



# Monitoring vegetation change using remote sensing

*Environmental Protection Act 1986*

## Purpose

This fact sheet provides information on the Department of Environment Regulation's (DER) use of remotely sensed images to monitor vegetation change across the state.

## Introduction

The *Environmental Protection Act 1986* (EP Act) makes it an offence to clear native vegetation unless the clearing is done in accordance with a clearing permit, or an exemption applies.

These laws apply to private and public lands throughout Western Australia.

## Remote sensing

Remotely sensed images are routinely taken from aircraft (aerial photograph) or satellite and processed to represent a picture of the earth's surface.

An aerial photograph is recorded using the same kind of technology found in a consumer camera, while complex sensors on satellites also record data in wavelengths such as infra-red, which are invisible to the human eye.

Remotely sensed images are used by DER for a range of purposes, including identifying potential environmental hazards and monitoring land use changes in industrial areas, identifying potentially contaminated land, and observing the extent and rate of native vegetation decline in Western Australia.

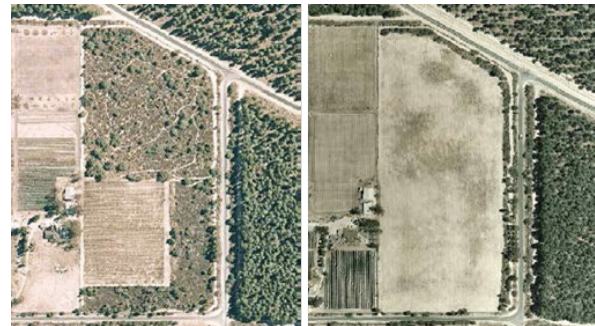


Figure 1: Aerial photographs before and after authorised clearing. Image provided by Landgate.

## Image archive

Satellites pass across the state on a weekly basis, archiving images as they are taken. When required, images from Landgate and Commonwealth Geoscience Australia are used to identify potential native vegetation clearing and determine a date or date range that the clearing commenced and/or was completed.

## Detecting vegetation decline

DER uses satellite imagery that has been processed and archived by the Land Monitor Project. The Land Monitor Project is a coordinated government initiative that provides information that can be used to monitor salt-affected land and vegetation change.

Computer-based systems are used to compare images and highlight areas where vegetation decline has been detected.



Figure 2: DER uses remote sensing technology to detect and map changes in vegetation cover. Landsat imagery courtesy of NASA Goddard Space Flight Centre and U.S. Geological Survey.

### Imagery

Most of the imagery used by DER is available to the public from these websites:

Landgate:

[www.landgate.wa.gov.au](http://www.landgate.wa.gov.au)

Land Monitor:

[www.landmonitor.wa.gov.au](http://www.landmonitor.wa.gov.au)

Geoscience Australia:

[www.ga.gov.au](http://www.ga.gov.au)

United States Geological Survey:

[landsat.usgs.gov](http://landsat.usgs.gov)



Figure 3: Aerial photograph taken during DER aerial monitoring of an urban area.



Figure 4: Landsat satellite mosaic of the south west of Western Australia showing Swan Coastal Plain and surrounding agricultural areas. Landsat imagery courtesy of NASA Goddard Space Flight Centre and U.S. Geological Survey.

Cleared areas appear light grey. Native vegetation and forestry plantations appear dark green in the south west. Native vegetation in the north appears green and brown.

### More information

For advice on compliance with clearing permits, or any other related matter, please contact DER on 6467 5020.

For clearing applications related to mineral and petroleum activities please contact the Department of Mines and Petroleum's Environment Division on 9222 3333.

This document is available in alternative formats and other languages on request.

Document file number:  
DER2014/001039  
Effective 24 February 2014

### Related documents

Additional publications relating to clearing laws, clearing permits, and application forms from [www.der.wa.gov.au/nvp](http://www.der.wa.gov.au/nvp) or can be requested by phoning 6467 5020.

### Legislation

Please refer to State Law Publisher (SLP) for copies of the relevant legislation. Free electronic copies are available from the SLP website [www.slp.wa.gov.au](http://www.slp.wa.gov.au).

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