

## **St James's Palace Memorandum on Tropical Forest Science**

His Royal Highness The Prince of Wales has invited a group of tropical forest scientists, in the company of Ministers, senior representatives of Governments, and leaders from civil society and the private sector, to gather in London at the Royal Society and at St. James's Palace. In this meeting, we have reviewed and discussed the latest developments and key priorities for tropical forest science in the context of the multiple pressures facing tropical forests. We hereby:

RECOGNIZE that:

- 1) tropical forests are the greatest terrestrial harbours of biodiversity on this planet, and that they have a major influence on the global cycles of carbon, water, energy and patterns of rainfall;
- 2) there is immense value in many types of tropical biomes, including rainforests, dry forests, savannahs and mangroves;
- 3) tropical forests support sustainable livelihoods for people, and provide multiple ecosystem services at local, regional and global scales;
- 4) tropical forest peoples have lived in and used tropical forests for millennia, and have knowledge and insights that can contribute to forest conservation;
- 5) tropical forests provide many ecosystem services, including conservation of biological diversity, in addition to their value as carbon stores and sinks. Human-modified tropical forests provide critical ecosystem services, including the provision of hydrological services, timber and non-timber products, and these can be enhanced through conservation, restoration and sustainable management efforts.

ARE CONCERNED BY:

the multiple and unprecedented combination of pressures on tropical forests in this era of global change, the Anthropocene, from deforestation, degradation, defaunation and atmospheric change, such that no tropical forest is now free from human influence.

RECOGNIZE the:

- 1) poor current scientific understanding of how the biodiversity and functioning of tropical forests are responding, and will continue to respond, to structural disturbances from logging, fire and the processes of defaunation and atmospheric change;
- 2) need to improve our knowledge on the diversity, distribution and interaction of tropical species as a basis for conservation planning and evidence-based management;
- 3) need for enhanced scientific effort to understand the provision and use of tropical forest ecosystem services, in order to provide the knowledge base to conserve the tropical forests and ensure that use of their natural resources is sustainable. This improved understanding could lead to enhanced incentives and more cost-effective approaches for tropical forest conservation and the sustainable use of the forests' natural resources;
- 4) particular need for focused research into human-modified tropical forests, which constitute a large proportion of tropical forests and host much biodiversity and functional value.
- 5) need for detailed, large-scale and long-term monitoring of tropical forest flora, fauna and ecosystems with the aim to better understand and predict the short and long-term impacts of local and global change, and to act as early warning systems signalling biodiversity decline or the approach of critical thresholds and possible tipping points in ecosystem function;
- 6) need greatly to enhance scientific capacity and awareness in many tropical forest nations, both in basic science and in state-of-the-art techniques. Such enhancement would assist forest monitoring in

tropical nations, and build and invest in the capability of in-country experts with an understanding of the multi-faceted value of tropical forests.

- 7) need to improve communication and collaboration between scientists, decision-makers and the media, better to inform policy and guide scientific research.

WELCOME the:

- 1) ongoing efforts of governments, private sector and civil society organizations – especially of many tropical forests nations, peoples and individuals – to slow down the rates of deforestation and degradation, and to increase tropical forest conservation and restoration to enhance the adaptive capacity of tropical forests in the context of global change.
- 2) existence of many scientific monitoring efforts and networks across the tropics that are yielding valuable insights into the functioning and composition of tropical forests and how they are changing over time;
- 3) current expansion of forest monitoring across the tropics in the context of REDD+, which presents an opportunity better to understand tropical forests and their ecosystem services beyond their carbon value.

**Therefore, by this Memorandum, we CALL for:**

- 1) strategic investment in big science, that supports the integration and expansion of global tropical forest monitoring networks drawing on existing monitoring efforts. Such networks would adopt the established methods of tropical forest monitoring, but also incorporate cutting edge technologies such as genomics, airborne and satellite remote sensing;
- 2) long-term international commitment to both field- and remote sensing monitoring of tropical forest responses to the multiple pressures that constitute the Anthropocene;
- 3) wider availability of tropical forest data, and modelling outputs, to understand better and predict how tropical forests respond to these pressures. This includes long-term open access to global satellite remote sensing data sets, as exemplified by the Landsat programme, to ensure transparent, up-to-date, and retrospective information on forest cover change;
- 4) enhanced research into the nature and distribution of tropical forest biodiversity, the many poorly understood ecosystem services that pristine and human-modified tropical forests provide, and into the socio-economic drivers that affect those services;
- 5) increased efforts to improve understanding of the critical linkages between the supply of ecosystem services and their importance to people at local, regional and global scales;
- 6) governments and the private sector to engage with scientists in developing strategies that conserve forest ecosystems while meeting human needs;
- 7) development of programmes to enhance and devolve capacity in natural and social sciences in tropical forest nations through *in situ* support for training and infrastructure, and international scholarships and grants in tropical forest science and conservation for students and researchers from these nations.