

# HORNBILL

DISCOVER THE LIVING WORLD

JANUARY–MARCH, 2023



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India

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# HORNBILL

January–March 2023



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biodiversity near a residential  
colony in Kudankulam.



### Memorable Encounters in the Wilderness

**A.J.T. Johnsingh** has trekked  
miles in the wilderness areas of the  
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a collection of some of the most  
memorable moments spent in the  
wild. Read on ...

## PHOTO FEATURE

### An Ant or a Lobster? Nope...

Nature has its own myriad ways of  
functioning. While some animals  
exhibit mimicry, others have  
evolved cryptic coloration that  
camouflages them to deceive their  
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# Editorial...

## Will Permaculture Save the World?

Agriculture expansion is one of the major driving forces in the destruction of natural ecosystems and decline of species. This is mainly due to increasing human population that has now reached more than eight billion. Do we need to grow more food to feed the growing numbers of one species, at the cost of 'some' environmental damage and decline of several other species with whom we co-inhabit this planet, or do we have alternative options?

While our search for more food has taken us to the highest mountains and deepest seas – one third of the major fisheries of the world are over-exploited and agriculture fields, albeit seasonal, can now be seen up to 4,000 m – the worldwide statistics of food wastage are shocking.

These are the questions that we have to ask ourselves. According to the UN Food and Agriculture Organization (FAO), the world produces about 4 billion metric tons of food per year, of which about 1.3 billion tons goes waste. Food that is not consumed accounts for 38% of total energy usage in the global food system. Food wastage varies from country to country in the form of cooked food, storage, retail, or distribution. Rich countries like the USA waste food at retail (expiry-dated packaged food cannot be sold) or on the table (high-end hotels are notorious for wasting food and hiding this deftly from concerned customers), while in poor countries, stored grain spoilage is enormous, sometimes reaching 20–30% of the total grains produced or imported. In the USA, almost 40% food is wasted.

Food wastage is an enormous concern worldwide, which is why the United Nations Environment Programme has developed a Food Waste Index. Its 2021 report says that nearly 14% of the total food produced globally is lost between the harvest and retail stages. It does not mention food wasted in households and through the catering industry. India's contribution to food wastage, at 68.8 million tonnes annually, is 7% of the global total.

According to some agronomists, worldwide we produce enough food to provide three meals to every citizen in the world daily. With so much food production, is it not ironical that nearly 828 million people go to bed hungry every day, and many more do not get sufficient calories daily? Yet we continue to convert forests, grasslands, and wetlands into agricultural fields to grow more food to feed humans, and simultaneously allow the conversion of prime agricultural land into housing colonies. When I see vultures stripping the last tissue of a natural kill and hyenas chewing the remaining bones in wildlife documentaries, I wish man would learn from nature. Nothing is wasted in the natural world. A dead animal or tree is food for a host of species.

The drive to grow more food often degrades the health of the soil, while contributing to more land degradation and deforestation. There are numerous studies that show how soil fertility is depleting due to modern agricultural practices, so I will not delve further on this. I completely support Sadhguru's campaign for soil health. As he rightly said: "The Save Soil movement is a love affair with the land and life around us." World Soil Day, held annually on December 5, aims to focus

attention on the importance of healthy soil, and to advocate for sustainable management of soil resources. Healthy soil with all its components: organisms, minerals, nutrients, water, and air, means a healthy crop.

This brings us to permaculture, a term coined by Bill Mollison in 1978, from two related words: permanent and agriculture. Permaculture aims to draw inspiration from nature to develop synergetic farming systems based on crop diversity, resilience, natural productivity, and sustainability, i.e., sustainable agriculture that looks after soil fertility and biodiversity, and also provides good, chemical-free food.

Permaculture is not a modern concept, it was practised for thousands of years, particularly in ancient civilizations like Egypt, India, and China. It is nature-centric farming that gives importance to ecology, economics, soil fertility, and sustainability. It is similar to what the celebrated Japanese scientist, farmer, philosopher, and writer, Masanobu Fukuoka propagated through his ‘natural farming’ theory. Perhaps he went a bit too far, as he propagated no-till, no machine, no herbicide/pesticide use in farming: crop seeds are spread to grow with minimal removal of other vegetation. He became a popular TV personality in the 1970s with his lectures, debates, and books. His farming method may not be possible in crowded countries like Japan, where only 20% land is suitable for cultivation (hence intensive modern farming), but his philosophy to follow nature’s principles is accepted worldwide.

This brings us to Mahatma Gandhi’s vision of making every Indian village self-sustained. He wanted villages to develop their economies to meet the basic requirements of the villagers and obtain things that could not be produced in exchange for surplus products from other villages. He believed in organic farming and consumption of local produce, to safeguard the local market for farmers. We can call it locavory, i.e., eating locally produced food.

‘Food miles’ is a measure of the distance travelled by food items from production to consumption. In a recent paper published in *Nature Food* (2022, 3(6): 445–453), Li and his colleagues state that “global food miles equate to about 3.0 gigatonnes of carbon dioxide equivalent (GtCO<sub>2</sub>e) – higher than previously thought. This indicates that transport accounts for 19% of total food system emissions.” Another interesting analysis shows that transport of fruit and vegetables contributes 36% of food miles emissions – around twice the amount of greenhouse gases (GHG) released during their production.

Supporters of industrial farming say that while all the talk about organic farming, permaculture, and no-till farming is fine at a small level, how does one feed the growing human population? Can permaculture save the world?

The answers to this complex issue cannot be simple. The answer to preventing global food crisis, and nature conservation lies with us. We can start by not wasting food, by buying locally-grown vegetables and fruits from small shops, so our money goes to the farmer and not to jazzy malls that sell the same product exorbitantly. We should purchase organic food, wherever possible. Whatever the means, we need to begin investing in a system that *restores* the natural ecosystem instead of depleting it.