

# Look Past Ecosystem ‘Services’ – To Scientific Wonders and the Miracles of Evolution

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Harini Nagendra



*A Boyd's forest dragon in North Queensland. Photo: David Clode/Unsplash.*

Biodiversity is the web of life that keeps us alive. From the algae that first evolved to conduct photosynthesis, converting sunshine into food and carbon dioxide into oxygen, to the goats, cattle and horses that provide us with transport, milk and meat, human life is bound up in interdependencies with other species. But it would be hubristic to assume that other species are only important, only justify their existence, because they are useful for humankind. The flash of colour as a butterfly alights on a flower or the heady petrichor smell of wet earth when the rain first falls on streptomyces bacteria in the soil... These are not ‘services’ that biodiversity evolved to provide to humans. They are testament to the twists and turns of evolution over centuries and millennia, which shape the world as we see it today.

We take the biodiversity around us for granted. But in 2019, [a report](#) put together by 455 biologists, and released by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, warned that 1 million animal and plant species face extinction because of human impacts on the planet. It's not just the big and charismatic species – the tiger, rhinoceros and elephant – that are under threat. Bee populations have collapsed across the world. When bees disappear, pollination suffers, and crop yields plummet.

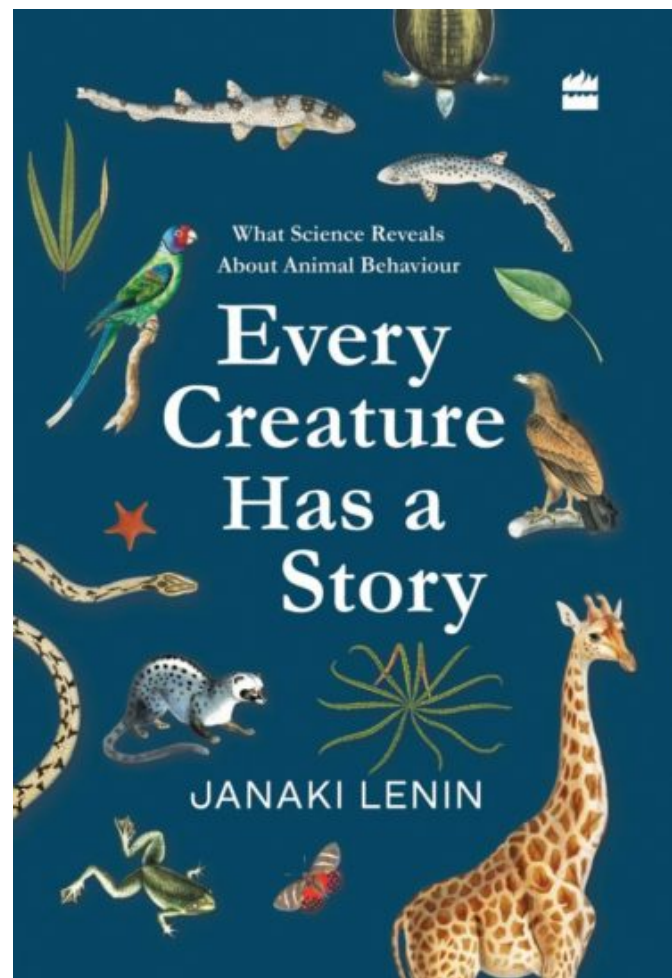
When a frog-killing fungus wiped out frog populations across the world last year, many snake species also declined, starving because they lost a main source of food. Life is interdependent, and no species – even humans, in all their arrogance – can survive by wiping out all others.

Against the backdrop of the ongoing ‘Great Extinction’, public awareness of the importance of biodiversity plays a critical role in stymying ongoing efforts to wipe out species. A better informed and more interested public is the key to better conservation. Science writing plays a critical role in shaping such public awareness.

The recent resurgence of nature writing in India holds out hope. The rise in popularity of nature books across India is deeply satisfying. Independent bookstores say that increasing numbers of people are coming in, often with children in tow, to ask for books on wildlife and nature. An early exposure to the beauty of life outdoors, coupled with the pleasure of reading about species indoors, curled up on a sofa, book in hand, is the best way to cultivate a deeper knowledge of nature.

Janaki Lenin’s weekly columns and her previous books, including *My Husband and Other Animals* (1 and 2), and *A King Cobra’s Summer*, are important contributors to nature writing in India. Her latest book, *Every Creature Has a Story: What Science Reveals about Animal Behaviour*, a collection of her columns in *The Wire*’s science section, follows in this tradition – with an important difference.

This book tracks the latest science on the behaviour, survival and evolution of species from across the world. Lenin seeks to demystify the science for the reader, helping them understand the significance of recent discoveries that help us understand why elephants don’t get cancer, or how sharks navigate over thousands of kilometres without losing direction and wandering off course. In the process she also gives the reader an insight into the excitement of *doing* science, in the lab and field. One scientist tells her how she and her colleague felt like they had won the lottery when they made a discovery, dancing in the lab to celebrate. Another, a single father tracking pythons in a game



Every Creature Has a Story  
Janaki Lenin  
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reserve in Pretoria, describes how he took his three children along with him to the field many times. He now considers himself lucky, thinking back at how much danger he may have exposed his young children to.

These stories humanise the process of research. Through the narratives in the book, the reader learns not just what we know, but what we do not know, and gets a glimpse into how hard it is for scientists to understand the secrets of evolution.

My early interest in biology was fundamentally shaped by cover-to-cover reading of the *New Scientist* and *Scientific American* in high school – this is true of many ecologists. *Every Creature Has a Story* is a great book to hand over to that curious tenth-grader or undergraduate student you know or parent, and spark their curiosity. Over the past week, as I read multiple chapters to my 12-year-old, we paused at multiple points. What makes the story of the pregnant male sea horse so unique, and why is male-parenting so rare in nature? One sentence led to a question, and then another. We digressed into discussions of evolutionary history and animal behaviour, and had a great deal of fun dipping in to chapters at random. With 50 chapters, we are covered for weeks of bedtime reading.

Also read: Harini Nagendra and Seema Mundoli, authors of 'Cities and Canopies', about Indians' relationship with trees

I learnt much from this book. In breeding season, the kidneys of male stickleback fish stop producing urine, and start to produce a sticky protein that they use to build nests. Their intestines take over the task of excreting the excess water from their bodies, preventing them from swelling up and bursting. Male and female glassfrogs urinate on their eggs to keep them moist. Male palm cockatoos are the only species that we know of, besides humans, who fashion twigs into drumming sticks, playing complex percussion beats to attract mates. The common shrew shrinks its body – and its skull by as much as 15% – in winter, to conserve body heat. The book reminds us of the wonders of nature and the importance of biodiversity, from the smallest species to the largest.

Janaki Lenin's latest book adds to the limited but growing body of nature writing in India. The fact that the book immediately took the top spot in the Amazon bestseller booklist on 'ecology' (and has stayed that way for weeks) is heartening news for those interested in conservation. At a time when most writing on animals has firmly focused on large charismatic species like the lion, tiger and elephant, it is wonderful to see a book that appreciates all animal species for what they are – scientific wonders and miracles of evolution.

Harini Nagendra is a professor of sustainability at Azim Premji University and the author of Nature in the City: Bengaluru in the Past, Present and Future and Cities and Canopies: Trees in Indian Cities.