Biodiversity hotspot vegetation in decline

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Vegetation growth in forests and shrublands of WA's global biodiversity hotspot are showing alarming declines, according to a recent study which found a quarter of the hotspot's woody vegetation had disappeared in the past 16 years.

The research also suggests we should expect the trend to continue into the future, which is likely to spell bad news for the local fauna.

The study, involving satellite imagery from 2000 to 2011, shows a fast declining rate of vegetation growth in forest and shrubland across the hotspot.

The hotspot stretches from Shark Bay in the Gascoyne to beyond Esperance in the south-east and to the south-west corner.

It is one of only 34 hotspots around the world—areas that are under threat and recognised for their incredible biodiversity and for homing plant and animal life that occurs nowhere else on the globe.

The Murdoch University research showed that 15 per cent of the woody vegetation across the hotspot study area (about 37,000 km2)—an area more than half the size of Tasmania—lost a quarter of its vegetation growth between 2000 and 2011.

Further study from 2011 to now indicates the trend is worsening.

Most of the observed declines are due to ever-decreasing rainfall figures

across the region, Murdoch University research fellow Niels Brouwers says.

Bureau of Meteorology figures show average rainfall in the area has decreased from 5mm to 40mm every 10 years since 1970.

"There has been a persistent drop in rainfall over the past 40 to 50 years and more and more we're seeing the response to this in declines in forest health," Dr Brouwers says.

While there has been evidence of vegetation health declining at a local scale, this is the first study to examine the entire biodiversity hotspot.

Dr Brouwers drew his conclusions by examining time series satellite imagery, which detects changes in vegetation cover and productivity.

He found the declines were worst in the north-west and south-east transition zones from tree to shrub vegetation.

He says with fewer trees, less carbon is absorbed from the atmosphere and with the persistent declines in rainfall this means the area is becoming increasingly less suited for tree planting efforts as a means of combating climate change.

"Fauna that is dependent of forest habitat, like the threatened Carnaby's Black Cockatoo [Calyptorhynchus latirostris], will also suffer," he says.

"Basically the area covered by forest is getting smaller, and we should prepare ourselves for massive changes in terms of the vegetation we have," he says.

More information: Niels Christiaan Brouwers et al. Decreasing Net Primary Production in forest and shrub vegetation across southwest

Australia, *Ecological Indicators* (2016). DOI: 10.1016/j.ecolind.2016.01.010