Newly discovered peatlands must be protected to prevent climate change

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Credit: University of St Andrews

Recently discovered peatlands in Amazonia and Africa must be protected from commercial agriculture to prevent environmental disaster, say researchers at the University of St Andrews.

Extensive deforestation, drainage, burning and conversion of peat swamp forests to rice and oil plantations in Indonesia and Malaysia over recent decades have caused huge carbon releases into the environment.

As well as resulting in Indonesia being one of the largest emitters of carbon on the planet, this has led to severe air pollution due to the smoke from peat fires, and the loss of habitat for iconic species such as the orangutan.

A series of recent discoveries has shown that peatlands also cover large parts of Amazonia and Africa. These currently remain largely intact, beyond the present-day frontier of agriculture.

The international research team, led by St Andrews, identified a series of threats to these intact tropical peatlands, and highlighted conservation methods particularly relevant to this type of ecosystem.

This work focuses on the largest known intact tropical peatland in Amazonia, the Pastaza-Marañón Basin in north-east Peru, as a case study.

Lead author Dr Katy Roucoux of the School of Geography and Sustainable Development at St Andrews said: "The key to preserving these peatlands, which are a type of wetland, is maintaining their water balance; you need to keep the water table high. In our study area the main threat to peatland health is the expansion of commercial agriculture linked to the development of new transport infrastructure which makes it easier for companies to access remote areas."

Although some of the peatlands in the Pastaza-Marañón Basin were found to fall within existing legally protected areas such as national parks, the team found that this protection is patchy, weak and not focused on protecting the most carbon-rich areas.

Co-author Dr Ian Lawson said: "By comparing legally-protected areas with our model of peatland distribution in the Pastaza-Marañón Basin, it became clear that although some of the peatlands are protected, the most

carbon-rich peatlands happen to occur in areas that are much less well protected. That makes them vulnerable to future economic development in the region."

The team identified several key pathways for conservation. New carbon-based conservation funding, for example under UN-backed schemes such as the Green Climate Fund to which the UK contributes, could help local communities to protect their environment while also achieving sustainable economic development. Harvesting sustainable peatland products such as palm fruits, which can be collected without substantially degrading the ecosystem, could provide an alternative to monoculture plantations.

Giving local communities legal ownership of the lands they occupy could also help communities to have a greater say in how peatlands are managed, while national parks and forest reserves could be expanded to provide a legal barrier to environmentally damaging development.

Dr Roucoux added: "We argue that conservation should be focused in the first instance on the most carbon-rich peatlands, not just in Amazonia but across the tropics."

Provided by University of St Andrews