

2003 fires – effects on growth and regrowth of vegetation and fuels

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Alpine fires 2003

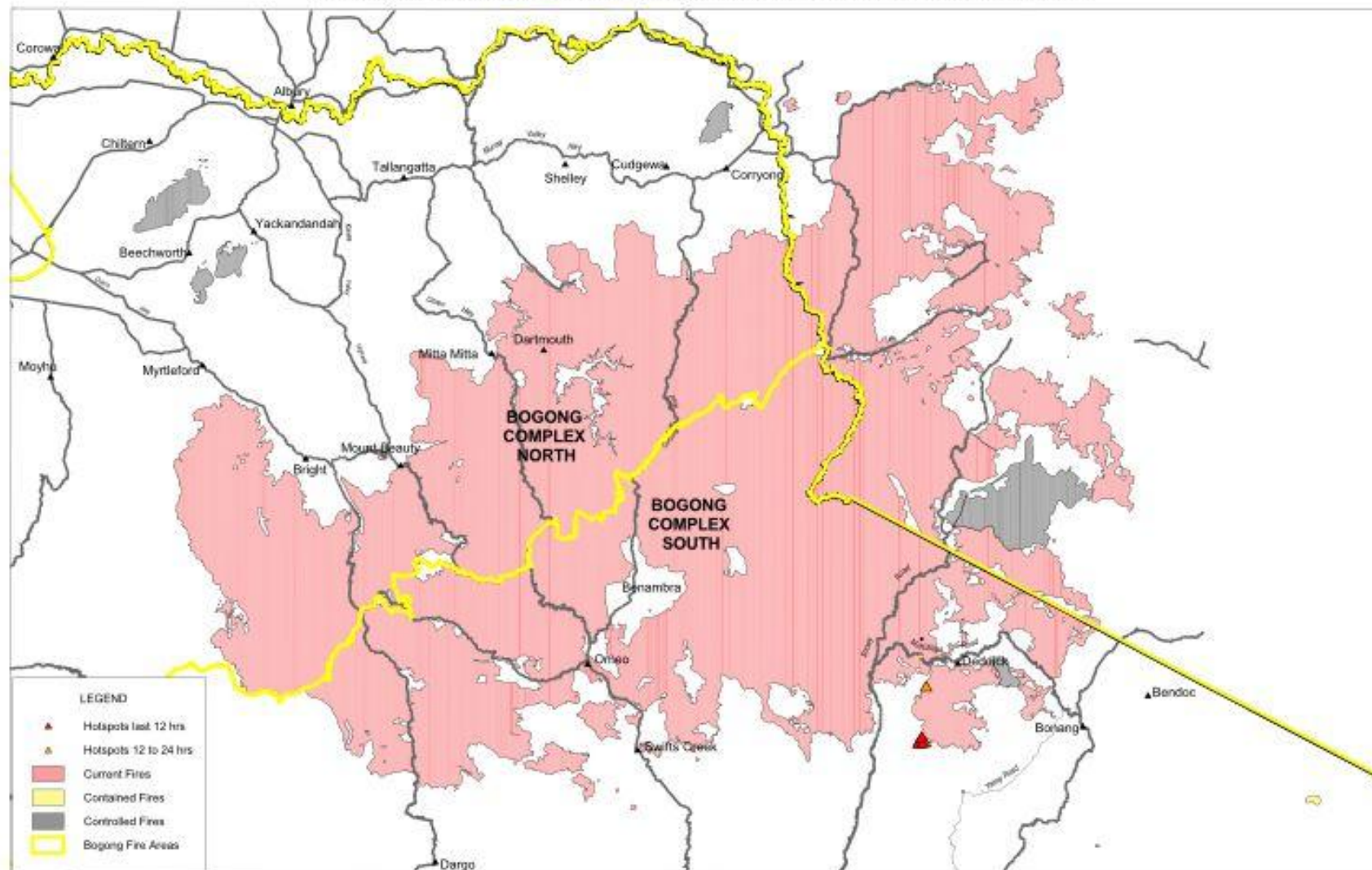
- Day 1 – (7 January) wildfires ignited by lightning
- Day 2 – 80 fires reported in various fire districts, including Bogong North and Mt Feathertop
- Day 10 – fires burning at Razorback, Mt Bogong, Mt Feathertop, Mountain Creek and Bald Hill
- Day 20 – area around Rocky Valley Storage burnt including the field sites located at Marm Point and near Fitzgerald Hut
- Day 59 – (7 March) fires declared as contained

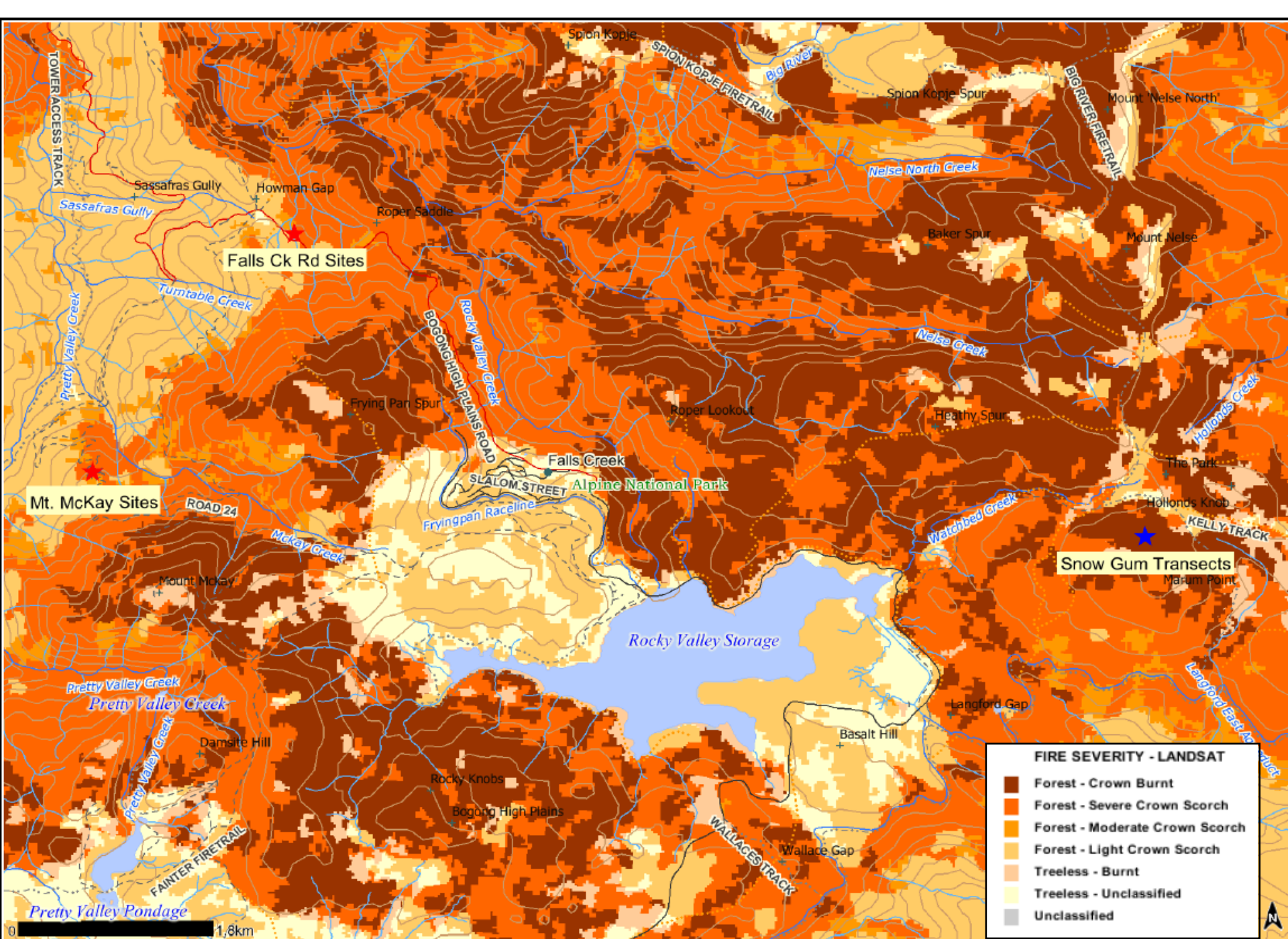
Alpine fires 2003

- 1.19 million ha burnt
- 5% of Victoria
- 15% of the State's total area of public land
- Largely uninhabited areas
- 1 bushfire-related death, relatively small loss of property and stock

Fire Overview Map Produced 1000 25 FEB 2003

with Sentinel 'Hotspot' data at 0321 24 FEB 2003 and Fire Situation as at 1300 24 FEB 2003





Alpine ash (*Eucalyptus delegatensis*)



March 2003



September 2003



March 2005



October 2006



Density (stems ha⁻¹)

- **Alpine ash**

Overstorey (adult trees killed)	70 ± 4 (36-143)
Seedlings (1.5 year-old)	12 033 ± 613 (0-58 000)
Seedlings (2.5 year-old)	10 220 ± 509 (775-25 000)

- **Hickory wattle (*Acacia obliquinervia*)**

Seedlings (1.5 year-old)	317 868 ± 6 470 (169 000-542 000)
Seedlings (2.5 year-old)	196 000 ± 13 210 (80 000-430 000)

Height (cm) and biomass (t ha⁻¹)

- **Alpine ash**

Height (2.5 year-old)	266 ± 11 (101-387)
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Biomass (2.5 year-old)	4.1 ± 0.3 (2.1-8.1)
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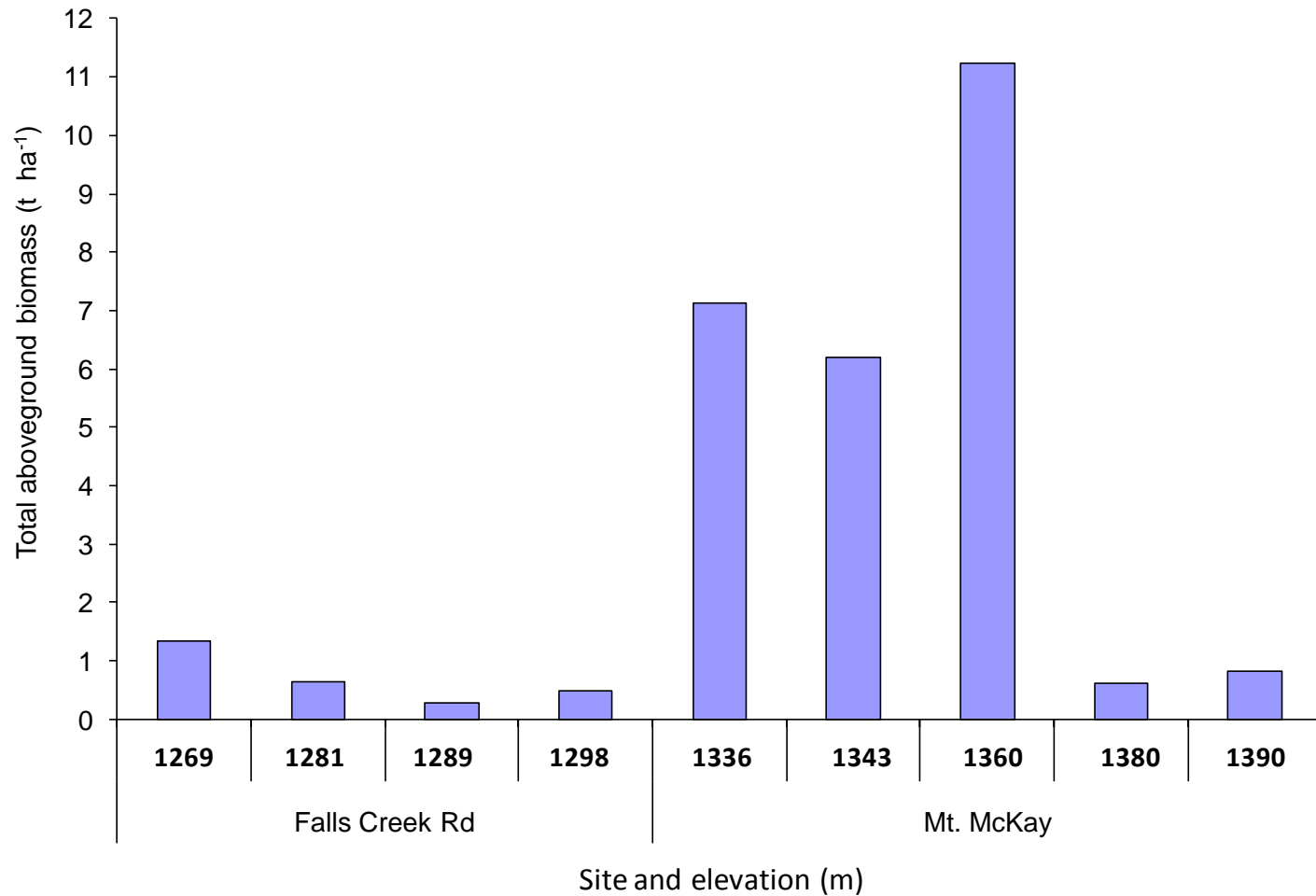
- **Hickory wattle**

Height (1.5 year-old)	129 ± 6 (40-247)
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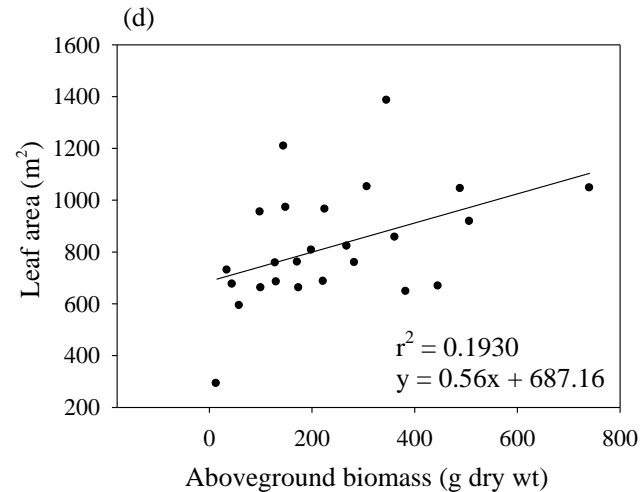
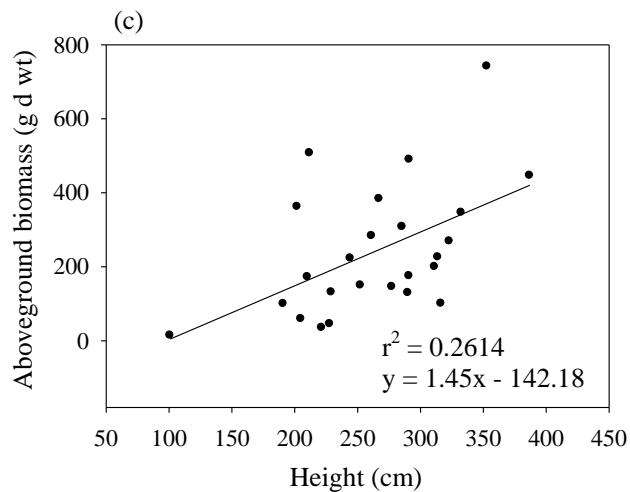
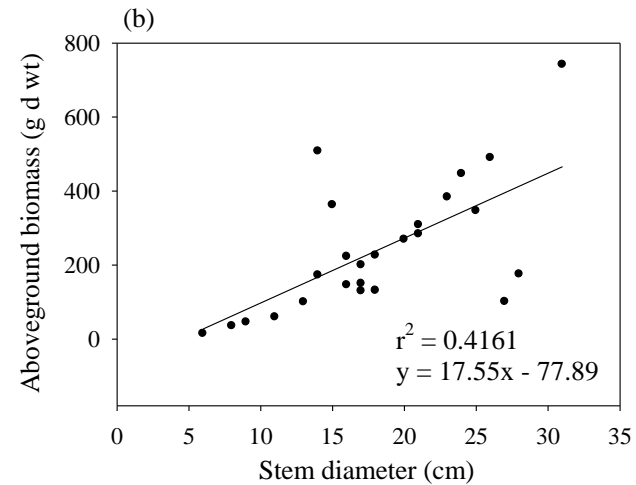
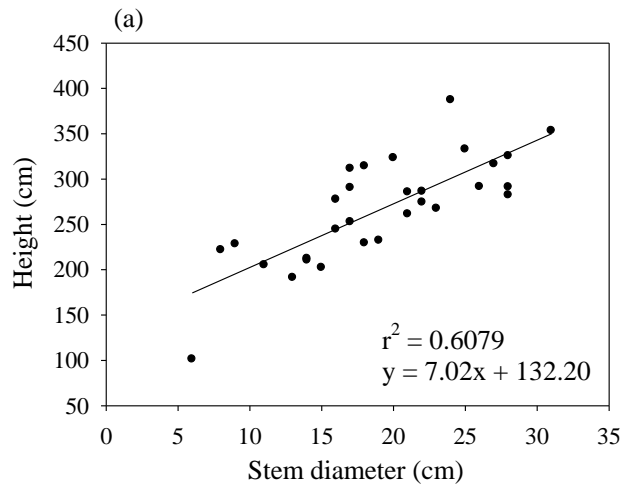
Height (2.5 year-old)	250 ± 68 (165-320)
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Biomass (1.5 year-old)	17.0 ± 1.9 (0.7-70.0)
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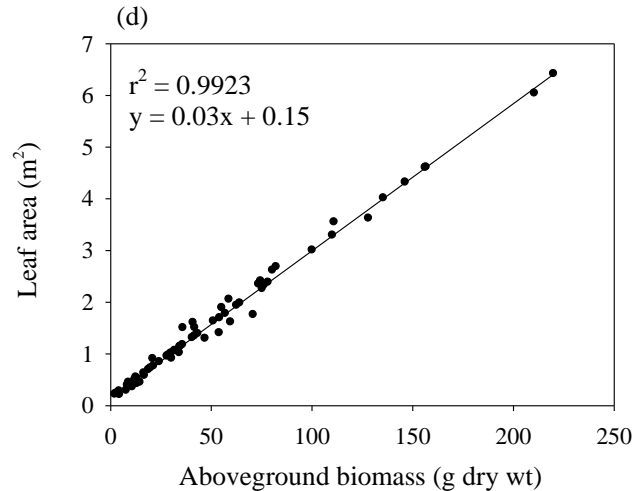
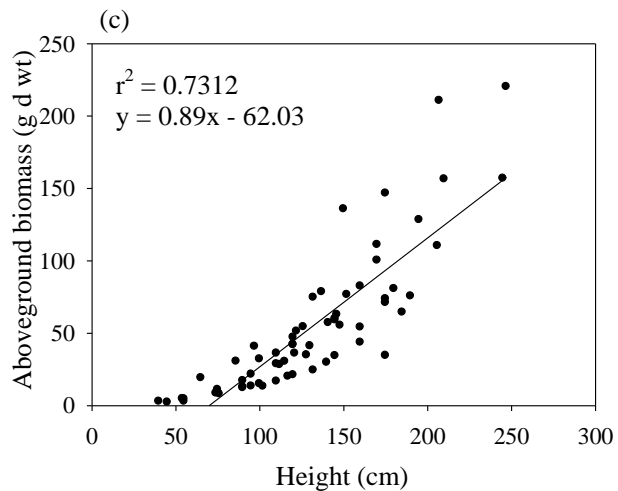
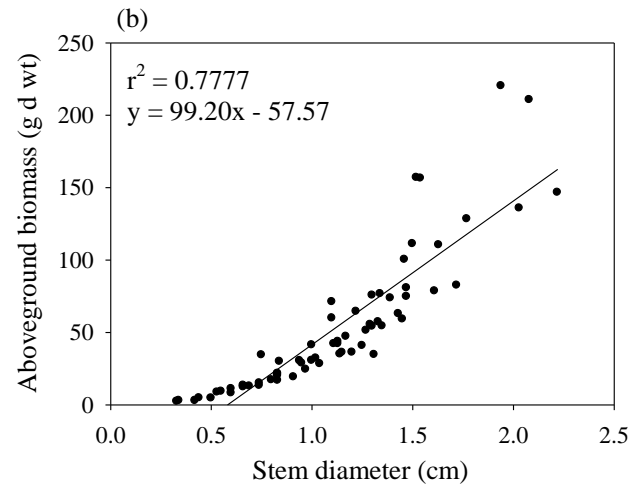
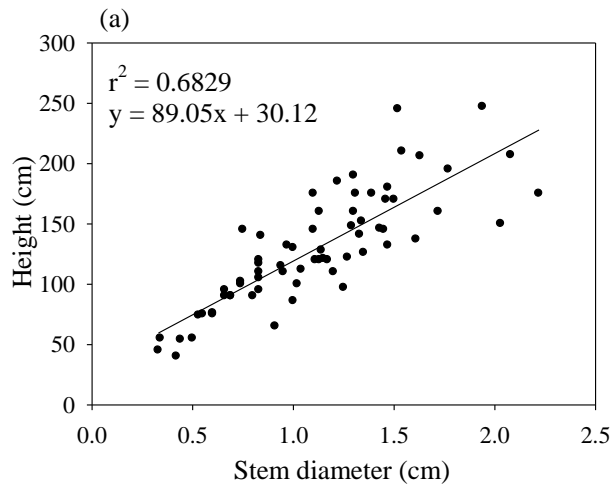
Alpine ash (2.5 year-old)



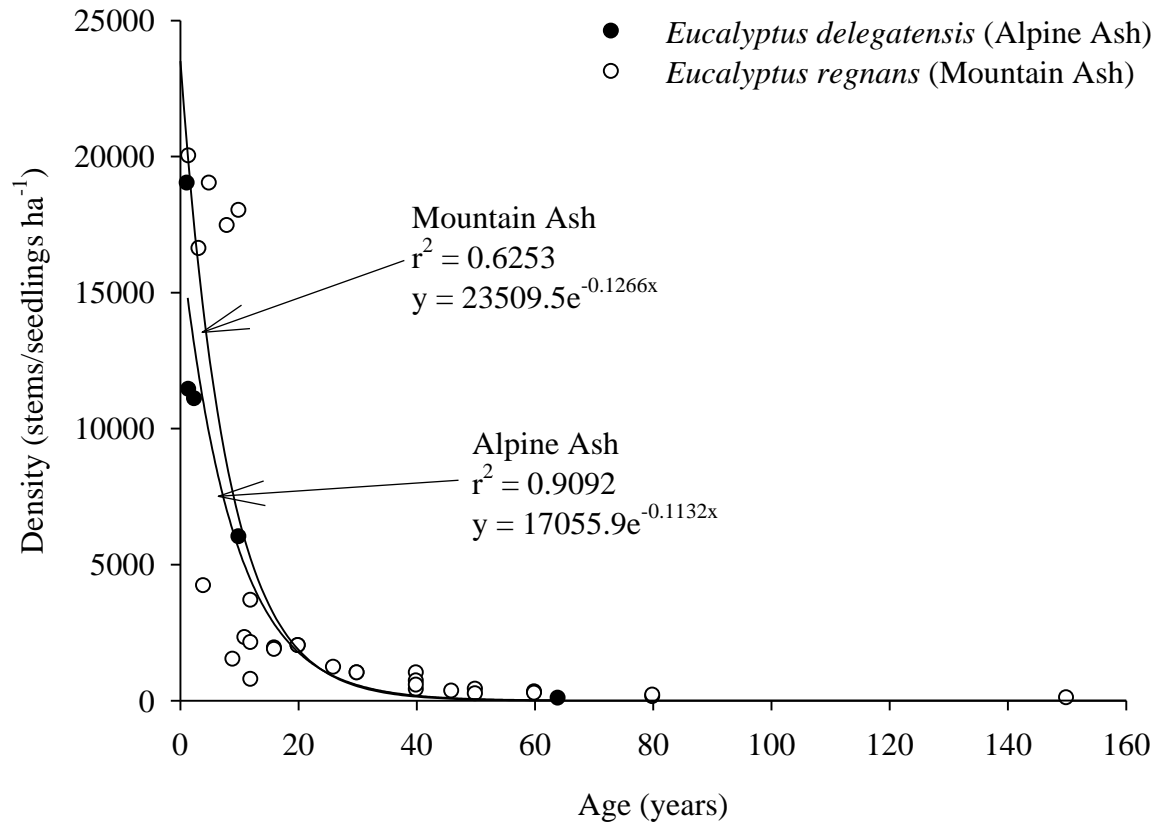
Allometry – Alpine ash



Allometry – Hickory wattle



Alpine ash regrowth



March 2010



Fuel loads in 2010?

- **Alpine ash**

8 m tall, 8 200 stems ha⁻¹

= 8.3 t ha⁻¹

- **Hickory wattle**

4 m tall, 8 200 stems ha⁻¹

= 2.3 t ha⁻¹

- Litter, changing density of Hickory wattle, increase in stem diameter and leaf area, other understorey species
- Re-measurement needed

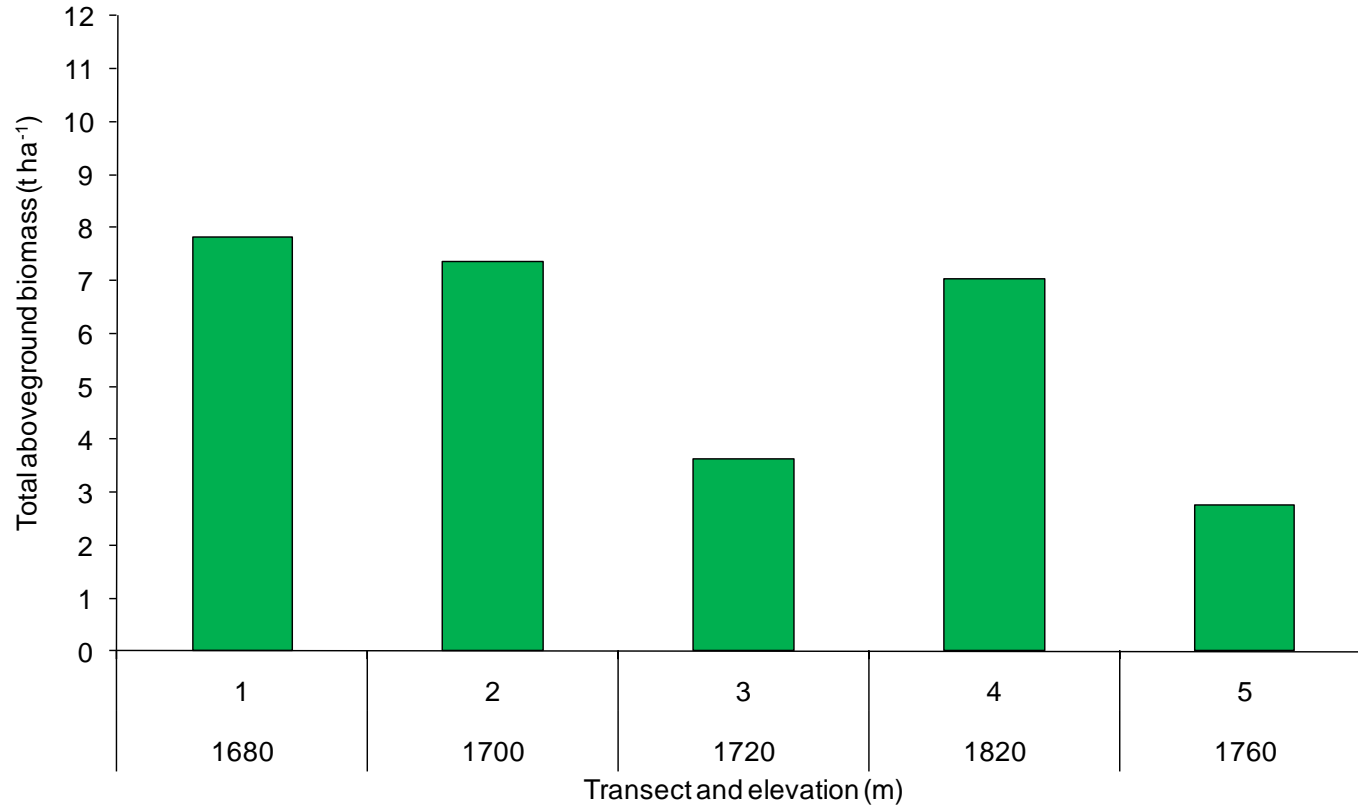
Snowgum (*Eucalyptus pauciflora*)







Snowgum regrowth after 2.5 years



180 seedlings ha⁻¹

Fuel loads in 2010?

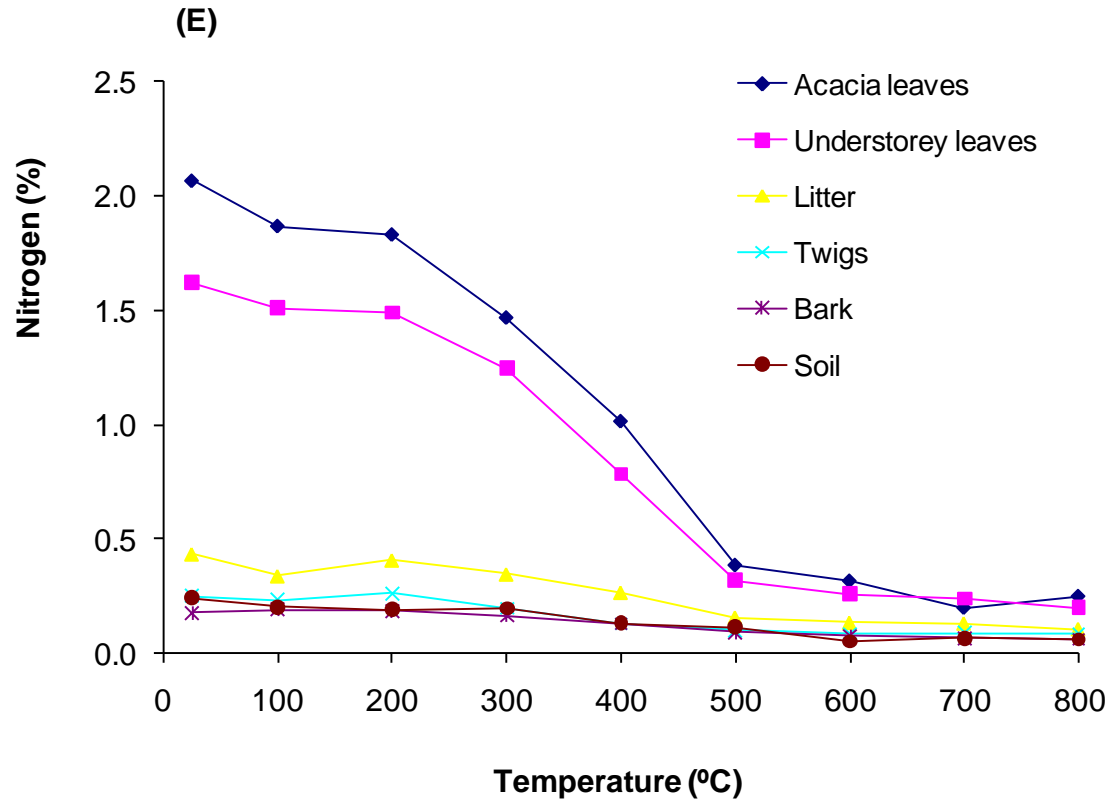
- No idea!
- Re-measurement definitely needed



Loss of nutrients from fuels

- A range of fuels: green leaves (Hickory wattle, understorey), litter, twigs, bark, soil
- Total N in air-dried samples (25 °C)
- Systematic heating or combustion (100-800 °C)
- Total N re-measured
- Losses calculated on basis of published fuel loads
- P, K and S also measured

Loss of nutrients



Equals a loss of up to **55.1** kg N ha⁻¹

Summary

- Biomass (fuels) can potentially recover quickly regardless of whether from seed (Alpine ash or Hickory wattle) or resprouting (Snowgum)
- Biomass (fuel) accumulation models still need a great deal of refining
- Loss of nutrients should also be considered in fire management planning