

National Elevation Data Audit 2011

National Elevation Data Framework (NEDF):

The Shared Digital Representation of Australia's Landform and Seabed

Acknowledgements

Geoscience Australia (GA) would like to thank all those individuals and organisations who contributed the information that makes up the bulk of the revisions to this audit. These include, but not limited to New South Wales Land and Property Information (formerly LPMA), Northern Territory Department of Lands and Planning, Queensland Department of Environment & Resource Management, South Australian Department of Environment and Natural Resources, Tasmanian Department of Primary Industries and Water, Victorian Department Sustainability and Environment, Western Australian Landgate, Western Australian Department of Transport and Intermap Technologies Inc. Further, GA acknowledges the support of the Department of Climate Change and Energy Efficiency and Spatial Information Systems Research Limited.

Background

There is a long history of capturing elevation data by agencies at all levels of government in Australia. Initially, jurisdiction-wide topographic mapping programs producing maps of various scales and typically showing elevation by contour lines drove acquisition of elevation data. Over the past decade earlier map-based sources have been converted to digital elevation models (DEM). Now acquisition and use of elevation data is digital, often held as gridded DEM, derived from mapping sources or directly acquired from new aerial, satellite or ship-borne sensors. These datasets have diverse coverage, resolution and accuracy.

ANZLIC – the Spatial Information Council for Australia and New Zealand facilitated development of the National Elevation Data Framework (NEDF). The NEDF is a collaborative framework aimed at increasing the quality of elevation data and derived products such as digital elevation models describing Australia's landform and seabed. Knowledge of existing data held by government agencies is part of the broader picture of identifying, describing and providing access to existing elevation data and to ensure future investment and access to elevation data is directed at policy and operational needs at national, state/territory and local levels.

The NEDF also aims to achieve better access to existing elevation datasets for Australia and to provide a framework for optimising investment in new data acquisitions. The project is driven by the need to utilise the highest resolution data available from all sources to address the demands for an improved digital elevation model across all levels of government. The initiative will also address broader Australian Government priorities in relation to emergency management, natural resource management and water issues with the intention of seeking funding, support and partnerships under a whole-of-government coordinated approach.

The first National Elevation Data Audit in 2008 was initiated through the Intergovernmental Committee on Surveying and Mapping's (ICSM) Permanent Committee on Topographic Information (PCTI). The committee agreed that the National Topographic Information Coordination Initiative was an ideal mechanism to assist in identifying elevation data across all jurisdictions. Prior to 2008 there was no comprehensive listing of elevation data across Australia.

The aim of these audits has been to review each one to two years elevation data holdings to provide users with a clear picture of what data already exists and enough information to decide what data is fit for their purpose.

The 2011 Audit

The 2011 audit compiles all the information provided into a single comprehensive list and map of elevation data across the country and identify gaps in elevation data acquisitions. The Elevation Special Interest Group jurisdictions of ICSM have provided input and a mechanism to share data and establish elevation data standards and specifications.

This data audit is being released with the NEDF An Audit of High Resolution Coastal Elevation Data (Geoscience Australia, 2011) which identified gaps across Australia to initiate future funding of data capture in high priority populated areas around the coast. Datasets are reported for both national coverage and for each State and Territory and their vertical accuracy classification ranges. Apart from including the Australian Bathymetry and Topography Grid, produced by Geoscience Australia, the 2009 Western Australian Two Rocks to Cape Naturaliste Bathymetry Survey and the 2009-10 Victorian Coastal Bathymetry Project, this document does not include bathymetric data. The main focus for this revision is on the recent high resolution topographic elevation data capture (vertical accuracy better than 1m), where the most data acquisitions have occurred. Completed, in-progress and proposed acquisitions until the end of 2012 have also been included. GA has tried to make the information as accurate as possible, however this audit should not be solely relied upon for commercial decisions and data custodians should be contacted for up-to-date information.

There are a large number of National, State/Territory, Regional and Local Government initiatives in progress that require medium to high resolution elevation data. Specifically, coastal elevation data is an essential input to coastal vulnerability and risk assessments that underpin climate change coastal adaptation planning and policy development. Major recent projects include: Victorian Coastal LiDAR Project; NSW Coastal LiDAR Capture Program; and Queensland Coastal DEM development.

Since the 2009 National Elevation Data Audit, approximately 365,000sqkm of high resolution elevation data has been acquired through mainly State and Federal funding. The majority of this new acquisition has been over: Perth (Swan Coast region including bathymetric LiDAR), many capital cities LiDAR acquisition through the Urban DEM Project Phase 1, Victorian State Rivers LiDAR capture, NSW Coastal LiDAR Capture Program and Queensland Coastal DEM and inland towns LiDAR capture projects.

At present the 1 and 3 second SRTM derived digital elevation models (DEM – representing bare earth) and the Geodata 9 second DEM are the only nationally consistent datasets. There are a growing number of very high resolution datasets with limited coverage, mainly over urban and vulnerable coastal areas. Generally State and Territory government land information and mapping agencies maintain state wide or project based elevation datasets and coordinate work in that area. While project-based activities at the local government level are increasing, data capture is not necessarily well coordinated, or discoverable.

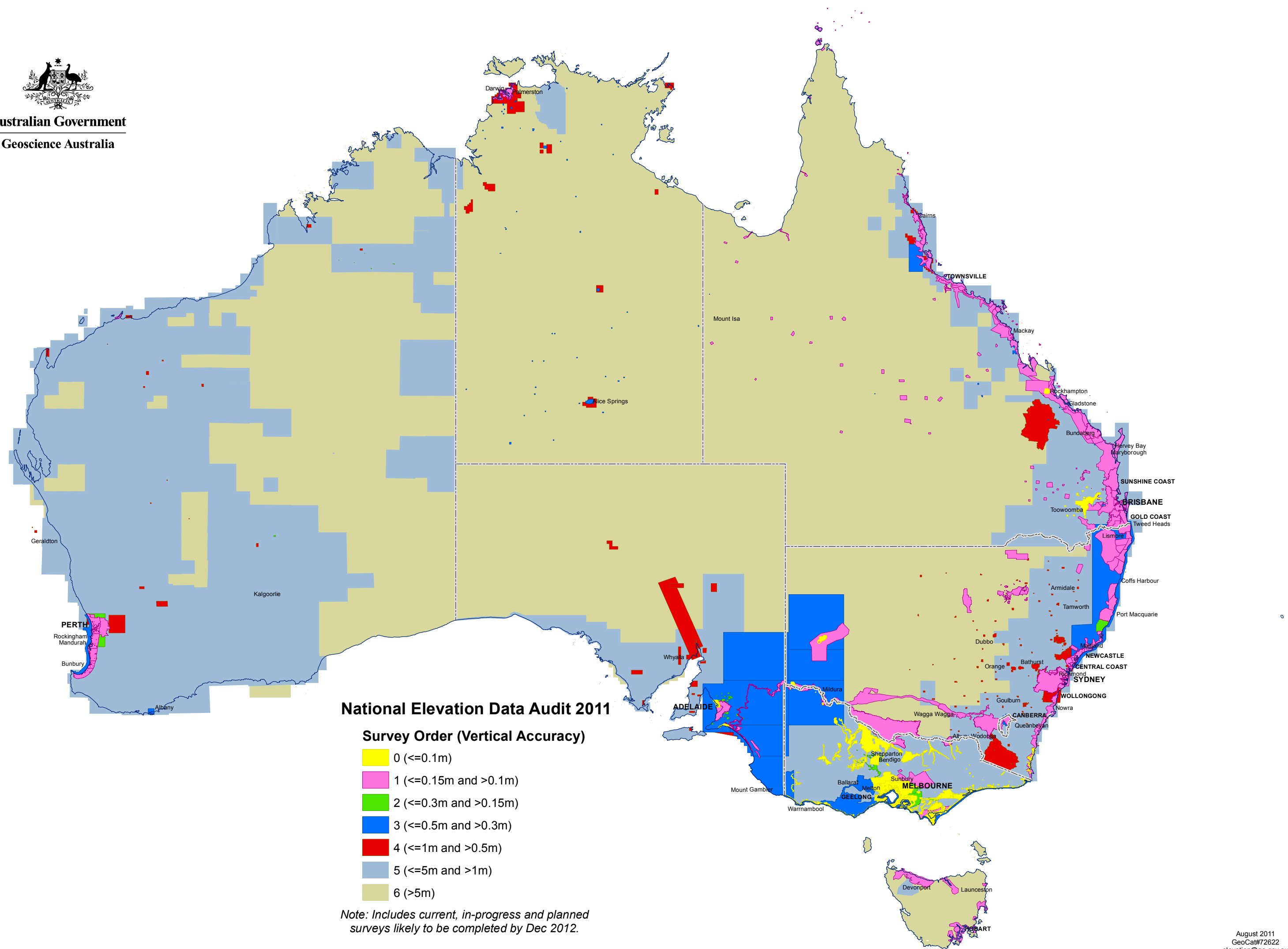
Conclusion

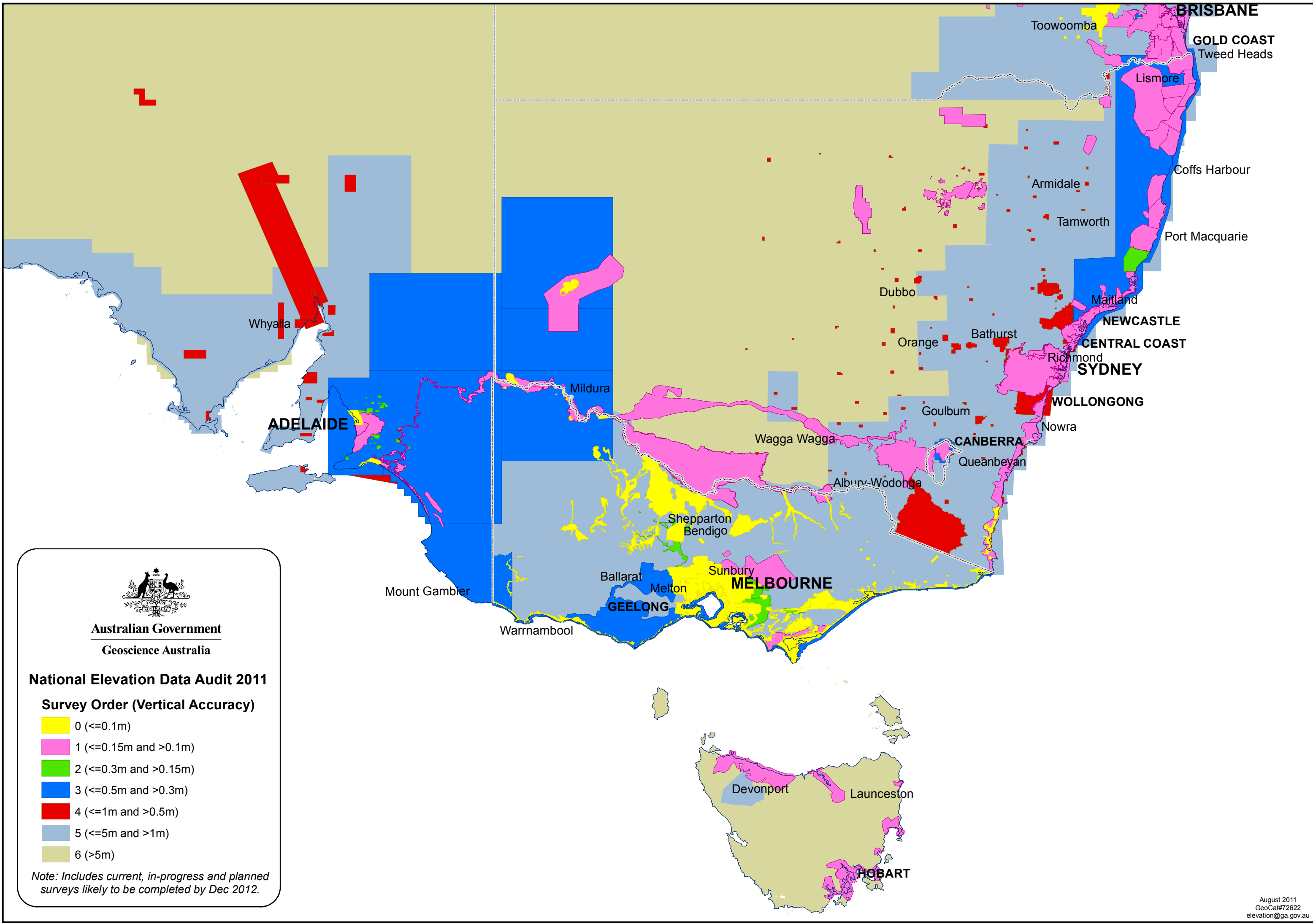
This audit provides a snapshot of current digital elevation data and derived products held by governments and industry across Australia. It provides the start of a process of improving data discoverability and accessibility as well as identifying gaps for future coordinated data acquisition across the nation.

This and previous Audits are published on the Geoscience Australia website to assist in facilitating enhanced discoverability, accessibility and to avoid duplication in the capture, production and management of digital elevation data across Australia.

If you have, or are aware of, elevation data that has not been included in this audit, details can be forwarded to elevation@ga.gov.au for inclusion in the next version.

Further information is available on the GA website at www.ga.gov.au/elevation or on the National Elevation Data Framework (NEDF) Portal at <http://nedf.ga.gov.au>.







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Survey Order (Vertical Accuracy)

- 0 ($\leq 0.1\text{m}$)
- 1 ($\leq 0.15\text{m}$ and $> 0.1\text{m}$)
- 2 ($\leq 0.3\text{m}$ and $> 0.15\text{m}$)
- 3 ($\leq 0.5\text{m}$ and $> 0.3\text{m}$)
- 4 ($\leq 1\text{m}$ and $> 0.5\text{m}$)
- 5 ($\leq 5\text{m}$ and $> 1\text{m}$)
- 6 ($> 5\text{m}$)

Note: Includes current, in-progress and planned surveys likely to be completed by Dec 2012.

