SPECIES ON THE BRINK

MARK CARWARDINE

On far-flung islands on opposite sides of the globe, shelled giants are staging a remarkable comeback

Why are giant tortoises so famous?

There are two reasons. First, they really are giant, reaching lengths of up to 1.8m and weighing as much as 400kg. Second, they are exceptionally long-lived: many are more than a century old. The oldest known is an Aldabra giant tortoise called Jonathan, who hatched around 1832. This makes him 194 this year – the oldest known living land animal.

Where do they live?

Fossil evidence shows that giant tortoises once thrived on all continents except Australia and Antarctica. But human exploitation led to their extinction almost everywhere. Nowadays, they live only in two remote tropical archipelagos on opposite sides of the planet: the Galápagos Islands in the Pacific Ocean and the Aldabra Atoll in the Indian Ocean. They look remarkably similar, and both evolved to be large herbivores on isolated islands, but they belong to entirely different evolutionary lineages (Galápagos tortoises originated from South America; Aldabra tortoises came from Madagascar).

How many species are there?

Galápagos giant tortoises were once considered a single species. But now they are classified as 14 closely related species, all in the genus *Chelonoidis*, with significant differences in sizes and shell shape. A possible 15th species – the Santa Fe giant tortoise – went extinct in the mid-1800s but was never officially described or named because there is no complete specimen. The relatively smaller Aldabra giant tortoise belongs to a single species (*Aldabrachelys gigantea*).

What are the main threats?

Historically, between the 17th and 19th centuries, the main threat was harvesting by whalers, sealers, pirates and other mariners. They killed as many as 200,000 tortoises in Galápagos alone (there are no precise records for Aldabra). The tortoises made



A Galápagos giant tortoise

easy targets and were used as "live rations" (stored upside-down in ships' holds, where they could survive for many months without food or water). Today, the main threat in Galápagos is invasive species: everything from feral goats and donkeys competing for food, to rats, pigs, cats and fire ants preying on tortoise eggs and hatchlings. On Aldabra, the main threats are habitat degradation, poaching and introduced predators, but rising sea levels and longer droughts are increasingly worrisome on the low-lying atoll.

How many are left?

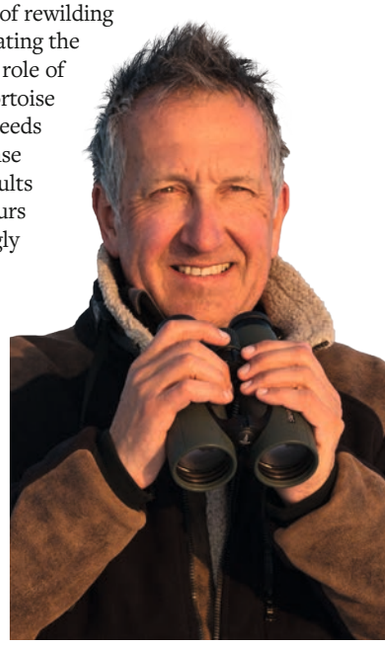
The total population of Galápagos giant tortoises across all surviving species dropped to as low as 3,000 in the 1970s – from an estimated historical population of more than 250,000. Thanks to conservation efforts, there are now roughly 25,000. Numbers range from as high as 10,000–12,000 Wolf Volcano giant tortoises to just one verified surviving Fernandina giant tortoise, a female called Fernanda. In contrast, there are six times as many Aldabra giant tortoises, forming a single population of around 150,000 individuals.

Have any become extinct?

In recent times, at least two of the 14 known Galápagos species have become extinct: the Floreana giant tortoise and the Pinta giant tortoise. The most famous giant tortoise of all, Lonesome George, was the last known Pinta Island survivor for more than 40 years; he died in 2012. The Floreana giant tortoise became extinct during the 1840s or 1850s. Most of the other Galápagos species are Critically Endangered or Endangered (the Aldabra giant tortoise is considered Vulnerable).

What is being done to save them?

Efforts include habitat restoration, eradication and control of invasive species, mitigating human-wildlife conflict (such as promoting tortoise-friendly farming and reducing road collisions) and captive-breeding programmes. In Galápagos, during the past 60 years, more than 10,000 giant tortoises have been reared in captivity and released back into the wild. They have even been returned to Floreana after an absence of more than 150 years. The new arrivals are hybrids – genetically similar to the extinct species – which were recently discovered on Isabela Island (Floreana tortoises were released there by pirates and whalers in the early 19th century). In the Indian Ocean, thousands of Aldabra tortoises have been returned to other islands in the Seychelles and to islands off Mauritius and on mainland Madagascar, as part of rewilding programmes (replicating the ecosystem-engineer role of now-extinct giant tortoise species, dispersing seeds and breaking up dense vegetation). The results of all these endeavours have been exceedingly successful.



Mark is a zoologist, conservationist, bestselling author, broadcaster, tour leader and widely published wildlife photographer