



Draft forest management plan 2014–2023 and climate change

Carbon dioxide is one of the gases that occurs naturally in the Earth's atmosphere, but levels have increased significantly over the past 100 years.

Many scientists believe the greenhouse effect from increased levels of atmospheric carbon dioxide, methane and other gases is increasing the Earth's temperatures to the point of changing the Earth's climate – a phenomenon referred to as global warming and climate change.

In Western Australia's south-west, the impact of climate change has been most apparent in a substantial drying trend, with significant decreases in rainfall, streamflow and groundwater levels recorded since the 1970s.

The Indian Ocean Climate Initiative predicts that, compared to the period 1960-1990, by 2030 the south-west will experience:

- two to 20 per cent less rainfall
- 0.5 to 2.1 degrees higher summer temperatures and a similar rise in winter temperatures.

The impacts these changes will have on native vegetation are not well understood, but they are expected to be significant, and variable. Potential impacts include changes to species distribution, fire regimes, further declines in groundwater levels and less productive capacity in native forests and plantations, which in turn will affect their ability to store carbon.

A comprehensive, adequate and representative conservation reserve system provides an important base from which to manage any adverse impacts on native plants, animals and ecosystems that may arise from climate change. Nearly 62 per cent of the lands vested in the Conservation Commission in the plan area are formal reserves and other protected areas.

In response to uncertainties about the impacts of climate change, the Draft plan proposes a broad range of precautionary measures, including:

- greater retention of vegetation, such as larger marri trees and more shrubs and smaller trees, in areas being harvested to increase habitat protection, especially for threatened black cockatoos and numbats
- datasets developed by the CSIRO in 2007 for the regional analysis of climate change in Australia have been used to model the potential impacts of climate change on sustained timber yields under medium and high severity scenarios
- management of prescribed fire regimes will include monitoring the effects on biodiversity so systems can be adapted to the effects of climate change
- extending the Department of Environment and Conservation's (DEC) *FORESTCHECK* monitoring program, which informs forest managers about changes and trends in biodiversity associated with forest activities.

Forests play a major role in regulating the global carbon cycle, which consists of carbon stored in the atmosphere, the land and the ocean and continuous movement between these stores. Carbon is stored in native forests and tree plantations in biomass (above ground in living and dead trees, other vegetation, surface litter and woody debris, and below ground in roots) and in the soil.

The Draft plan contains the first indicative estimates of carbon stocks in native forests on the lands vested in the Conservation Commission in the plan area.

DEC's tree volume inventories (using 23,470 aerial photo plots and over 2,000 ground plots) have been used to provide estimates of the above-ground forest biomass, from which broad regional estimates of the above- and below-ground carbon stocks have been calculated:

- 72.8 million tonnes of carbon in formal reserves and forest conservation areas
- 91.3 million tonnes of carbon in State forest and timber reserves.

The lower figure for formal reserves and forest conservation areas is due to several factors – for example, more than 28 per cent of the total area in these reserves is made up of ecosystems with very low standing woody biomass, such as shrub, herb and sedgeland, rocky outcrops and sand dune systems.

The Draft plan includes proposed changes and management options that could alter the sustained yield figures compared with the current forest management plan. From the many combinations of these settings possible, two scenarios for the calculation of sustained yield are included in the Draft plan. Projected changes in the indicative carbon stores for each scenario are also included. Under both scenarios carbon stores are estimated to increase over the period of the plan.

The *Draft Forest Management Plan 2014-2023* is available at www.conservation.wa.gov.au and is open for public comment until 7 November 2012.



Department of
Environment and Conservation

