

Back to life



Extinction is final, but a remarkable, groundbreaking project in the Western Cape is successfully reviving a species that disappeared more than a century ago

By Haley Harvey
Photographs courtesy of the Quagga Project

The quagga, a uniquely South African animal, was recklessly hunted to extinction in the late 1800s by colonists, who considered the species as competitors for their grass-eating livestock. Since then, it was only found in natural history books, taking its place alongside species like the dodo, Tasmanian wolf and Caspian tiger.

In the nineteenth century, a number of quaggas were held in zoos around the world, although the only one ever photographed alive was a quagga mare at Regent's Park Zoo in London by Fredrick York in 1870. When the last captive quagga died in August 1883 at the Artis Magistra zoo in Amsterdam, few people even realised that the species had been lost.

SEPARATE OR SUBSPECIES

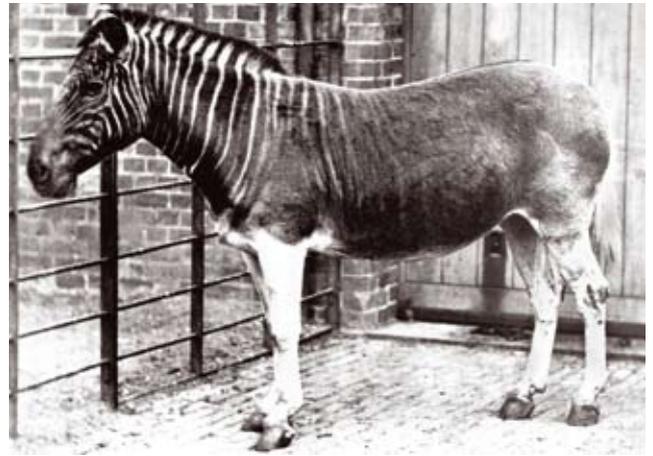
Back in 1788, the quagga was classified as an individual species, *Equus quagga*, but there was always debate whether the animal was in fact a separate species of zebra, or just a subspecies. To add to the confusion, 'quagga' was the local term for all zebra – and this was one reason why initially no one realised the species had died out.

In the late 1960s, a taxidermist named Reinhold Rau, working for the South African Museum, dismantled and remounted a quagga foal at the

museum. While doing this, he saved some tissue samples, to which he then added tissue samples from various quagga exhibits in museums around the globe. Rau was convinced that quaggas were a subspecies of the plains or Burchell's zebra (*Equus burchelli*), and could thus be 'rebred' and literally, brought back to life.

Not surprisingly, his theory was met with negativity and scepticism. In the 1980s, his rebreeding proposal gained new impetus when a molecular study was done. This study compared sequences of genetic DNA code, taken from dried quagga flesh and blood samples. The analysis of this gene coding proved Rau's theory correct: the DNA sequences were identical, meaning that the quagga was a subspecies of the plains zebra rather than an individual species.

This finding was backed up by more advanced genetic research done in 2005, which showed the quagga descended from an isolated population of the adaptable plains zebra, probably during the Pleistocene age, some 120 000 to 290 000 years ago. A subspecies is a genetically and geographically distinct sub-unit of a species. The quagga resembles the plains zebra genetically, but its coloration is yellow-brown with stripes only on its head, neck and forebody. Its belly and legs are unstriped and pale.



The only quagga photographed alive: Regent's Park Zoo, London

UNIQUE QUAGGA PROJECT

The Quagga Project was officially launched in South Africa in 1987, with Reinhold Rau at its helm. It has the aim of recreating quagga by selective breeding from plains zebra; ultimately returning quagga to the wild. What makes this project so innovative and revolutionary is that this is a simple, selective breeding programme over generations. There is no genetic manipulation, and no cloning. It's the only project of its kind in the world.

"The important thing is that we're not creating a new species," says Professor Eric Harley, an expert in conservation genetics at the University of Cape Town, and an integral member of the Quagga Project. "You can't bring an animal back from extinction. It's also important to point out that the whole project has nothing to do with genetic engineering or genetic manipulation. It's purely a selective breeding programme."

Genetic manipulation, such as with cloning, can only be undertaken with live cells, so this was never an option for the quagga. The only reason that quagga can be brought back to life, so to speak, is because it's a subspecies with similar genetic coding.

SELECTIVE BREEDING

The quagga is a very definite subspecies, not a hybrid animal. While zebras have been cross-bred with donkeys or horses for example, and have produced offspring, these have nothing in common with the quagga. These hybrid zebroid animals – variously known as zorses, zonkeys or zeedonks – can live for only one generation. Mother Nature's incredible foresight renders hybrid animals sterile, to preserve the diversity of individual species. Quagga, as a subspecies of the plains zebra, can interbreed and produce fertile offspring.



Closer with every generation: mare and foal at Elandsberg Nature Reserve

The formation herd of nine zebra for the rebreeding project were captured in Etosha National Park in Namibia in March 1987, and relocated to a conservation farm near Robertson. The first foal was born in December 1988. Over the years, further breeding stock from Namibia and Zululand was added, and the first foal of the second offspring generation was born in February 1997. As the Quagga Project expanded, so did the land, and there are currently 89 animals in the project, at 12 locations in the Western Cape.

Animals selected for breeding are chosen purely on visual analysis: those with the least stripes are used for breeding the next generation. Animals are methodically scored on their stripes to follow the progress over generations. With continuous selective breeding over generations the individual stripe and colour variations should fade, resulting in animals with coat patterns that closely resemble those of the original quagga.

SCIENTIFIC HISTORY

"We thought originally that it would take about four generations of selective breeding for us to see whether we were going to succeed or not," comments Professor Harley. "It's gone as well as, or even possibly better than I predicted, because we're only on our third generation and already we have animals that, if you take a photograph of them and put it alongside some of the more-striped museum quaggas, it's very hard to tell the difference. We haven't got there on the dark brown colouring yet, but we're virtually there on the reduction of striping aspect."

To date, Henry, a third-generation foal born in early 2005, is the most quagga-like animal in the programme. However, the jury is still out on whether looks alone are enough to declare the quagga a living species once more.

This rejuvenation of a dead species is a world first, and has catapulted South Africa into scientific history. Interestingly, the Quagga Project draws tourists from all over the world, who come to the country specifically to see the quagga in their natural habitat. However, even though it's right here in the Western Cape, few South Africans know of the project.

The Quagga Project has afforded us humans a very rare second chance to revive a subspecies that we eradicated in a time of lesser understanding of conservation issues. It's history in the making. Hopefully it's also a lesson to us humans to respect our wild species, especially those facing extinction. We are the custodians of nature and need to think beyond ourselves to nurture, conserve and preserve our wild fauna and flora for future generations.

For more information on the Quagga Project visit quagga-project.org or watch *Wild Ltd* on SABC2. 