General Recommendations

International Conference on Population and Conservation Genetics (Coimbatore, 28-30th January 2026)

1. **Mainstream forest genetic diversity into climate and biodiversity policies.**
   Genetic and genomic information should be systematically integrated into national policies and strategies for biodiversity conservation, forest restoration, and climate adaptation, recognizing genetic diversity as a foundational component of biodiversity, forest resilience and adaptive capacity, and long-term ecosystem stability under rapid environmental change.

2. **Use genomic and genetic tools to guide conservation priorities and seed sourcing.**
   Knowledge of the genetic diversity, population genetic structure, and adaptive variation of forest tree populations should be more widely applied to identify priority populations, define seed zones, and select appropriate forest reproductive material for reforestation and restoration, under projected climate change scenarios. However, genomic forecasting tools must be improved and continuously validated using long-term field experiments, provenance trials, and genetic monitoring networks.

3. **Protect and manage genetically vulnerable and isolated populations.**
   Conservation strategies should explicitly include small, fragmented, or geographically isolated tree populations, even when genetic diversity is low, as they may harbor unique adaptive variants and play a critical role in long-term species persistence. Genetic monitoring should be more broadly implemented in these populations to detect early signals of forest decline, maladaptation, or loss of adaptive potential.

4. **Leverage emerging genomic resources and technologies responsibly.**
   New resources such as pangenomes, structural variant datasets, and advanced omics approaches offer major opportunities to improve understanding of adaptation and to support tree breeding, but their use should be accompanied by transparent validation, open methodological standards, and consideration of long-term sustainability.

5. **Accelerate climate-resilient tree breeding while maintaining genetic diversity.**
   Genomic selection and related approaches can substantially accelerate breeding in long-rotation tree species, but deployment strategies should favor genetically diverse material (e.g. full-sib families rather than monoclonal systems) to avoid the erosion of adaptive potential and to reduce vulnerability to emerging pests, diseases, and climatic stress.

6. **Strengthen tree seed systems for restoration and climate adaptation.**
   Robust national tree seed systems, as well as a recognized certification scheme of forest reproductive material, are needed to ensure the availability of high-quality, traceable, and well-documented forest reproductive material. Modelling tools and decision-support systems should be used to strengthen seed source management under climate change.

7. **Invest in capacity building and extension across the seed and restoration value chain.**
   Training and extension programs are essential to ensure that best practices in forest

genetics, seed handling, and restoration are effectively implemented by nurseries, forest services, private sector actors, and local communities.

8. **Promote participatory approaches in forest genetic resource management.**
   The involvement of local communities and use of traditional native knowledge are essential for effective conservation, restoration, and sustainable use of forest genetic resources. Integrating participatory forest management with forest genetics strengthens legitimacy, compliance, and long-term success.

9. **Strengthen international and regional collaboration.**
   Addressing climate-driven risks to forest genetic resources requires strong international networks, shared infrastructures and knowledge, harmonized protocols, and open data, supported through partnerships among research institutions, governments, private-sector actors, and international organizations.