**Exploring and understanding Colombian bio resources**

The aim of this programme is to gain a better understanding of socio-ecological systems in the Colombian regions of Boyacá and Cundinamarca and their response to environmental change, including climate, land use, and social or political change; and the underpinning role and value of biodiversity.

This programme seeks to improve our understanding of socio-ecological systems in the Colombian regions of Boyacá and Cundinamarca, and their response to environmental change, including climate, land use, and social or political change; and the underpinning role and value of biodiversity in these ecosystems.

Natural Environment Research Council (NERC) and Arts and Humanities Research Council (AHRC) are joint funders. The programme is also supported by the UK through the Newton-Caldas Fund, which forms part of the UK government’s Official Development Assistance (ODA) commitment. This programme is a collaboration with the departments of Boyacá and Cundinamarca, who are providing support through the Colombian Administrative Department of Science, Technology & Innovation (Colciencias), for Colombian-led projects.

Colombia Bio is a 10-year Colombian national project that recognises the great value biodiversity represents to a country. The project aims to reduce gaps in science, technology and innovation related to the knowledge, conservation, management and sustainable use of the biodiversity. It seeks to contribute to a sustainable and socially-inclusive territorial development in a post-conflict scenario. This funding opportunity contributes to UK-Colombian collaboration under Newton-Caldas Funds and the Colombia Bio programme objectives.

This collaborative UK and Colombian research programme will support researchers in identifying and understanding the benefits of biodiversity, using new technologies, concepts and social frameworks. Research will explore Colombia’s biodiversity, increasing our understanding (including exploring indigenous knowledge) of the flora, fauna and soil microorganisms. This includes examining their role in ecosystem functioning, and the delivery of benefits and services, impacts of change, and options for management and exploitation. This new exploration and understanding will contribute to developing a sustainable natural resource economy, and in so doing, enhance Colombia’s environmental, social and economic future.

Where appropriate, using new tools and techniques, for example, emergent high-throughput DNA tools, Earth observation and remote sensing and modelling, and integrated tool approaches, the programme will:

* develop baseline knowledge of Colombian regional biodiversity, structure and function
* use this knowledge to understand biodiversity connectivity across scales, exploring resilience to, and potential regional impacts of, climate and environmental change, including management
* explore the link between biodiversity and function, and the value of that biodiversity (such as its function, provision of resilience and value in society)
* provide a better understanding of the relationship between humans and nature, and the benefits that engaging with the natural environment can bring to human wellbeing
* explore how the history, culture and traditional knowledge of a region can influence key challenges around managing its ecosystems in a sustainable way.

Colombia holds almost 10% of the world’s biodiversity and is one of the world’s megadiverse countries. It ranks first in bird and orchid species diversity and second in plants, butterflies, freshwater fishes and amphibians. There are 311 types of ecosystems within Colombia, making it a country of richly complex ecological, climatic, biological and ecosystem components.

Colombia’s mainland is 53% covered with natural forests, which contain more than half of the terrestrial animals and plants, and more than two-thirds of terrestrial net primary production. About 2% is covered by moorlands, 19% of this moorland is in Boyacá, representing the largest expense of moorland in the country. The moorlands are considered one of the most important ecosystems for human wellbeing because they are a source of water to more than three-quarters of the population in these areas.

The country’s biodiversity is not only important in terms of its natural heritage value and for the conservation of unique species, these natural resources are essential for their contribution to human welfare, social equality and economic development. Biodiversity has a direct value through the provision of goods such as food, fibre, fuel and medicines. And it also underpins ecosystem processes and functions that contribute to other benefits such as climate regulation, soil formation, water purification and recreation, as well as providing ecosystem resilience.

After years of internal conflict, a recent peace deal means that previously inaccessible areas of the country are now opening up to exploration. This provides an opportunity to gain greater understanding of the country’s natural resources, and informs and supports ways in which ecosystems can be managed sustainably in a socially inclusive way. This includes recognising the value of indigenous knowledge, historical perspectives, cultural values and heritage as a way to stimulate community engagement.