In this issue

Biological richness in the Eastern Himalayas

Biological richness (BR) and disturbance index are cumulative properties of an ecological habitat. Six biodiversity attributes, i.e. spatial, phytosociological, social, physical, economical and ecological, were integrated following geospatial modelling approach to stratify BR of forest vegetation in Arunachal Pradesh. Though there

exist enormous studies of altitudinal pattern of vegetation distribution, Roy and Behera (**page 250**) have established a relationship between BR and disturbance across six altitude-controlled vegetation zones. In general, BR depicts a hump-shaped curve whereas disturbance, the number of economic, medicinal and endemic species decreases with altitude. This study can provide important inputs for understanding the Eastern Himalayan mountainous ecosystems.

Red listing or red herring?

Everyone agrees that our 'tomorrows' would be better off if we can save all of today's biological diversity on this planet (and even outside of the planet if it exists). Unfortunately our wallet size is too small to meet the huge cost of the action required for accomplishing this ideal need. Therefore, compromises are called for – to use our minimal resources for the most immediate needs. The task hence is to develop a priority list of those that are on the cliff edge of extinction such that we can buy some 'life' for them. Several organizations world over have attempted to develop such priority lists now familiarly called as the 'red lists'. Unfortunately just as the noble intentions of developing the red lists are appreciated, the means of arriving at them are perennially shadowed by controversies. And precisely for this reason the red lists themselves are mushrooming, the existing lists are being continually altered, and they are even being questioned about their utility in making conservation decisions.

An important ground on which the red lists are questioned is that the process of arriving at them, generally involving camps and questionnaires, is mostly based on 'wisdom' of experts than the hard data from field. Experience of the experts is taken as the word for the data. Since 'expert' and 'experience' are non-quantifiable and subjective parameters, red lists based on these are also likely to be subjective. Thus they could be as much the red herrings as they can be red lists. However more unfortunate is that while these objections per se may be valid, they are not always backed by any objective assessment of the red lists. Aravind *et al.* (**page 258**) attempt to fulfill this lax in the assessment of red lists.

Using hard data collected independently from diverse groups working at several locations along Western Ghats, the authors have compared a subset of red list species with those not listed in them for their geographic spread, population levels and regeneration status. Their data suggests that the red list species are as common or are only as rare, as those not listed in the red list. In other words it appears that unless we develop red lists on the basis of hard data from the field, these lists would ever run the risk of being only red herrings.

Separation of variables for complex geometries

One of the few general methods available for solving linear boundary value problems is the elementary 'method of separation of variables', which is taught to undergraduate science and mathematics students. In its slightly more sophisticated

avatar, 'the method of eigenfunction expansions', it is a powerful tool for solving many problems. However, a serious limitation till now has been that the geometry has had to be simple: the boundaries have to be constant coordinate lines in a coordinate system in which the equations are 'separable'. The latter also is a limitation. These serious limitations have been removed according to P. N. Shankar, in a new method called the 'method of embedding' (**page 266**). In this method the given domain is embedded in a 'good' simple domain endowed with a complete set of eigenfunctions. These are then used on the actual complex domain to solve the problem. By this extension the scope of the method has been greatly extended, obviating the need for brute force computations for such boundary value problems.

Combined mass correction to gravity data

The incorporation of variable densities in gravity data reductions like Bouguer and terrain corrections is a long-felt need of gravity data processing. Such a step of honouring surface geology assumes fundamental importance for gravity data acquired over high relief. Rambhatla Sastry *et al.* (**page 269**) propose an improved Bouguer and terrain correction scheme. Its utility is demonstrated on a gravity profile along Mahe-Sumdo-Tso Morari of Ladakh Himalaya. A maximum difference of about 50–70 mGal in the final Bouguer anomaly is observed between gravity data processed through a conventional procedure with uniform Bouguer density (= 2.67 g/cc) and by proposed one with variable density. This underlines the importance of the proposed scheme. The proposed scheme is flexible enough to accommodate the choice of reference datum and mode of terrain correction scheme.

Joint forest management

Leena Abraham and G. Sandhya Kiran (**page 288**) have assessed the status of joint forest management (JFM) plantations of Narmada District (Gujarat). JFM, a relevant policy of developing areas will bring a historic shift in forest management policies if planned, monitored and assessed properly. Critical assessment of these plantations has been done considering variables linked both to the ecological and economic conditions of the study area. This study has not only evaluated the carbon sequestration achieved by these plantations but the criterion-based assessment considering all the variables has highlighted the vitality of polyculture plantation strategy, protection awareness in tribals and availability and allocation of grazing lands in success of these plantations. The study has shown that JFM is an imperative planning policy to put forest of this area on sustainable track.