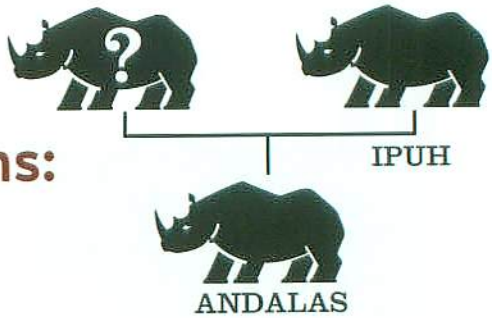
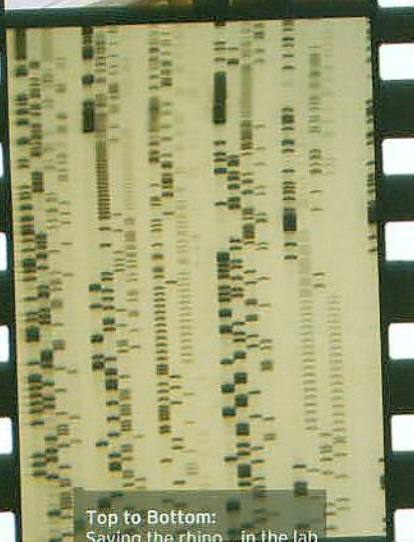
Canada:



Rhinoceros dreams:
Saving the rhino in the lab

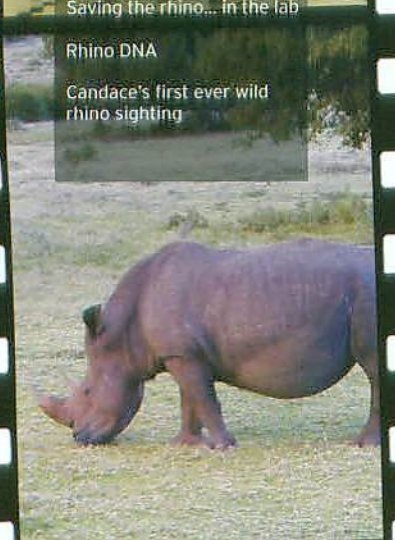
For as long as I can remember I have had a passion for the noble rhinoceros. Most of my friends find this amusing and somewhat eccentric, but you love what you love.



Top to Bottom:
Saving the rhino... in the lab

Rhino DNA

Candace's first ever wild rhino sighting



IMAGES: CANDACE SCOTT

Candace Scott
Rhino genetics expert

I had always dreamed of being able to contribute towards the conservation and understanding of these unique animals, but as I live and work in Canada, it is somewhat difficult to study the rhinoceros in its natural habitat. It seemed that my dream might have remained just that - a dream.

Much to my delight, everything changed almost a decade ago. I began work at the Queen's Molecular Ecology Laboratory (QUMEL) under the direction of Dr Peter Boag. Originally, QUMEL focused on the genetics of various bird species but through the enthusiasm and initiative of an ex-pat South African post-doc, Dr Peter van Coeverden de Groot, the laboratory began its current focus into large mammal genetics. Dr Groot had completed his doctorate at QUMEL studying muskoxen but had always wanted to pursue research species native to his homeland, and his first choice was - you guessed it - the rhinoceros. After initial work on black rhinos, projects expanded to include not only both African rhinoceros taxa, but all three Asian rhinoceros species as well.

Since that time, I have been privileged to work on projects involving all five rhinoceros taxa, with a particular focus on the Sumatran rhinoceroses. My job is to develop and utilise genetic markers specific to each rhinoceros species, and subsequently generate data that answers a variety of both ecological and conservation questions relative to specific rhinoceros populations and pedigrees. The markers I use are called microsatellites, which are short repeats of DNA flanked by regions of DNA unique to individual taxa. Microsats are comprised of nuclear DNA and are therefore inherited in a Mendelian fashion (one copy is inherited from mom and one from dad) making them powerful tools for assigning relatedness, historical pedigrees and current population demographics.

One of the first Sumatran rhino projects I worked on used microsatellites to assess how closely Andalas's parents, Ipuh and Emi, were related. Andalas, of course, was the first captive-born Sumatran rhinoceros in over a century, but prior to his birth and an immense amount of research by Dr Terri Roth at Cincinnati Zoo, Emi had had several unsuccessful pregnancies and potential inbreeding effects between Ipuh and Emi were brought into question. Was Ipuh in fact Emi's father? I was pleased to report that this was not the case; while Ipuh and Emi are related, they are likely distant cousins at most. Concurrent to this project, I was also assessing genetic variability in a suite of Sumatran rhinos from both Indonesia and peninsular Malaysia. Due to the fact that this taxon currently exists in highly fragmented populations and is undergoing a severe demographic bottleneck, inbreeding is of major concern. I was extremely pleased to discover that compared to other published data for the southern white and the south-central black African rhinos (both in recovery from severe bottlenecks), the Sumatran rhinos have retained a significantly higher level of microsatellite genetic variation.

Although I still work and live in Canada, I do work in rhinoceros conservation. I was able to make my first trip to Africa this past summer to see my first ever wild rhinoceros. I am grateful to be able to make a small contribution towards overall rhinoceros conservation efforts. I now dream of the ultimate survival of these magnificent animals and who knows - dreams do come true.