The perception of danger in nuclear energy started in the 1970s and the perception of risk started with it, said K. S. Parthasarathy (Department of Atomic Energy, Mumbai). He pointed out that knowledge about nuclear energy is poor and fear is extraordinarily high, which has been amplified by the attitude of secrecy and consequent creation of mistrust. He discussed the myths and realities related to nuclear waste management, accidents and proliferation, atomic bombs, terrorism and biological effects. For example, persons living in areas with high background radiation or high radon levels would receive higher radiation doses than the average dose to nuclear power plant workers, and these two types of radiation (natural and man-made) are exactly the same.

Atul H. Chokshi (Indian Institute of Science, Bangalore) stressed that the links between science, society and public policy should be strengthened. He brought up nuclear-related issues such as the track record of broken promises, science being driven not only by natural curiosity but also by financial culture and inducement, the increasing specialization in science along with greater public awareness and trust deficit, the influence of nuclear accidents on public perception, premature announcement of nuclear safety by many governments post-Fukushima, the subjective nature of 'scientific' cost–benefit analyses, and the human development index as a better assessor of progress than GDP.

The brainstorming session focussed on suggesting a practical methodology for public debate on risk perception, assessment, communication and management. R. Rajaraman (Jawaharlal Nehru University, New Delhi) pointed out that there is no systematic discussion on these issues. He presented an ideal method starting from experts agreeing on facts; conveying a distilled message to the public; coming to a compromised viewpoint taking into account technical, economic and political factors; deciding whether to continue with the project, abandon it or delay it and communicating this to the affected public – before the project starts. Given that we do not live in a rational world, Rajaraman also highlighted the compromises that have to be made.

Some points which came up during this session were: (i) the public may not be forthcoming to meet the scientists; (ii) the scientific community does not communicate with the public as much as the activists; (iii) scientists need to be absolutely honest about what the state of their knowledge shows them, and then let the public decide; (iv) a consensus among scientists may not be possible, but they could say: 'we agree on these points; these issues need to be talked about …'; social scientists and others could be present during these discussions; (v) heterogeneity and the level of understanding of the audience should be kept in mind while communicating; (vi) how can we move the debate prior to decision-making? (vii) public demonstrations do not represent public opinion and (viii) referendums could be tried for major issues, but the outcome of referenda depends on how the questions are phrased.

The proceedings of the session incorporating full texts of lectures is to be brought out soon. For further information, contact Malavika Kapur at malavikakapur@yahoo.co.in

1. Anderegg, W. R. L. *et al.*, *Proc. Natl. Acad. Sci. USA*, 2010, **107**(27), 12107–12109.

Geethanjali Monto* and **Richa Malhotra**
*e-mail: geethum@hotmail.com

MEETING REPORT

Where are the conservationists?*

Biodiversity loss is occurring at an unprecedented rate. The rate of extinction of species worldwide is a thousand times higher than previously documented in 1997 by the International Union for Conservation of Nature (IUCN). According to the 2004 update of the IUCN Red List, 15,589 species are at risk of extinction. One in three amphibians, one in four mammals, one in five sharks and rays, one in eight birds and almost half of the turtles and tortoises are in danger. Habitat destruction, pollution, climate change, introduction of exotic species and disease pose threats to biodiversity at different scales. This is where conservation science comes into the picture. Conservation is an important aspect of biology and is essential for conserving genetic diversity and protecting species, habitats and ecosystems. This science is not restricted to reversing the decline of species and restoring degraded habitats, but includes protecting species.

To address the issues of species decline and various aspects of conservation, the Student Conference on Conservation Science (SCCS) was organized in Bangalore. This is a sister conference to SCCS-Cambridge and SCCS-New York. More than 200 participants from South and South-East Asia attended this conference. It provided a unique platform for young researchers, budding scientists and future conservationists to exchange ideas, present their work, redefine their concepts and develop contacts with the scientific community.

In his address, Leszek Borysiewicz (University of Cambridge (CAM), Cambridge) spoke about the simultaneous conferences at Cambridge and New York, and the need for conservation today for the benefit of future generations. The plenary talks covered the broad aspects and practical sides of conservation. Harry C. Biggs (South African National Parks, South Africa) discussed various adaptive management initiatives in response to variability, uncertainty and complexity that were successfully implemented in the Kruger National Park. Andrew Balmford (CAM) talked about species decline and conservation efforts in 'Nature's glass: half-full or half-empty?' and Yvonne Sadovy (The

*A report on the 'Student Conference on Conservation Science' held during 14–16 September 2011 at the Indian Institute of Science (IISc), Bangalore and jointly organized by IISc and the National Centre for Biological Sciences, Bangalore.

University of Hong Kong, Hong Kong) spoke on the declining sea resources due to overfishing and the inadequate recovery time for the species to become a stable population in 'From reefs to restaurants: the hidden cost of luxury seafood'. Rohan D'Souza (Jawaharlal Nehru University, New Delhi) examined how development and conservation can go hand-in-hand with effective management efforts.

The paper presentations by researchers fell under four major themes: (i) Species in danger, (ii) Habitats, disturbance and diversity, (iii) Conservation and human communities, and (iv) The landscape of conservation. Some interesting papers were presented on the effect of Lantana on forest regeneration, forest values of the tribal community, biodiversity in Kandyan home gardens, Malabar Pied Hornbills of the Western Ghats, Spoon-billed Sandpipers in Bangladesh, habitat relationships of the Great Indian Bustards, conservation of South Asian River Dolphins in Bangladesh, payment for environmental services (PES) in an African protected area, and human–wildlife conflict in the Nilgiri Biosphere Reserve.

The poster session covered topics like: conservation of the House sparrow, the Dhole in Kangchenjunga and the mangroves in Chilaw; tiger and wild prey in Chitwan National Park; status and ecology of the Large Spotted Civet; folk tales and songs of the Warli tribals; survey and management of temple primates; surveys of small carnivores in Vietnam; effects of restoration on tree-diversity, and indigenous use of medicinal plants.

Most of the research papers emphasized the need for preserving the habitats of vulnerable species, as some species are highly sensitive to habitat alterations. Some papers highlighted the need for conservation of urban species like House sparrows, as this may decelerate the rate of species extinctions globally. The presentations and poster sessions strongly advocated the involvement of local communities for successful implementation of conservation programmes.

Parallel workshops were organized, giving practical experience to participants on varied topics. They included: (i) The craft of compelling communication – that emphasized on developing skills for social communication, an essential element for many conservation programmes; (ii) Bare essentials of conservation genetics – that introduced researchers to certain population genetic processes and the role of genetics in conservation efforts; (iii) Contributing to Wikipedia: a primer for conservation scientists – that gave a brief description on how Wikipedia as a tool enables organizing information and how one can edit papers on specific knowledge and expertise; (iv) Socio-economic dimensions of conservation-induced displacement – that focused on issues pertaining to the displacement of people from wildlife areas, and the social and economic impacts due to their relocation; (v) Elements of good study design in ecology and conservation – that discussed how to design a good ecological study and how best an inference can be drawn from the statistical analysis of data; (vi) Introduction to generalized linear models – that non-mathematically explained generalized linear models and generalized linear mixed models using the *R* platform; (vii) Recognizing and dealing with complexity and uncertainty: the basis for adaptive management – that provided an outline of the attributes of a complex system using theories, feedback on navigational uncertainty and how to orient oneself in a complex situation; (viii) Making sense of conservation: education – that provided a brief discussion on good conservation practices and an outline of the gaps in the approaches and tools of conservation education; (ix) Connecting people: effective messaging for conservation – that put together the elements of an effective message and the medium used for it; (x) Asking questions in conservation science – that provided an outline of how to ask and answer questions in conservation, from practical and philosophical perspectives; (xi) Visualizing data and a graphical approach to ecological and environmental science – that illustrated the role of relatively simple but extremely useful graphical analyses in exploring the ecological and environmental complexities of data and in testing hypotheses; (xii) Spawning aggregations in marine fish – that covered the management and monitoring of reef fish spawning aggregations and assessment of critical life-history events in these species; (xiii) Rapid socio-ecological assessments for conservation and development – that emphasized the need to acknowledge the role and value of living organisms while planning for conservation and development; (xiv) Introduction to GIS with quantum GIS – that provided an overview of rastor and vector geographic information systems, geo-referencing and digitizing maps, and creation of thematic maps.

The 'Beyond science' session was open to all and ran parallel with the workshops, addressing several broader facets of conservation such as the effectiveness of conservation measures in the real world, the work of activists and pressure groups, and the role of films in conservation. Organizations working on various aspects of conservation took part in 'Who's who in conservation?' highlighting their work, briefing their agendas on conservation and highlighting possible employment opportunities for young researchers. In the session on 'Birds-of-a-feather', participants formed groups based on their expertise and discussed ongoing conservation efforts in their regions, at the species level.

Through the conference, the organizers have made an appreciative effort in presenting to the participants – facts about declining species and the need for conservation and sustainable use of resources. Researchers should focus not only on reversing the decline of species, but on restoring and protecting habitats at the landscape level. The conference concluded on this note.

Manjula Menon*, **R. Mohanraj** and **Prashanthi Devi,** Department of Environmental Management, Bharathidasan University, Tiruchirappalli 620 024, India.
*e-mail: manj.mn@gmail.com