



Figure 1. a, Charnockite; b, Khondalite and c, Leptynite.

Another possibility is that the geological formations occur either vertically or horizontally or both and are not uniform within a short distance of 100 m. Hence, a systematic hydrogeological survey for the search of groundwater is necessary. The survey includes collection of data on soils (to know the infiltration capacity of soils), drainage conditions (to know the surface-rock permeability conditions), slope factors (to know the surface and subsurface run-off conditions), depth to

water levels (to know the groundwater flow conditions as well as the water storage column conditions), lithological conditions (to know the aquifer characteristics of rocks) and orientation of the geological structures (to know the direction of weak zones, which act as avenues for movement of water), followed by hydrogeoelectrical survey (to know the depth-wise hydrogeological conditions). The hydrogeological survey must be conducted at the existing wells in the

vicinity before starting it in the proposed study area.

Data of both the surveys must be correlated before recommending for exploration of groundwater.

N. SUBBA RAO

Department of Geology,  
Andhra University,  
Visakhapatnam 530 003, India  
e-mail: srmandipati@gmail.com

## NAAS ratings

The method for evaluating the scientific journals for awarding 'NAAS ratings' is being improved from time to time by the National Academy of Agricultural Sciences (NAAS), based on the feedback received. Therefore, it has been a futile exercise by Bishwapati *et al.*<sup>1</sup> in doing a comparative analysis of NAAS ratings of 2007 and 2010 for Indian journals. It would have been better if the authors clarified some of the points raised by them before publishing their analysis in *Current Science*. However, replies to some specific points raised by them are as follows:

(i) NAAS ratings of some journals having impact factor (IF) have come down.

As in the case of 2010, in 2007 also all the journals having Thompson-Reuters IF were assigned NAAS ratings from 6.1 to 10.0. However, at that time the scale was narrow as all the journals having IF 4.0 and above were assigned maximum rating of 10.0. In 2010, the scale has been expanded and all the journals with IF 18.0 and above have a maximum rating of 10.0. This is the reason why NAAS ratings of some journals like *Current Science* have come down marginally.

(ii) NAAS ratings of non-IF category journals have changed.

The NAAS ratings have changed because from 2010 onwards, the non-IF category journals are being evaluated on the basis of their scientific contents as well as the information provided on

some specific points like timeliness, periodicity, citations, membership, etc. by the publishers/editors in a prescribed proforma. The proforma for the assessment of research journals and guidelines for its filling are available on the NAAS website, [www.naasindia.org](http://www.naasindia.org).

1. Bishwapati, M., Lyngdoh, N. and Challam, T., *Curr. Sci.*, 2012, **102**, 10–12.

ANWAR ALAM

National Academy of Agricultural  
Sciences,  
NASC, Dev Prakash Shastry Marg,  
New Delhi 110 012, India  
e-mail: naas@vsnl.com

## Are field studies in botany really essential?

The 'living blue planet', the earth is an embodiment of various forms of life ranging from plants to animals, including man and microorganisms which inhabit

water, air and soil. There is a concern that 20–25% of the tropical rain forests may be lost by the end of this century and many existing life forms could

become extinct. Our former late Prime Minister, Smt Indira Gandhi believed that the survival of man is dependent on the survival of animal and plant life,

realizing which she laid the foundation for the National Wildlife Action Plan and formulated the National Conservation Strategy (1983).



**Figure 1.** *Hyphaene indica* Becc., a threatened plant of the family Arecaceae and a climber *Antigonon leptopus* (Coral vine) of Polygonaceae growing in Vadodara. The tree known as branching palm (Ravan Tad) is threatened by loss of habitat.

In order to identify plants and animal species, there is need of trained manpower. Plant taxonomists for instance, play an important role in identification of medicinal and other economic plants. However, inadequate course structure in various colleges and universities has failed to produce efficient workers. Recently, Dharmapalan<sup>1</sup> argued that dissection is essential to restore the interest of students in zoology. Similarly, botany is a subject which cannot wholly depend on classroom teaching as it does not help students to absorb the ethos of the natural habitat of plants. It is important for botanists to learn about the flora growing in their natural habitat and the kind of vegetation found in their vicinity. For example, some plants such as the epiphytic orchids have symbiotic relationship with mycorrhiza.

Botany is a subject being taught to students pursuing environmental sciences, plant biotechnology, agriculture and forestry. Much emphasis is laid on environmental education at various levels. Timely field trips to agricultural fields, natural parks and botanical gardens help in strengthening observational and identification skills in students. At

the same time, a good teacher should infuse love of plants among the young students/botanists, which will help to protect many unique plant species from extinction (Figure 1). Many believe that herbarium could serve as better teaching tools than field trips. I opine that one may not learn much from computer-generated models or the literature available on the Internet.

There is a proposal to exclude field trips from the botany curriculum. However, it should be considered that a large number of plants are uprooted during preparation of herbarium, and a few among them may be rare or endangered species.

1. Dharmapalan, B., *Curr. Sci.*, 2012, **102**, 1245–1246.

ARUN ARYA

*Department of Botany,  
Faculty of Science,  
The Maharaja Sayajirao  
University of Baroda,  
Vadodara 390 002, India  
e-mail: aryaarunarya@rediffmail.com*

## Indian flying fox in Hamirsir Lake, Bhuj city needs conservation attention

The Indian flying fox (*Pteropus giganteus*), locally known as *Vagol*, is the only large-sized fruit bat species found in Kachchh District of Gujarat (Figures 1 and 2). It belongs to the family Pteropodidae under order Chiroptera of class Mammalia<sup>1</sup>. This species is mostly confined to forests and fringes of water bodies nearby human habitation. The flying fox is well distributed throughout South-east Asia<sup>2</sup>; however, the Indian flying fox is rare among bat species found in the Kachchh region<sup>3</sup>. It is categorized as Least Concern species under the Red List of threatened species of IUCN and its population is declining alarmingly due to habitat degradation<sup>2</sup>.

The Hamirsir Lake is a historically important lake located in the heart of Bhuj city made by Maharao Hamir Singhji in AD 1500. It encompasses a small garden in the middle and provides

an ideal habitat for this bat species for roosting. The garden is also the roosting site for a number of bird species.

During the devastating earthquake in 2001, most of the old buildings of Bhuj city were destroyed and buried underground. The reconstruction and developmental initiatives have resulted in the cutting down of large trees which had provided shelter to the flying fox population in the past.

The natural habitat like forest patches and larger trees are disappearing due to rapid industrialization, urbanization and the encroachment of invasive woody plant *Prosopis juliflora*. Increasing number of visitors, laser light shows during ceremonial functions (such as 'Kutch Carnival' organized every year around the Hamirsir Lake) and increasing vehicular traffic pose threats to the flying fox population of this lake.



**Figure 1.** The Indian flying fox, *Pteropus giganteus*.