In this issue

Of the people, by the people, for the people...

Conservation in India has traditionally focused, since the days of the princely states and subsequently the colonial period, on the establishment and maintenance of protected areas where wildlife would be conserved, free from hunting and other human influences. Over the years, however, there has been a tremendous change in our thinking – both on the fundamental as well as the applied aspects of these issues. We now recognize, for example, that wildlife – in the restricted sense of the fauna of a particular area – cannot be conserved in isolation; it is essential that attention be paid to the protection of the entire biodiversity of that region.

What is perhaps most striking, however, is that the role and importance of the indigenous peoples of the land in the conservation of biodiversity is finally being recognized. Although still a matter of often acrimonious debates, no longer are people taboo in a biosphere reserve. Fundamentally, they are an important component of the ecosystem, and even more important, they are essential for the maintenance of the reserve. Most of these indigenous populations have lived in these areas for centuries, have depended on the well-being of the biodiversity of the region for their own well-being, and thus, have the greatest stake in the future health of the flora and fauna of the area. They are also repositories of knowledge about the local plant and animal life, knowledge that is essential not only for our understanding of the biology of these species but also to develop strategies to ensure their future survival.

In addition to the indigenous peoples who actually live within the biosphere reserve, it is also essential that the message of conservation be spread amongst other local inhabitants of the area – inhabitants of neighbouring villages and towns, those whose present and future lives are also intertwined with the survival of the local biodiversity. And who better than the young, impressionable, enthusiastic students and their teachers from the local schools and colleges of the region? They are the people best equipped to learn, teach and most important, actively participate in conservation programmes.

The Himalayas and the Western Ghats are two of the most important biodiversity hotspots in the world. And it is indeed gratifying that two ambitious mega-projects aimed at increasing people's participation in biodiversity conservation have been launched in these two areas, almost at the same time: the Western Ghats Biodiversity Network in 1994 (see *Current Science*, 1996, **70**, 36–44) and a people's programme to conserve Himalayan biodiversity at the G.B. Pant Institute of Himalayan Environment and Development at Almora in 1995. On **page 36** of this issue, Dhar *et al.* outline the concept, action plan and the current achievements of this latter project.

With the coming of the so-called liberalization and globalization policies of our country's decision-makers, time is gradually running out for our plants, our animals and our indigenous peoples. The only way we can stem this loss is through a complete involvement of every concerned Indian to know more about our awe-inspiring diversity of natural resources and ways to protect them from future extinction. And programmes like the ones described here will go a long way to achieve this. We must not only learn, we must also do.

Anindya Sinha

Oxidation and ulcers

Molecular oxygen is essential for life. Add electrons to O_2 (reduction) and you generate reactive oxygen species like superoxide (O_2^-), peroxide (O_2^{2-}) and its fragmentation product, hydroxyl radical ($^{\bullet}OH$), all of which are damaging to biological systems because of their reactivity. Cells have developed enzymatic mechanism to handle reactive oxygen species, with superoxide dismutase, peroxidase and catalase being the most important 'deactivators'.

Reactive oxygen species have also been implicated in drug-induced gastric hyperacidity and stress-induced gastric ulceration: Both these conditions of course are widespread today. On **page 55**, Bandyopadhyay *et al.* explore the role of reactive oxygen species in gastric acid secretion and stress-induced ulceration in rats. They use the drug mercaptomethylimidazole (MMI) and induce stress by immobilizing rats 'in a supine position' for '2 hours at 4°C'. The biochemical mechanisms by which reactive oxygen species are generated are complex and their targets of attack are diverse. In the case of gastric ulcers the problems of interpretation are compounded by the fact that bacterial infection (*H. pylori*) may be a major causative factor. Antioxidants are extremely popular nowadays. Studies like this emphasize the many deleterious consequences of unrestrained oxidation in biological systems.

Bananas and blood pressure

Hypertension or high blood pressure is a common affliction nowadays. Drugs that control hypertension have given rise to a multi-billion dollar industry. The physiological mechanism involved in the hormonal regulation of blood pressure are well-understood. The renin–angiotensin system occupies the centre stage in the blood pressure drama. Angiotensin II, the key actor, is an 8-residue peptide that is a potent vasoconstrictor. This is in turn derived from a precursor molecule, a 10-residue peptide Angiotensin I, by proteolytic cleavage mediated by angiotensin-converting enzyme (ACE). Inhibitors of ACE are thus potential antihypertensive drugs. A major breakthrough in the treatment of blood pressure was the design of the inhibitor captopril by Cushman and Ondetti, which has spawned an entire industry. Several variants of this prototype ACE inhibitor are now available in the market.

Are there naturally occurring ACE inhibitors? Indeed several reports have appeared of ACE inhibitors from extracts of 'casein, sardines, tuna, bonito and maize' but apparently the foods themselves lacked inhibitory properties. Bananas have been traditionally considered to be useful in managing hypertension and other cardiac conditions in indigenous systems of medicine. There are in fact reports that feeding of ripened bananas can reduce hypertension induced by deoxycorticosterone in rats. Building upon these leads Rao *et al.* (**page 86**) have examined the possibility that there are ACE inhibitors in bananas. Their study which uses six ripened and unripened banana cultivars yields interesting results. Connoisseurs of bananas will note that some regional favourites like the 'nendran' and 'rasthali' are part of the study. The authors demonstrate the ACE-inhibiting properties of all the extracts with ripened and unripened 'nendran' winning the context. Intriguingly, the authors report that the inhibitory action is stable at alkaline pH, suggesting that sulphydryl (–SH) groups may not be involved; an indication that the banana inhibitors may differ from captopril in their mode of action. Clearly much molecular characterization lies ahead. Nevertheless, we might all look forward to a new slogan – 'a banana or two a day, keeps your blood pressure at bay'.

P. Balaram