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Insuring Forest Assets in a Changing Risk Landscape: What Underwriters Need from Valuations

Forest Valuation Conference, Melbourne
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Abstract

1. Australian forestry valuations have long provided a solid foundation for understanding timber value, growth potential, and operational context - elements essential for investment, planning, and stewardship. In a changing risk landscape, wildfire behaviour continues to evolve, and as new technologies mature, there is now a strong opportunity to enrich these well-established valuation practices with additional layers of risk-relevant information that support both forest managers and underwriters.
2. This session explores how risk is assessed in forestry insurance: hazard, exposure, and vulnerability are modelled following the IPCC framework. While hazards are monitored by meteorological agencies and standard forest valuations provide the basis for exposure assessment, vulnerability remains the component with the greatest risk-management potential. Technological advancements in remote sensing, biomass monitoring, and geospatial analytics can now complement traditional valuation strengths. Forest asset managers themselves might leverage high-resolution satellite imagery and canopy-condition indices to be integrated in objective, site-specific indicators.
3. These enhancements help underwriters assess exposure more accurately, understand loss behaviour, and calibrate pricing and accumulation decisions with greater confidence. Of particular relevance to underwriting are spatially explicit fuel metrics - such as fuel loads, moisture-stress indicators, and mapped burn history - which can now be incorporated into valuation outputs in ways that were not previously feasible. With improved visibility into fuel-management practices, thinning regimes, crisis contingency actions, and access plans, proactive risk-reduction measures can be recognised more consistently, supporting better alignment of interests between forest owners and insurers.
4. This increased transparency strengthens long-term insurability by building trust between both parties. As wildfire insurance capacity continues to tighten, forest owners who can demonstrate how they manage the vulnerability of their properties, are better positioned to secure coverage in a constrained market.

Munich Re re/insurance position in the market

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1. We are largest global reinsurer, active in all type of insurance coverages
2. We concentrate technically on risk assessment, risk accumulation, risk pricing
3. We focus on bespoke portfolio risks management: i.e. insurers, portfolios of forest assets, sales partners
4. We as reinsurer are not directly market insurance policies to asset owners
5. We favour long-term relationships for a sustainable business partnership

Munich Re – as one of the world’s largest reinsurer, we are a solid and reliable partner

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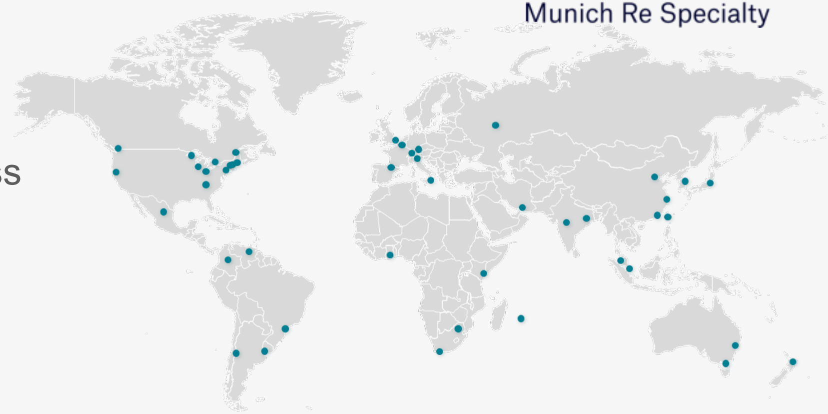
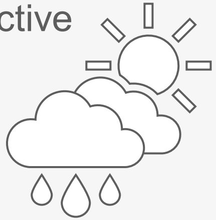
One of the world’s largest re/insurers, at the forefront in green risks, and leading in nature capital investments

Founded in 1880

Globally active with business in 50+ countries



Climate Change expertise: since the 1970s with active contribution to the IPCC report



Group result:

€ 6 bn (2025)

incl. primary worldwide

Major losses (as of Q2/2025):

Wildfire in US in 2025 some 1 bn €.

Wildfire losses Australia in 2026

Bushfire hazard analysis in Australia

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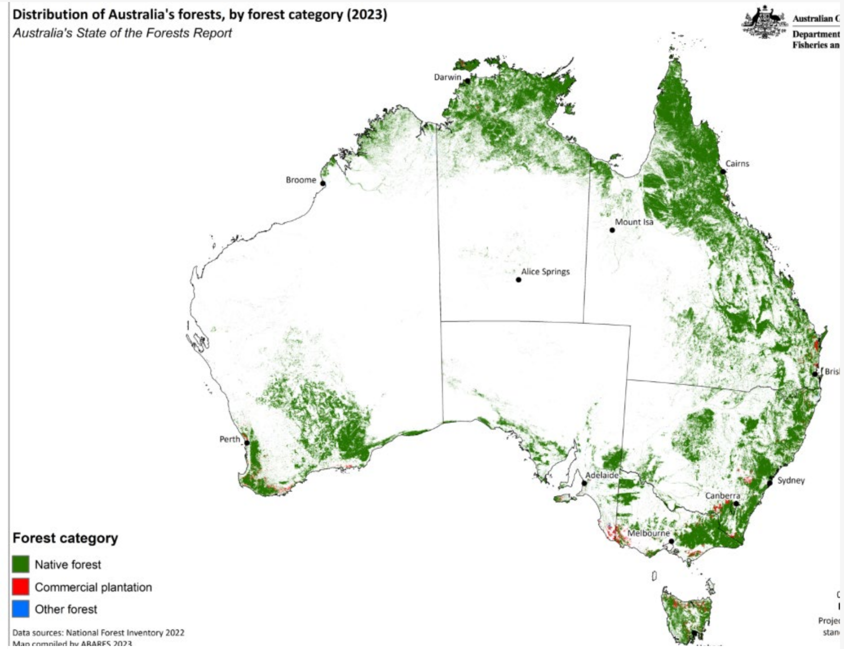
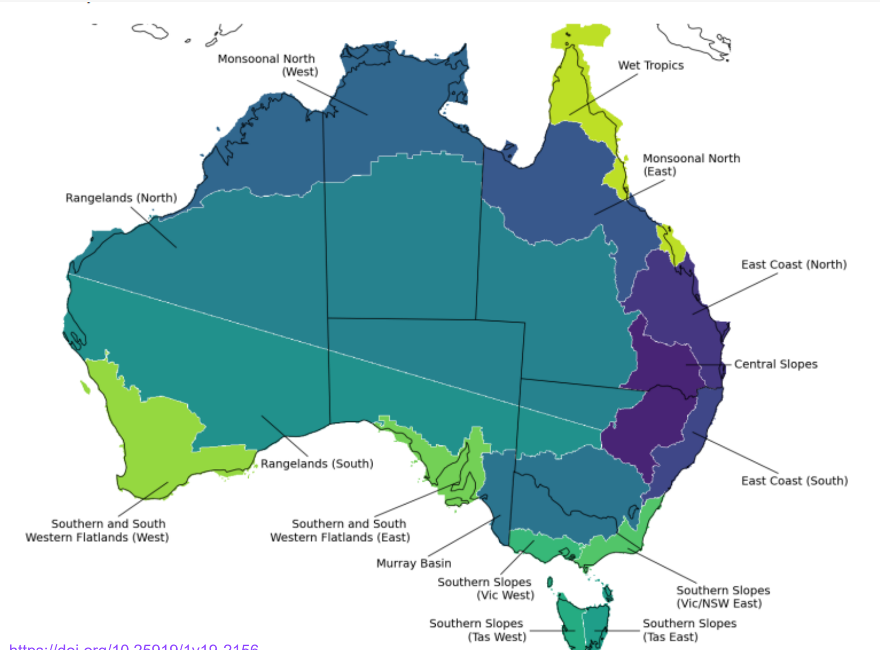
Forest categories by National Report



https://www.agriculture.gov.au/sites/default/files/documents/Forests_of_Australia_2023_by_category_600dpi.png

Natural Resource Management sub-clusters



https://doi.org/10.25919/1v19-2156,
CSIRO: Comparative analysis of climate change scenarios for bushfire hazard

GIS (geospatial information system) technology enables site-specific risk analysis and regional aggregation.

Bushfire risk as analysis of ENSO and climate change

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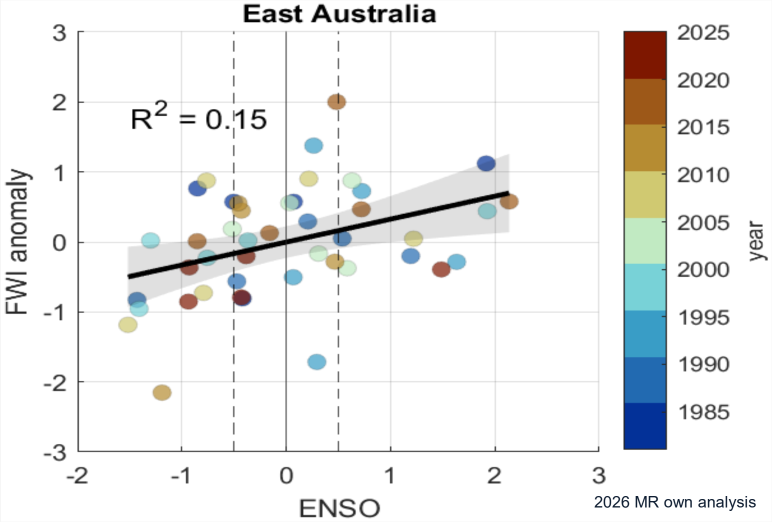
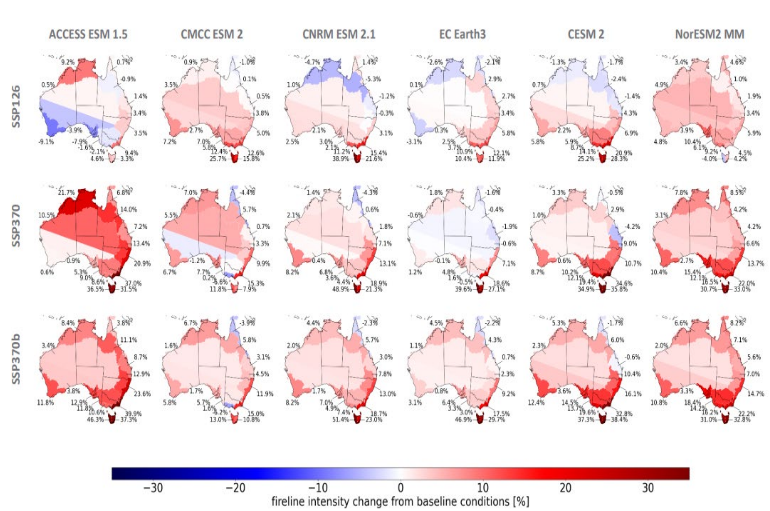
Fire Weather Index FWI with weak ENSO correlation



Fireline intensity FLI for climate change scenarios



https://doi.org/10.25919/1v19-2156,
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FWI primarily captures weather conditions that favour bushfires, such as temperature and precipitation

FLI incorporates the interaction between bushfire behaviour, terrain features, fuel characteristics, and weather conditions.

A climate risk primer

Definition of risk as introduced by IPCC

HAZARD

Characteristics of extreme weather,...

→ Climate Change

→ e.g.
hail intensity & size,
flood height,
wind speed,
heat, bushfire
drought, water shortage

VULNERABILITY

- Site characteristics
  - Geological and local specifics
  - Agro-ecological zones
- Soil capabilities
  - Water holding capacity,
  - Water retention / infiltration
- Forest management
  - Fuel management
  - Access infrastructure

→ Risk mitigation measures

EXPOSURE

- Asset timber value, input costs, carbon volume

→ Forest assets to be insured

Vulnerability in climate risks is the largest lever

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1. Forest managers are at the forefront to
   - Monitor – Measure – Manage
     by leveraging new / geospatial technology
2. Part of the technological achievements are relevant to underwriters, enhanced by tools
   - Fuel load management ...
   - Fire detection ...
   - Fire suppression ...
   - Water resources identification
   + Budgeted fire protection costs.
3. Past losses as learning points
   - Including evaluation with respect to vulnerability aspects


Source: AMB

Valuation expertise is in high demand

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1. Asset valuation / appraisal
   - Cost approach
   - Sales comparison approach
   - Income capitalisation approach
   - Market prices research

2. Risk information
   - In order to secure assets
   - Leverage technology tools, predominantly geospatial intelligence
   - Provide insurability

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Thank you for your attention

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March 2026

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