The islands where dragons are real

Komodo dragons might not breathe fire or fly but they are still awe-inspiring animals – the race is on to save them from becoming mere legends

By Jane Palmer
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On an archipelago of the Lesser Sunda Islands, which sweep arc-like through the Java Sea, maps can legitimately be marked with the archaic warning used by medieval cartographers: here be dragons.

These dragons might not breathe fire or fly, but they are no less awe-inspiring or dangerous than their mythical counterparts. Up to 3m long and weighing as much as 70kg, these beasts can run 18mph (29km/h) to catch their prey. Once they have a water buffalo, or deer, between their jaws, they inject anti-coagulant containing venom into deep wounds, speeding up blood loss. The victim simply bleeds its way to an excruciating death – perhaps a fate worse even than being seared by the flames of a mythical beast.

"It is a combined arsenal system," says **Bryan Fry** of the University of Queensland in Brisbane, Australia. "You have the teeth as the primary weapon and, if you don't die outright from cutting a femoral artery, you are going to keep bleeding until you are out of blood and then you are dead."

The Lesser Sunda Islands are home to 3m-long Komodo dragons (Credit: KSP/Ariefiandy)

These modern day monsters are the Komodo dragons (*Varanus komodoensis*) of Indonesia. They live only on the islands of Rinca, Gili Motang, Nusa Kode, Flores, and Komodo. The world's largest lizards, they are believed to be the last survivors of the **giant lizards that meandered through Australia millions of years ago**. Scientists believed these dragons then spread westward, reaching the Indonesian islands about 900,000 years ago.

As such, they have survived ice ages, sea level rise and the many earthquakes and subsequent tsunamis that plague the Lesser Sunda Islands. But despite their enduring nature, in the late 1970s, experts began to fear for the dragons' survival.

> *The dragons are up to 3m long and weigh 70kg*

Earlier in the century, trappers captured the Komodo dragons and sold them to zoos and private collectors. Even as this practice stopped, big game hunters sought them as trophies or they were killed for their skin or feet. Consequently, the International Union for Conservation of Nature Red List

categorises the dragons as ‘Vulnerable’ and international trade is prohibited by the Convention on International Trade in Endangered Species.

In 1980, wanting to preserve its iconic dragon, Indonesia established the 700 sq mile (1,810 sq km) Komodo National Park. The park, which includes the three major islands of Komodo, Rinca and Padar, and numerous smaller islands, was declared a World Heritage Site in 1986.

Successful conservation measures in the park have meant that the population of the dragons appears to be stable at about 3,000, with most living on Komodo and Rinca. Having survived decades of human onslaughts it seems, for now, the dragons are safe from extinction. But the numbers of egg-laying females remain dangerously low, and other ominous threats loom on the horizon. Whether these dragons will survive in the long term, and not join the ranks of their ancestors – the legendary, 7m-long giant goannas – is not guaranteed.

For now the dragons are safe from extinction (Credit: WaterFrame/Alamy)

It was not until the early 1900s that scientists first encountered the dragons, although rumours of their existence abounded well before then.

“Their size is always mind-boggling,” says **Tim Jessop**, an integrative ecologist from Deakin University in Geelong, Australia. “They’re not only long, they are incredibly robust and solid and stocky.”

Encounters with the Komodo dragon inspired the movie King Kong

In 1912, a Dutch army man, Lieutenant van Steyn van Hensbroek, visited Komodo Island, shot a dragon dead and sent the skin to naturalist, Peter Ouwens, who wrote the first-ever scientific paper on the massive lizards. Fourteen years later, American W. Douglas Burden set off to the Lesser Sunda Islands of Indonesia to capture a dozen giant lizards for the American Museum of Natural History. His memoir of the expedition **Dragon Lizards of Komodo**, gave the dragons their nickname and its tales of adventures and confrontations with the 'hoary beast' **inspired the movie King Kong**.

"Just to have this kind of oddity out there in the middle of nowhere is pretty incredible," Jessop says.

But the dragons look at home in the craggy, jagged islands that jut out of the sea, Jessop says. Unlike the lush rain forested areas of Sumatra or Java, the Lesser Sunda Islands are relatively dry and brown, except for the few short months of monsoon. The vegetation is a mix of scrubby woodland and savannah grasslands that support the dragons' main prey, deer.

Against this backdrop, the dragons prove well camouflaged while they wait patiently for their next meal. Once a deer, pig or even a human – the dragons aren't fussy about what they eat – ambles by, the dragons spring into action delivering their one-two punch combination of razor sharp teeth and venom.

“I have seen what this animal can do and how badly these animals can injure humans,” says Achmad Ariefiandy, with the Indonesian Komodo Survival Program (KSP). Ariefiandy’s research on the dragons has him working with the lizards in remote locations far from hospital access and he’s understandably cautious. “There is no point acting like a movie star if you end up getting bitten,” he says.

As the dragons can eat 80% of their weight and then go without food for several weeks, most of the time they lounge lizard-like in the sun. They have been known to attack islanders – there have been four fatalities in the last four decades – but the locals respect the dragons and many regard them as sacred. It’s a sentiment that Ariefiandy shares.

> *The dragons deliver a one-two punch combination of razor sharp teeth and venom*

“I fell in love with this species and the beautiful scenery at Komodo dragon habitat in East Nusa Tenggara, the first time I stepped my feet on Komodo Island,” he says. Ariefiandy’s work involves spending most of his time in the field, walking between 10 and 20km a day across hilly terrain in the blistering heat. “But I’m happy to do that to achieve my dream, to lead the conservation of Komodo dragon,” he says.

Scientifically informed conservation efforts first began in the mid 1990s when **Claudio Ciofi**, now a biologist at the University of Florence, arrived in Indonesia to complete a PhD in dragon genetics. Captivated by the creatures, and noticing that there were no major conservation projects to support them, Ciofi proceeded to devise a project from scratch. Believing that species conservation can only be truly sustainable and effective if it is owned by local people – not just scientists or foreign conservation professionals – Ciofi's ultimate goal was to hand over the project to Indonesians.

"At the stage we are today I think we are one of the few grassroots projects that has had any successful 'know-how' transfer to locals," Ciofi says. "That is the way all projects should be in developing countries."

To understand more about the dragons they first have to be caught (Credit: Nicolas Cegalerba)

Currently, government organisations under the Indonesian Ministry of Environment and Forestry, along with scientists at the KSP manage the conservation of the dragons.

The KSP researchers collect scientific information on the ecology of the dragons, with the objective of helping these organisations better focus their efforts. In a conservation role, the park and KDS also raise community awareness by paying educational visits to the villages and schools.

The Komodo dragon is a national flagship species, so it has to be Indonesians who protect the species

“I was ashamed to see that so many foreigners lead the conservation of Indonesian species,” Ariefiandy says. “The Komodo dragon is a national flagship species, so it has to be Indonesians who do the research and protect the species.”

As many of the threats to the species come from the interface with islanders, understanding the local culture and how best to manage the competing demands on the land has proved key. Before the formation of the park, deer hunting was a major problem – deer being a major source of dragon food. In the 1980s, excessive deer hunting on Padar wiped out the resident dragons. Successful management within the park boundaries has since minimised hunting.

Conservation efforts have led to relatively stable dragon numbers on the two main islands of Komodo, which are home to about 1,100 dragons each. But outside the park boundaries, on the island of Flores, the story is less rosy. The scientists believe that Komodo dragons once roamed most of Flores, but now reduced numbers live only on the north and west coasts where 80 sq km of land is protected within four nature reserves.

“The real culprit here has been habitat loss from the conversion of forests to agriculture,” Jessop says. “Villagers have also started fires to increase the pasture stock for their livestock.”

Got one (Credit: Nicolas Cegalerba)

Many dragons live outside the reserves and they frequently rub shoulders with the ever-burgeoning human settlements. As well as losing their habitat, they have to compete for their deer and pigs with local villagers.

For the last decade, conservationists have attempted to address such challenges in the Wae Wull nature reserve on Flores with a multi-pronged approach that integrates wildlife monitoring and the involvement of the local people in protecting the dragons' habitats. The programme managers have restored a sentry post, established patrolling activities and prey population surveys, and they've also trained rangers in wildlife-monitoring techniques. Building community awareness has proved key. "I think the recipe is to integrate the science and community based programmes," Ciofi says. "You can't do one without the other."

If everybody works together on conservation efforts the species could survive for thousands of years

A **recent assessment** of the dragon population within the Wae Wull reserve indicates that it has remained stable over the last few years and the researchers are looking to apply the same type of approach to northern Flores where the other three reserves are located. This successful programme indicates what is needed to address future challenges to the dragon's survival: engaging with the local government and local people to use the land in a sustainable way.

"If everybody works together on conservation efforts, and if local people become aware that they gain a benefit from the dragon, then this species could survive for hundreds, or thousands, of years," Ariefiandy says.

But human activities aren't the only threat to the dragons. Given they live on only a few islands in the world, and their genetic diversity is limited, the dragons are particularly sensitive to changes in the climate.

Rising sea levels could encroach upon the low coastal valleys that make up most of the dragons' habitat and changes in precipitation could mean that the woodlands are no longer amenable to nest laying or baby dragons. As young dragons climb trees for protection they could be more vulnerable to attack, even from adult Komodo dragons.

> *The care of the dragon now lies in the hands of the local people*

Ciofi believes that as the dragons live from the coastline up to 500m and nest laying takes place in a variety of vegetation, climate change is still not the greatest threat to the dragons – it would merely decrease their habitat and maybe reduce their numbers. The most negative possible outcome for the their survival is that a rapidly increasing human population could, in 20 years or so, wipe out their habitat. But with the current success of conservation efforts, this scenario could be avoided.

"Within ten years, if we are able, with the help of the local government, to secure the current populations that will be enough for the long term survival of the species," Ciofi says.

Sixteen baby Komodo dragons now live on the island (Credit: Achmad Ariefiandy)

Currently Indonesian researchers are travelling by boat to the islands north of Flores and setting up cameras traps to assess the habitat for the dragons in that region. “It’s a total Indonesian story,” Ciofi says. “The care of the dragon now lies in the hands of the local people.”

On one such trip last year, the researchers received a nice surprise: **dragons had nested for the first time on Ontole Island**, just off the north coast of Flores.

“This is important because it proves that the population is reproducing on northern Flores and, if well protected, it can stabilise,” Ciofi says. “It is very hopeful.”

Last March, Indonesian conservationists from the department of forestry, researchers from the KSP and locals worked like proud parents to make sure the eggs hatched safely and the hatchlings made their way safely to the trees. Sixteen baby Komodo dragons now live on the island, munching on geckos and similar morsels, and basking in the sun as the lizards they were born to be.

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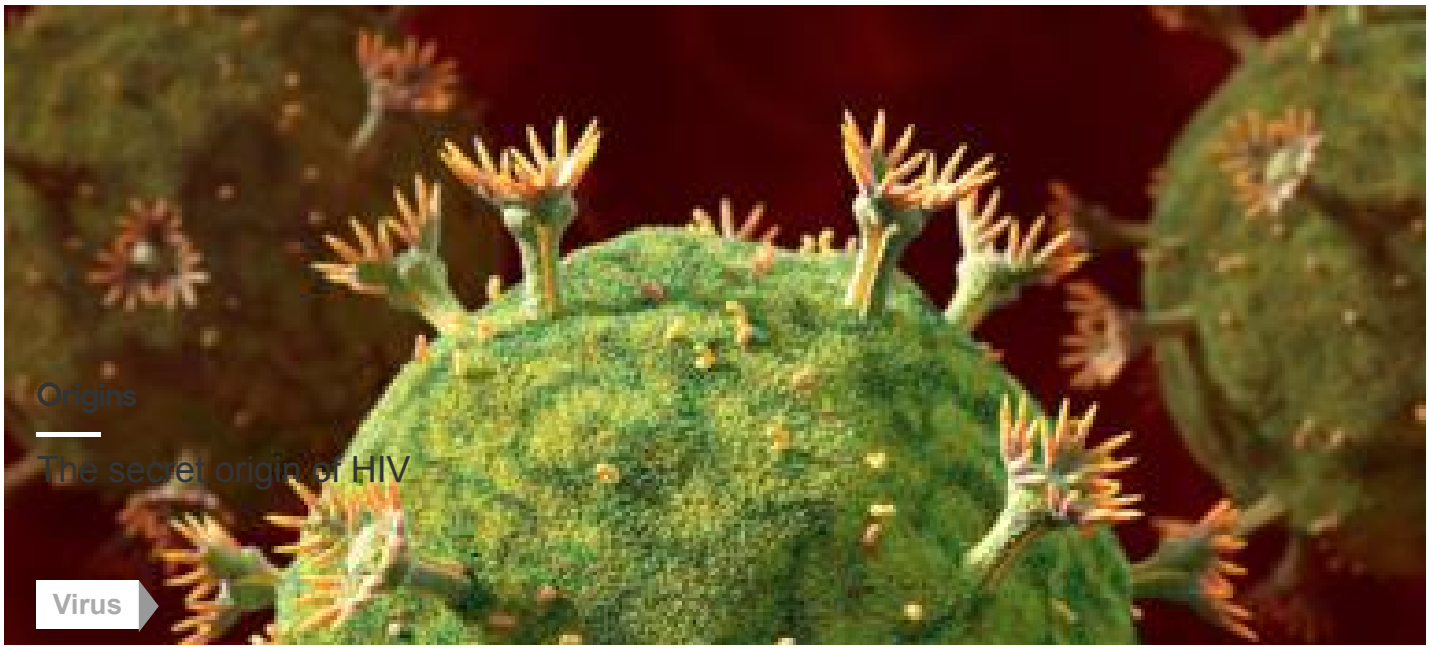

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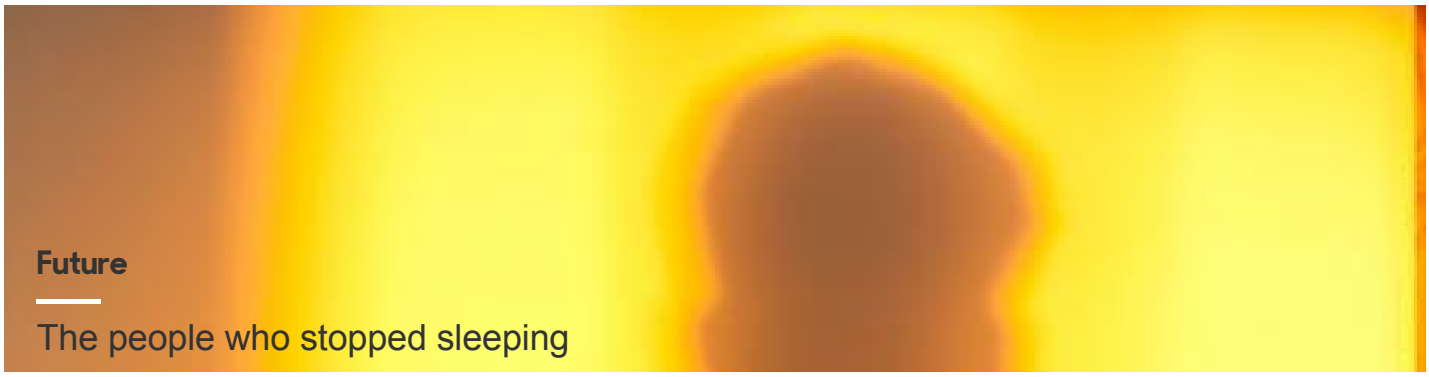

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