science, because it was hurtful to think I would never be fully accepted in a subject I am so passionate about. And learning recently that the voices of Black women in science are often excluded in textbooks and literature, discouraged me even more.

Although these experiences often made me feel lonely, they ultimately pushed me to keep pursuing my career because I believe that I have something to offer to the field of conservation science outside of the colour my skin. So many important voices that need to be heard in conservation because of race, gender, and economic inequality are being ignore, and I am determined to make sure that I fight to make sure that that is not the case.

What advice would you give to someone thinking about going into this line of work?

If you are thinking about going into conservation science and research, the advice I would give is be ready and willing to learn! I don't mean just learning about animals and the environment, but also willing to learn new practical and technical skills that make you a better scientist.

Be adventurous and embrace every opportunity to gain experience. Make sure to step outside of your comfort zone and vary your experiences such as volunteering in the field, as a laboratory assistant, or even at your local animal shelter. All experience is valuable and will help you be a well-rounded conservation scientist.

Also become a people person! Conservation science and research is just as much about the people as it is about the animals. As a conservation scientist I work with university academics, zoo scientists, zookeepers and animal managers, and the public. All of these types of people are important in conservation and valuing their contribution to your work is important to understand.

What advice would you give to others thinking about a career in STEM?

Pursue the subject that excites you and that makes you most curious. But don't go in blindly – do your homework and understand what it will take for you to have that STEM career. Do not be afraid to ask for advice and guidance from your teachers, people in your life and people in STEM. Once you're on the track you want to be on, pursue it! Do not be afraid of setbacks or failure, learn from them and keep working hard. Most importantly, do not compare your career journey to ▶

other people, celebrate other's achievements but run your own race!

What is the reaction from friends and family when you shared your desire to become a Research Conservationist?

Although I always knew I wanted to work with wildlife, I remember mom my often asked me, "Are you sure you don't want to do something less... smelly?" She was joking, but I think some part of her hoped I would choose a less smelly job.

My family and friends have always been supportive of my career path, and they now see my career as an opportunity to ask me all the animal-related questions they have ever had. So, it appears that it's a win for them as much as it is for them.

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