

## In this issue

### Subterranean fishes of the peninsular India

Life is amazing, follows its own style to thrive in extremes, where it adapts, survives, propagates and evolves. Subterranean fishes are examples of such a form of life that may be compared with organisms flourishing in the abyssal floors. In contrast to the accessible caves or flooded karst areas which are commonly referred as hypogean or subterranean, the habitat described in the article by Moncey Vincent (page 1028) appears to be non-hospitable for a vertebrate organism. It is generally believed that vertebrates find it difficult to survive and reproduce in a habitat where basic needs of life can seldom fulfil in the absence of adequate food availability, limited presence of prey organisms, inadequate amounts of oxygen, absence of



visual cues as well as due to spatial limitations. Fishes are the most successful group of vertebrates that perpetuates in hypogean or subterranean, water filled spaces. Lateritic subsurface material that carries numerous hollow spaces in the water table provides a unique habitat for two inscrutable groups of fishes, the synbranchiforms and siluriforms. The article presents observations made on the behaviour, adaptations in relation with their observed habitat, and distribution of a synbranchid eel and two genera of siluriform fishes. All of them cannot be considered as obligatory subterranean, because

they are present outside the subterranean realm for a considerable period during a year. It is not righteous to think that these fishes are confined to subterranean channels even though it is not clear that why they regularly not encountered in epigeal aquatic habitats. Some of these fish groups do not have close familial relatives reported in the subcontinent. The role of geological formations such as laterite, in shaping adaptations for organisms that found a habitat within its space constraints may be a good stuff for evolutionary thoughts.

### Highways and wildlife conservation: finding the middle road

India's economic growth over the last decade has been accompanied by hunger for natural resources and rapid expansion of its development infrastructure. One of key challenges today is how India reconciles the pursuit of economic growth with the protection of its ecological integrity. Making economic growth and human development sustainable requires the identification, understanding and alleviation of the ecological costs of growth and development without forsaking their benefits.

The spike in India's growth during the last decade has involved a huge expansion of infrastructure. Among these, road and highway projects, which provide the vital foundation for other sectors of the economy, have received a big boost. These projects have primarily involved an enhancement in the quality of existing roads, triggering increases in vehicular activity, rather than fundamentally altering connectivity patterns, although exceptions exist.

Road improvement and highway development projects are now increasingly being proposed within India's wildlife reserves, which

comprise a mere 4% of the country's landmass. What are the likely impacts of such projects on wildlife?

In this issue, Gubbi *et al.* (page 1047) present results of a study examining the impact of vehicular traffic on the usage of road-edges by large mammals along a highway passing through Nagarahole Tiger Reserve, southern India. Estimating



large mammal encounter rates at camera traps on two consecutive sections of the same highway – one closed to vehicular traffic and the other open to vehicles only during daytime. They report lower encounter rates for species like chital, gaur and elephants in the highway segment with higher vehicular traffic density, suggesting that these species avoided busy highways. Discussing the wider ecological implications of highways passing through wildlife reserves, they conclude that although such infrastructure are vital for the economy, excessive road expansion into wildlife habitats accompanied by poor planning and disregard for ecology can further fragment and destroy our last wildlife populations and their habitats forever.

If India is serious about achieving a balance between its ecology and its economy, there is no escape but to invest in a more holistic process of development planning that includes – rather than ignores – the conservation of its priceless natural heritage.