How does burning influence forest carbon storage?

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Research objectives

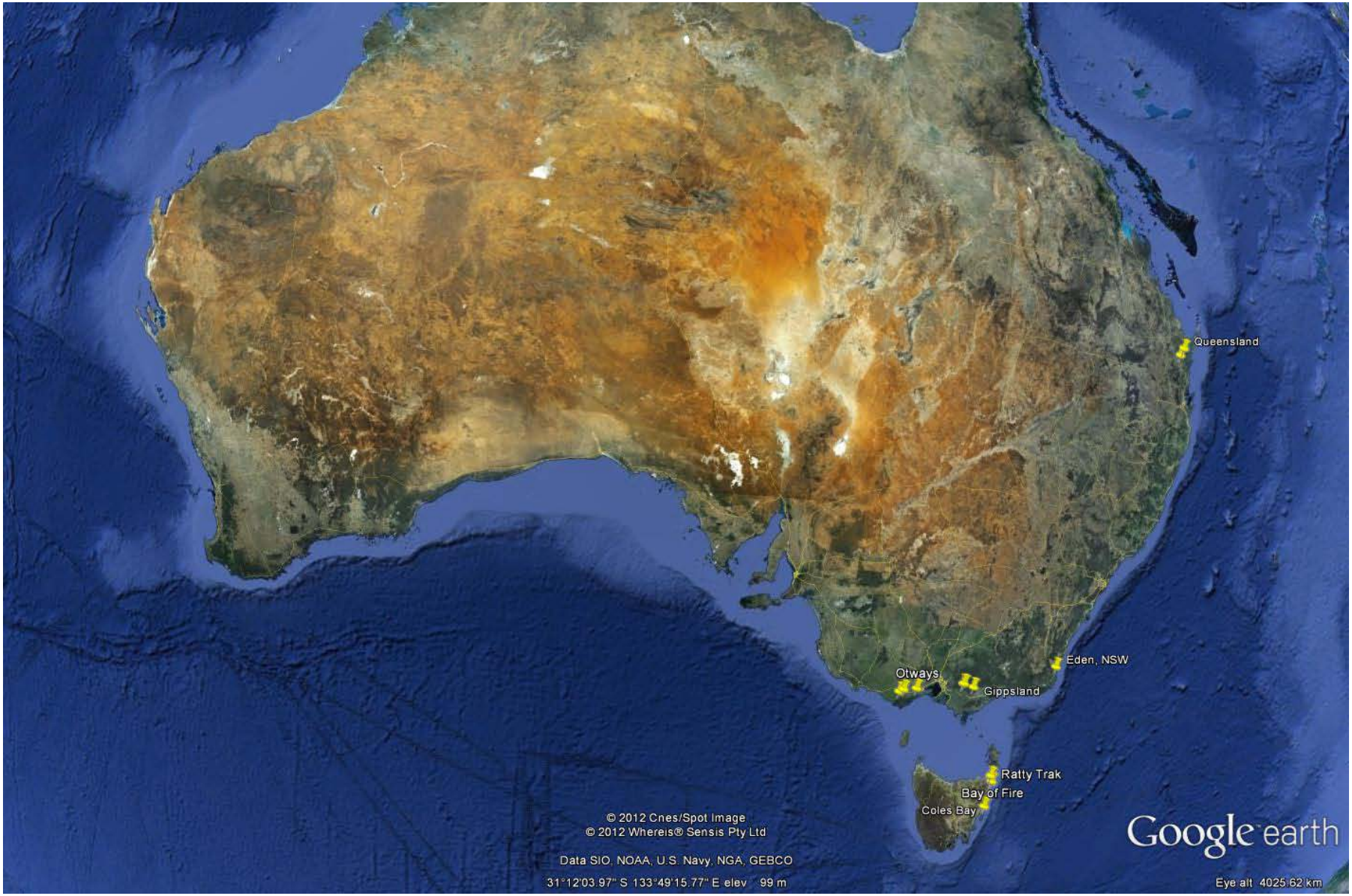
1. **Measure the immediate post-burn impact of fuel reduction burning (FRB) on carbon balance across a range of forests (fuel loads) and burn conditions**

2. **Develop a better knowledge base to enable end-user agencies to model the immediate consequences of FRB on both carbon and greenhouse gas emissions (GHGs)**

3. **Model recovery of carbon stocks over a range of timescales**

4. **Identify burn techniques likely to minimize emission of GHGs whilst achieving appropriate fuel- and risk-reduction outcomes**

Study sites – QLD, NSW, VIC, TAS



Where are we at?

- ~~6~~ 18 months in
- ~~developing~~ adopted methods AND
- still taking measurements = still learning a lot!

What they look like: east coast Tasmania sites

Measurement sites & progress

Location	No. plots completed or planned	Burnt	Pre & post burn measures completed	Agency	Comments
Otways, Victoria	9 plots 2011	9 plots 2011	Yes	DSE	Results are available
Gippsland, Victoria	9 plots 2012	0 plots	No	DSE	More burns in spring
NE Tasmania	9 plots 2012	3 plots	Next week	Tas Parks & Wildlife	More burns in spring
Eden, NSW	9 plots planned	Not yet		Forests NSW	August 2012 burns
Gympie, Queensland	12 plots planned	Not yet		Qld Parks and Wildlife	July 2012 burns

Otways
E. obliqua
forest

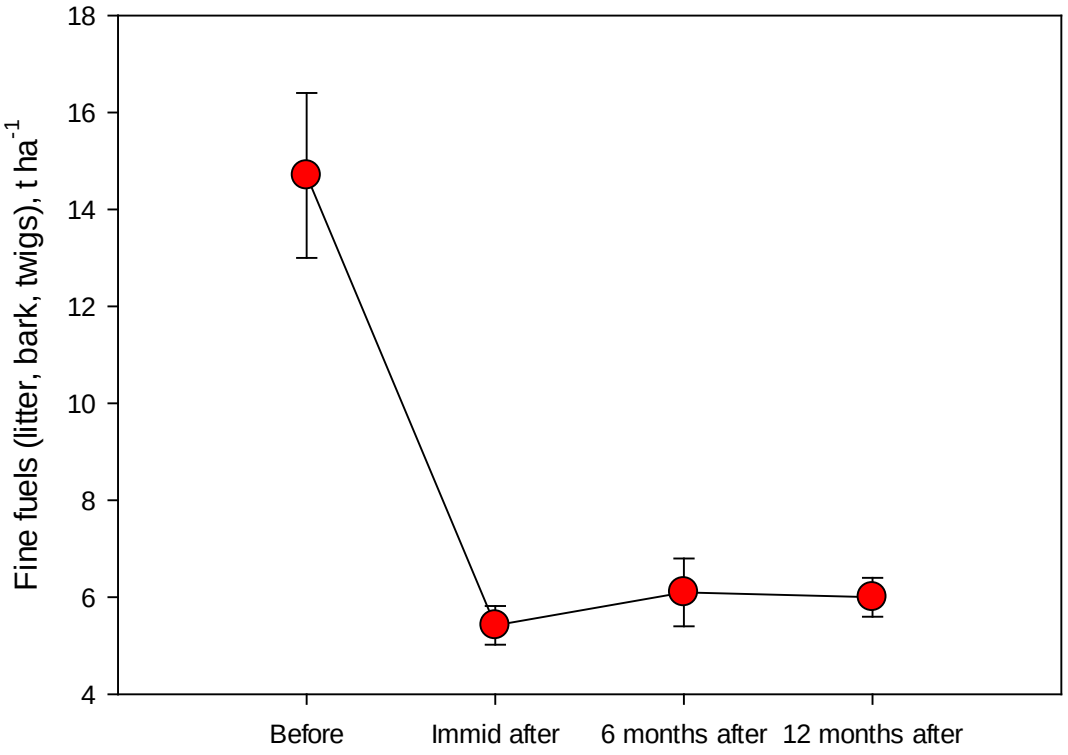
Before
fire

Immediately
after fire

12 months
after fire

Fine fuel recovery, Otways sites

Fine fuels (litter, bark, twigs) tonnes per hectare



- Ongoing study
- N=18 ±s.e.

Time relative to fire

What do we hope to achieve?

- **Which forest carbon pools most important to measure?**
  - Standing litter
  - Bark
  - Understorey, surface vegetation and elevated fine fuels
  - Soil surface including humus layer
- **More confident in carbon loss estimates**
  - Indicative values for range of forests and conditions
  - Correlate with standard fuel hazard assessments
- **A conversation with end-users to help in better understanding emissions risks from burning**
  - Repeated fuel reduction burns
  - Wildfire at longer intervals

Queensland, Gympie

Proposed design:
6 plots in to be burnt forests;
3 plots in controlled unburnt forest;
3 plots in 5 year after burn forest

Purpose:
Compare rates of carbon changes and recovery between:
- immediately after burn,
- 5 years after burn and
- long unburnt forest