Introduction to the forest vulnerability assessment

Liz Dovey
Adaptation Partnerships

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Three pillars

- Pillar 1 – helping to shape a global solution
- Pillar 2 – reducing Australia's greenhouse gas emissions
- Pillar 3 – adapting to climate change that is already happening or inevitable
Pillar 3 – adapting to inevitable CC

- Improving our knowledge about climate change and how it will impact us
- Strengthening the ability of Australians to adapt to climate change
- Assisting in areas of particular national vulnerability to climate change impacts

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Atmospheric carbon dioxide concentrations from ice cores to 650,000 years before present

Projected by 2100
Temperature and CO$_2$ relationship
Deuterium-based Temperature Anomalies

Atmospheric $pCO_2$, $\mu$atm.

Year 2007
385 ppm

IGBP 2000
Projected temperature changes
Climate change: Australia and global

- Climate change trends in Australia generally mirror the global picture.
- However, for forests, change in water availability is at least as important as temperature change.
Rainfall projections more complex and variable seasonally but high uncertainty

Eg NSW
Projections of Future Runoff

(%Δ per degree of global warming)
Projections of Extreme Rainfall

- Climate change will cause increases in extreme rainfall events
- Long-term risk appears greater than short-term

Abbs et al 2006
Extreme temperature events

Jan-Feb 2009

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Changed fire regimes
Other changes?

- Relative humidity?
- Wind?
- Seasonality?
- Frosts?
- Impacts on water availability?
- Feedback loops?
- Thresholds and transformation?
Relative vulnerability to climate change

Source: IPCC, 4TH Assessment Report 2007

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Climate change adaptation delivery structure

- Council of Australian Governments
- Ministerial Councils
- Department of Climate Change
  - Research Advisory Group
  - Stakeholder Group
  - Climate Change Adaptation Research Facility
    - Adaptation Research Networks
    - Research consortia
  - Research consortia

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National context

COAG

• Working group on Climate Change and Water
  - National framework on climate change adaptation
• National Climate Change Adaptation Research Facility
• CSIRO Climate Change Adaptation Flagship

NRM Ministerial Council

• Work Plan 2006-9
• Work Plan 2009-12
• Australia's national biodiversity strategy 2010-20
• Biodiversity and climate change action plan 04-07
• Australia's native vegetation framework
Role of the National Climate Change Adaptation Facility

- Provide scientific leadership in the development of research plans for priority vulnerable sectors;
- Assist with identifying scope and content of plans;
- Manage consultation with stakeholders and researchers during development of plans.
- Coordinate the implementation of the Research Plans throughout the research community
  - This includes forming and managing adaptation research networks.
- Developing syntheses of information on priority areas
Priority theme areas

- Terrestrial biodiversity
- Marine and coastal
- Water resources and freshwater biodiversity
- Settlements and infrastructure
- Agriculture and forestry
- Health
- Social and economic

Adaptation research network and NARP for each theme
Vulnerability assessments
National vulnerability assessments

- DCC leading a series of national assessments relevant to biodiversity (and other sectors)
- Most are being done to implement the NRM ministerial committee Adaptation Workplans
- Various stages of completion
  - Completed published and released
  - Being published and soon to be released
  - In progress (eg this project)
Elements of a National Vulnerability Assessment

Exposure → Potential impact → Vulnerability

Sensitivity → Adaptive capacity

Risk management

- a framework for dealing with uncertainty
DCC - national impact assessments

Published:

- Impact on the National Reserve System Phase 1 (2008)
- Impact on Aust Govt Protected Areas (2008)
- Climate change primer for NRM bodies (2008)
- Climate change and the Barrier Reef (2007)

DCC national impact assessments

Close to release:

- Australian biodiversity and climate change (BVA)
- World Heritage values and climate change
- Fire, biodiversity and climate change

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DCC national impact assessments

Still underway:

- Impact on aquatic ecosystems
- Impact on coastal ecosystems
- National Reserve System phase 2
- Forests (this project)
Strategic responses

• National Biodiversity Conservation Strategy 2010-20 – led by DEWHA; consultation draft just completed

• National climate change and biodiversity action plan – review due; will be led by DEWHA

• Focus on partnerships

• Working with communities, industry and governments – and researchers - to better understand and manage the impacts of climate change.
Other assessments & strategic responses - DAFF led

- *Climate change and commercial forestry action plan* – draft completed Jan 09
- *Climate modelling and impacts on forests and forestry* – underway (Ian Roscoe)

- Both address commercial forests
Forest Vulnerability Assessment

Scope:
- Plantations /farm forests
- Productive native forests
- Conservation native forests
- Environmental plantings

Governance
- Steering group (chaired by NCCARF)
- Project manager (NCCARF)
- DCC project officer
- Workplan
Elements of the FVA approach

- **Work Package 1**: to establish the needs and consult with key stakeholders.
- **Work Package 2**: Scene setting and biophysical impacts review.
- **Work Package 3**: Socio-economic impacts review
- **Work Package 4**: Adaptive capacity, barriers to adaptation and vulnerability
- **Work Package 5**: Synthesis (including regional vulnerabilities, gaps and research needs).
Product sought

- One report (150-200 pages)
- Suitable for policymakers and forest managers
  - Executive Summary: 10 pp
  - Introduction and results of needs analysis: 5 – 10 pages
  - Bio-physical impacts: 50 pages
  - Socio-economic impacts: 30 pages
  - Adaptation and vulnerability: 30 pages
  - Synthesis: 30 pages
  - Appendices
- PLUS a summary document - around 20 pages.