

Human-wildlife conflict and management of higher vertebrate pests

Day 2 | 11 July 2026, 4:30-6:00 PM

This SIG was attended by invited experts representing wildlife ecology, behavioural ecology, conservation organizations, technology developers, and policy practitioners. The session was chaired by Dr. B.K. Babbar, who welcomed the participants and briefly introduced the panel about the research being done by her on sustainable management of rodents, bluebull, and other vertebrate pests through studying their behavioural ecology, and developing various formulations for their fertility control, behavioural changes through the use of pheromones or botanical based repellents, and integrated management strategies under All India Network Project on Vertebrate Pest Management (AINPVPM) at Punjab Agricultural University, Ludhiana. She outlined the objectives of SIG-11 as fostering interdisciplinary discussions on behavioural ecology, conflict mitigation, technology, community participation, and policy for sustainable human–wildlife coexistence, and introduced the distinguished panel of invited experts representing diverse disciplines.

In his opening remarks, Dr. Raman Sukumar, National Science Chair, Centre for Ecological Sciences, Indian Institute of Science, Bengaluru, emphasized that human–wildlife conflict is becoming increasingly complex due to rapid land-use changes and habitat fragmentation & degradation. He highlighted the need for science-based management, and integration of behavioural ecology, technology, policy, and community participation to develop sustainable coexistence strategies.

The session brought together experts through a moderated panel discussion. It was divided into four themes

Theme 1: Understanding Human–Wildlife Conflict through Behavioural Ecology

The discussion emphasized that rapid land-use change, habitat fragmentation, agricultural expansion, infrastructure development, and climate change are altering wildlife behaviour and increasing interactions between people and wildlife. Panelists highlighted that behavioural ecology provides valuable insights into animal movement, habitat selection, risk perception, feeding ecology, and behavioural adaptation in human-dominated landscapes. Examples of leopard, elephant, blue bull, and other vertebrate species demonstrated how understanding behavioural responses can improve conflict prediction and support the development of species-specific, non-invasive mitigation strategies. The potential application of behavioural approaches, including movement ecology, risk perception, olfactory communication, learning behaviour in conflict management was also discussed. A presentation by Mr Avinash Krishnan from A Rocha India highlighted research on elephant movement and human–elephant interactions across coffee–forest–agriculture mosaics in southern India, emphasizing the importance of integrating behavioural ecology with community-led conflict mitigation.

Theme 2: Human–Wildlife Conflict in Agricultural Landscapes and Management of Higher Vertebrate Pests

The panel discussed the growing challenges posed by higher vertebrate pests and conflict-prone wildlife species such as elephants, bluebull, wild boar, monkeys, leopards,

rodents, and birds in agricultural landscapes. Experts observed that increasing dependence of wildlife on agricultural resources, coupled with habitat degradation, has intensified crop depredation and economic losses. Existing mitigation measures—including fencing, crop guarding, deterrents, habitat management, and community participation—were reviewed, and their strengths and limitations were discussed. The panel emphasized that while some mitigation approaches may be broadly applicable, effective conflict management ultimately requires species-specific strategies integrated within landscape-level planning.

Theme 3: Technology and Innovation for Conflict Mitigation

A major focus of the session was the role of emerging technologies in improving human–wildlife conflict management. Innovative approaches including GPS collar-based early warning systems, bioacoustic technologies, automated detection systems, repellent based formulation, fertility control and community-based early warning networks were discussed. The panel agreed that future conflict management should increasingly incorporate artificial intelligence, remote sensing, drones, virtual fencing, and other smart technologies while ensuring affordability, scalability, and community acceptance.

Theme 4: Community Participation, Governance and Policy

The discussion reinforced that sustainable human–wildlife coexistence cannot be achieved through technological interventions alone and requires active participation of local communities. Panelists emphasized the importance of community awareness, participatory management, and strengthening trust between local communities, researchers, Forest Departments, and other stakeholders. The effectiveness of compensation and insurance schemes, was discussed, with participants noting the need for greater awareness, timely compensation, and simplified implementation. Experts also highlighted the need for improved policy coordination, better integration of agricultural and wildlife management, and stronger institutional collaboration to support evidence-based decision-making.

Future Roadmap

One of the most significant outcomes of the session was the consensus among participants on the need to establish a collaborative platform to sustain interactions beyond the conference. The panel proposed the formation of a Human–Wildlife Conflict Working Group to promote interdisciplinary collaboration among ecologists, wildlife biologists, agricultural scientists, economists, and policymakers.

Key Recommendations

- Promote interdisciplinary and landscape-level approaches to human–wildlife conflict management.
- Integrate behavioural ecology into the design of species-specific, non-invasive mitigation strategies.
- Accelerate the development, validation, and field adoption of affordable developed technologies for conflict mitigation.
- Strengthen collaboration between wildlife researchers, agricultural scientists, policymakers, NGOs, and local communities.
- Enhance community participation through awareness programmes, and participatory management.

- Improve compensation and insurance mechanisms and strengthen policy support for conflict-affected communities.
- Establish a national collaborative Human–Wildlife Conflict Working Group to coordinate research, technology development, policy dialogue, and capacity building across institutions.

The session concluded with a vote of thanks by the Chair, who acknowledged the valuable contributions of all panelists and participants and expressed confidence that the collaborative initiatives proposed during the session would strengthen research, policy, and management efforts towards achieving sustainable human–wildlife coexistence in India.