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EDITORIAL

Are we creating an unsustainable State of Fear?

During 1970s, ecologists working around the Keoladeo Ghana National Park, Bharatpur, Rajasthan, also popularly referred to as the Bharatpur Sanctuary, cried wolf that uncontrolled grazing by the cattle belonging to the local inhabitants will irrevocably destroy the grass covered niche along the water bodies of the sanctuary, rendering them un-inhabitable to the thousands of migratory birds, for which the sanctuary is globally well known. The incessant protest by the activists against the cattle grazing and the supporting rhetoric by the better-informed ecologists and forest managers pushed the Government of Rajasthan to formally ban the grazing by the cattle in 1982. The outcome was heralded as the success story of the handshake between activism and science on environmental issues. However, even before the sound of celebrations could taper off, the sanctuary was facing another unexpected disaster arising from this ban on grazing.

Left untouched by grazing, grass in the niche grew up so tall, that the roosting birds could not easily land and hunt their food along edges of the water bodies required for their sustenance. As a result, quite contrary to what the ecologists expected, the sanctuary began to witness arrival of lesser and lesser number of migratory birds! Did science fail here? Perhaps not. As Michael Lewis stated (*Conserv. Soc.*, 2003, **1**, 1–21), the tragedy of the Bharatpur Sanctuary was at best a case of the 'assumption based upon inadequately tested theories'. Beyond this, it could also be attributed to the ill placed enthusiasm of the scientists and forest managers, who were eager to cry wolf, even when facts were very few.

Loss of forests and biodiversity, extinction of species, changing climate, destruction of our ecosystems, erosion of genetic pool, pollution and unsustainable use of natural resources… all these have become attention grabbers, especially by the press, the media and the activists. Any statement made by the scientists or by expert committees, if not properly articulated and supported by appropriate data, is likely to be distorted and sensationalized in the media. In the process, the meaning of the original message may get partially or completely distorted or revamped. A good example of such an unduly amplified image of human-driven disaster emerged from a report published on climate change in the journal *Nature* (2004, **427**, 145–148). Analysing the fate of 1103 species, the study claimed that a variable proportion of the species may go extinct due to climate change over the next 50 years. But the media in UK wrongly reported this warning: 'one third of the entire world's species may become extinct' or 'one million of species may go extinct by 2050'. A critical analysis undertaken to trace this distortion showed that the problem was in the wordings used by the scientists who released the matter to the press (*Nature*, 2004, **428**, 799)! This episode clearly demonstrates that the credibility of science and scientists can be at stake if the claims made are not properly communicated to the public or the media.

Scientists, especially some of those who are working in the area of biodiversity, conservation of natural ecosystems, climate change, etc., often tend to overemphasize the implications of their findings on the future of the planet and hence of the humanity's survival. Their statements may create public scare. They may do so inadvertently or intentionally to attract the attention of policy makers and governing systems so as to nudge them to take immediate action. But often the statements released during such efforts may not have been quality checked with the rigor that science demands. It is imperative that scientists seriously introspect on the claims released to the public, so that they do not face the blame of having cried the wolf. The claims being made on species extinction could be one good illustration for this.

Since the 1980s, there have been statements by some leading scientists that several thousands of species are in the verge of extinction every decade. For instance, E. O. Wilson, the famous American biologist calling for the conservation of biodiversity stated: '*The extinction of species by human activity continues to accelerate, fast enough to eliminate more than half of all species by the end of this century*' (*New York Times Sunday Review*, 4 March 2018; https://eowilsonfoundation.org/the-8-millionspecies-we-dont-know/). Such high rates of extinction of species due to anthropogenic activities are being restated by other well-known biologists as well from all over the world in their effort to pitch for conserving the biodiversity. A recent article published in India, in the context of the International Day of Environment states: '*Globally, we have lost 7% of intact forests since 2000, and recent assessments indicate that over a million species might be*

lost forever during the next several decades. Our country is not an exception to these trends' (*The Hindu*, 5 June 2021). While we cannot deny the possible aggravation of species extinction in the recent times, it is unfortunate that there is hardly any data supporting the high rates claimed. If indeed species are getting extinct at such high rates, we should have had several tens of thousands of species gone for ever during the last few decades. And, even if a fraction of them could be listed, the number of extinct species should have crossed a few thousands. But we do not have even one thousand species world over that can be listed as extinct *for sure* in the past few decades. According to IUCN Red list website (https://www.iucn.org/sites/dev/files/import/downloads/species_extinction_05_2007.pdf), 'human activity is known to have forced 869 species to extinction (or extinction in the wild)' during last 500 years. Obviously the number would be much smaller during the last 50 years! In other words, we do not have data to support what we claim. If the public raises this issue, where do we stand as objective scientists?

Of course, there is always an escape from this awkward situation: *When we do not have a complete knowledge of what we have, how can we list what we are losing?* Agreed. But the rates of extinction claimed are so high that at least 'a few hundreds of those known and described species should have been extinct' during these few decades. Surprisingly we are yet to see a completely verified list of even 100 species that *for sure* have become extinct ever since we began working on biodiversity during the last four decades. Though media often refers to an extreme claim that, *according to IUCN, during the last decade, 160 species have become extinct*, the caveat is immediately added: though '*most had been gone for long time*' (https://www.lifegate.com/extinct-species-list-decade-2010-2019). In other words the claims of lost species are poorly supported by the data, and, if anything, there are more and more of the 'believed to be extinct species' that are turning out to be still extant or alive!!

Yet another common fear mongering among conservation biologists is the red listing of the species to draw conservation attention towards them. While the spirit of the exercise is laudable, the way it is done requires scrutiny. IUCN and several other agencies that are tasked with red listing the species, have drawn up several criteria based on which the species could be classified into different threat categories such as, extinct, extinct in the wild, endangered, vulnerable, etc. (https://www.iucnredlist.org/resources/categories-and-criteria). However, frequently, not all the criteria are readily met, because of the excruciating task of getting the data required to assess the threat. Thus, in the absence of hard data, probably taking recourse to the 'precautionary principle', the exacting standards are given a slip, and species are listed red or otherwise mostly based on subjective assessment. Some years ago, using data of red listed medicinal plant species of south India, we examined if they were indeed rare (in their distribution) and less regenerating compared to the species that were not red listed (*Curr. Sci*., 2005, **88**, 258–265). Our observations yielded surprising results: statistically the red-listed species as a group were no rarer than the non-red-listed species, nor were they worse off in their population structure. While not undermining the threats that the medicinal plant species face, since conservation efforts usually require enormous efforts and funds, would it not therefore be important to be cautious in drawing up the list of species that 'really' or 'truly' require protection?

Let us now turn to the danger of such claims. Such unsupported claims are used to press upon the policy drivers and governance system to pay attention to the importance of biodiversity. They do so by creating a *State of Fear* (the term is borrowed from the similar titled novel by Michael Creighton on Climate Change) in the target audience. What is unfortunate is that, because we do not back it up with strong supporting data, we are only creating an unsustainable State of Fear! Such a strategy may work negatively on the very purpose for which these claims are being made (or created!!). In fact, creating an unsupported and unsustainable 'State of Fear' is more dangerous in the long run; and that should bother the scientists who drum up every other day about sustainable future. In our eagerness to attract eyeballs, raise funds, impact the policy and impress governance, we seem to be in a hurry to project an unsustainable scare among the public and the media rather than practice a responsible assessment and reporting. It is time we scientists adopt an objective approach, lest the scientific community loses its credibility.

R. Uma Shaanker
K. N. Ganeshaiah*

University of Agricultural Sciences,
Bengaluru 560 064, India
*e-mail: knganeshaiah@gmail.com