Rationale

Demands of forest ecosystem services grow up due to the climate crisis and the need to reinforce the bioeconomy sector, the social services of healthy forests as established by the UN sustainable development goals, and forest resilience to disturbances and anthropogenic pressures.

By 2050, drastic changes are expected in population growth, climate change, biodiversity loss, globalization and a growing world economy, putting tremendous pressure on forests and the societies who depend on them. 2050 is a landmark year to achieve the vision of Living in Harmony with Nature of the Convention on Biological Diversity as well as the target of net zero emissions. With a focus on forest contribution to the UN 2030 Agenda and its sustainable development goals (SDG), the IUFRO World Congress in Stockholm 2024 will help streamline forest research agendas, furthering dialogues and cross-sector cooperation, and promote the multi-functionality of forests and their services.

THEME 1: Strengthening forest resilience and adaptation to stress

Biotic and abiotic stressors of forest have been studied for many years and recent developments indicate that the effects of climate change are already threatening forest health globally with increasing fire frequency and damage by forest pests and pathogens, especially in hemiboreal and boreal zones. The climatic consequences on the forest-soil-water nexus fuel the necessity to understand and predict the magnitude and impact of such disturbances. Maintaining and improving forest health depends on our capacity to understand forest vulnerability and adaptation mechanisms, and to reduce and manage risks, so that we can improve adaptation, mitigation and restoration measures in forest management.

THEME 2: Towards a responsible forest bioeconomy

Sustainability is the goal, a goal which can only be achieved by people taking responsibility together to achieve it. Economic sustainability means that the viability, productivity and profitability of forests are preserved in the long term. All sustainability issues, ecological, economic, cultural and social sustainability need to be considered in order to secure a responsible use of any forest resource. Climate change mitigation increases demand for renewable raw material based solutions and forest biomass plays a key role in the future bioeconomy. New products and cascade use of biomass challenges research and innovation actions. Enduser and consumer acceptance is important in order to advance sustainable and resource efficient solutions.

THEME 3: Forest biodiversity and its ecosystem services

Forest biodiversity is the foundation of many ecosystem services, and the effect of biodiversity on ecosystem functioning and processes is a central issue. Biodiversity is under unprecedented threat driven largely by habitat loss. Rapid changes in biodiversity put ecosystem functioning at risk and jeopardize the essential services that we rely on. Research on biodiversity, ecosystem functions and services will play substantial roles in the development of sustainable forest management practices and contribute to the Sustainable Development Goals. This research will help forest science to contribute to the sustainability of our future.

THEME 4: Forests for sustainable societies

Changes in values, demographics, production and consumption patterns, together with environmental threats, are major challenges to society. These challenges demand transformative innovations, with novel, synergistic collaborations occurring across sectors, new business and governance models, policymaking, and stronger institutions. A just transition to low-carbon, nature-based and resilient economies is a prerequisite for sustainable societies. Healthy forests and trees are a key factor to drive this transition to enhanced well-being and quality of life for both urban and rural populations. Governance for sustainable societies must consider individuals and communities, values, gender, social equality, health and income, as well as the institutional arrangements supporting people's livelihoods and quality of life.

THEME 5: Forests for the future

Actions to protect and support the sustainable use of forests require updated methodologies and innovative approaches, to allow local-toglobal programming and improve capacity building and knowledge development, communication and outreach. Filling in knowledge gaps and raising a generation of young forest experts will improve the accuracy of forest accounting and predictions, a crucial part of the strategy to meet climate mitigation targets, protect forests and consolidate the role of the forest sector in the global environmental context.