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IPCC CLIMATE REPORT IDENTIFIES ECOSYSTEM HOTSPOTS

Many species and natural ecosystems are at risk from rapid climate change because they are restricted in geographic and climatic range, says Prof Lesley Hughes, of Macquarie University.

"While most species are well-adapted to short-term climate variability they are not to longer-term shifts in mean climate and increased frequency or intensity of extreme events," says Prof Hughes.

Prof Hughes is a lead author of the regional chapter on Australia and New Zealand contained in the latest Working Group reports released by the Intergovernmental Panel on Climate Change.

She says many areas of protected habitat are small and isolated. Compounding elements additional to climate change are stresses such as invasive species and habitat fragmentation.

The most vulnerable regions include the Wet Tropics and Kakadu, alpine areas, tropical and deep-sea coral reefs, south-west Australian heathlands, and coastal and freshwater wetlands.

Prof Hughes says there are a number of adaptation options, and the resilience of many ecosystems can be enhanced by reducing non-climatic stresses such as water pollution, habitat fragmentation and invasive species.

"One adaptive strategy is to provide corridors to facilitate migration of species under future warming. This may require changes in land tenure in many regions with significant economic costs. Schemes to promote such connectivity are already underway in some Australian states.

"Another strategy is translocation of species which is a measure of "last resort" due to cost, and may be considered desirable for some iconic or charismatic species," she says.

Research priorities include: identification of thresholds including rates at which unplanned or natural adaptation is possible; identification of the most vulnerable species (including key indicator species), long-term monitoring; modeling of potential impacts on key ecosystems; interactions with stresses such as invasive species; improved bioclimatic modeling; and management options to reduce vulnerability.

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