**NSW woody vegetation extent 2011**

Woody vegetation is a key feature of our landscape and an integral part of our society. We value it because it contributes to the economy, protects the land, provides us with recreation, and gives refuge to the unique and diverse range of fauna that we regard so highly. Yet it poses a significant threat to us in times of fire and storm. So information about trees is vital for a range of business, property planning, monitoring, risk assessment, and conservation activities.

The map of woody vegetation extent for NSW has been upgraded and is the most detailed to date (5 metre pixels). It shows the location, extent, and density of foliage cover for stands of woody vegetation in NSW for the year 2011. The resolution is good enough to identify small features such as trees in paddocks and scattered woodlands through to the largest expanses of forest in the State.

What can the maps be used for

The maps are intended for rural landscapes and are suited to many applications including:

- property planning
- vegetation mask for topographic maps
- local government planning
- risk assessment, such as in fire-prone areas
- native vegetation mapping
- habitat identification and mapping
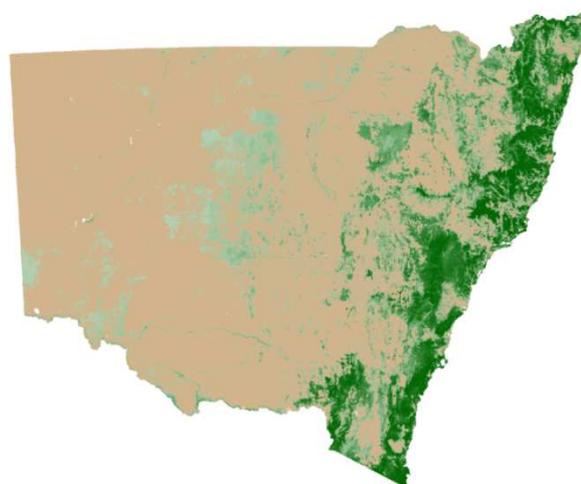
What maps are available

There are two versions of the state wide map:

- **Woody vegetation extent**, a map of woody vegetation presence or absence, where woody vegetation is defined as trees and shrubs taller than two metres and visible at the resolution of the imagery used in the analysis (5 m by 5 m pixels)
- **Woody foliage projective cover (FPC)**, FPC is the fraction of the ground that is obscured by green leaf, and is a measure of density.
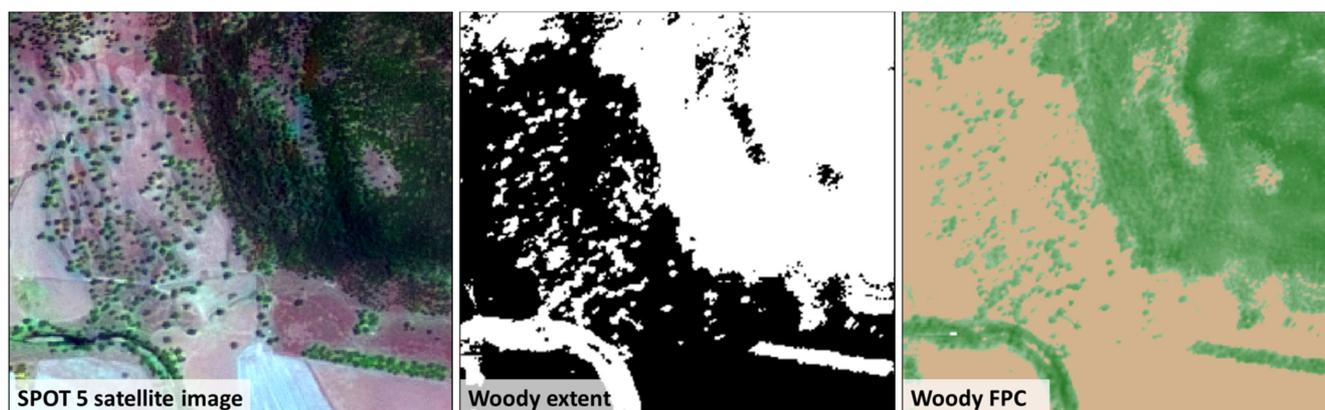

The satellite imagery used (left panel) in the creation of the two map products (right panels).

How accurate are the maps

OEH staff compared the maps to two independently-derived data sets of woody vegetation extent. The first comparison used fine-detailed maps of woody-vegetation extent derived from airborne Lidar surveys. The state-wide map of extent had an overall accuracy of 90.1%.

The second comparison used 6670 image-interpreted points of woody vegetation presence or absence. The points were gathered from images with 2.5 m pixels. The overall accuracy was 88%. The spatial variation in accuracy across the state, reported by Local Land Service region, is listed in the table below.

Care should be taken when interpreting the maps. Incorrect classification is most likely to occur where it is difficult to distinguish trees greater than two metres in height from other types of vegetation. Such vegetation includes sparse woodlands, low shrubs, chenopods, heath, wetlands, and irrigated pastures and crops. Also, woody vegetation is only detected about half of the time when the foliage cover within a pixel is less than 20%.
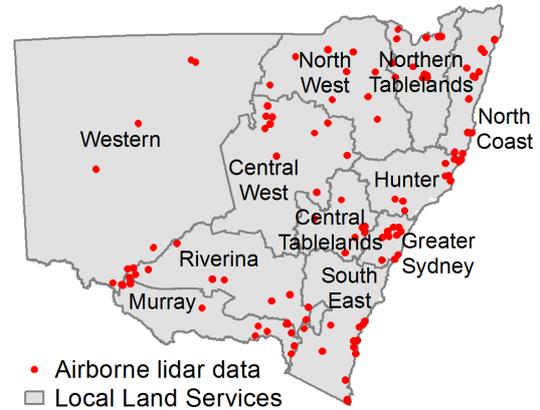
The red points in this map show the locations of the airborne Lidar data used for assessing the accuracy of the woody vegetation extent maps.

Overall accuracies of woody extent from the comparisons

Local Land service	Points	Lidar	Local Land service	Points	Lidar
North Coast	95.8%	93.6%	Riverina	89.0%	93.0%
Northern	91.8%	89.0%	Hunter	88.7%	85.3%
South East	91.6%	94.5%	North West	88.3%	89.0%
Central	91.0%	86.8%	Murray	84.8%	90.3%
Greater Sydney	90.6%	89.1%	Western	77.5%	88.6%
Central West	89.8%	88.3%			

Image details

Data type: raster
Pixel size: 5 m
Base imagery: SPOT 5 HRG, 10 m multispectral and 5 m panchromatic

Acknowledgement

We owe a debt of gratitude to the numerous Science Division staff and volunteers who edited the maps. Thanks too, to the following organisations:

- Airbus Defence and Space for SPOT data
- NSW Land and Property Information for ADS40 data
- NSW Land and Property Information and a number of commercial vendors for Lidar data
- Staff from the Joint Remote Sensing Research Program.

Data access

The maps may be requested through the Office of Environment and Heritage's Spatial Data Online catalogue by searching *woody extent*: http://mapdata.environment.nsw.gov.au.

Contact

Contact the data broker for data access and product information: data.broker@environment.nsw.gov.au

Image pixel values

Woody extent
0 – not woody
1 – woody
255 – null
Woody extent and FPC
101 to 200 – woody FPC *
100 – not woody
99 – not woody, ephemeral
98 – water body
97 – not mapped
96 – no observations
0 - null

* FPC = pixel x 0.01 - 1