

# Private and public provision of fire fighting services in rural Australia

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# Overview

- **Bush fires in Australia are frequent and costly**
- **Fighting fires involves private and public sector interests AND exogenous and endogenous institutions**
- **Growth in public effort relative to voluntary, private effort over the past decade = higher transaction costs**
- **Policy measures may be able to reverse that trend**



# Bush fires in Australia

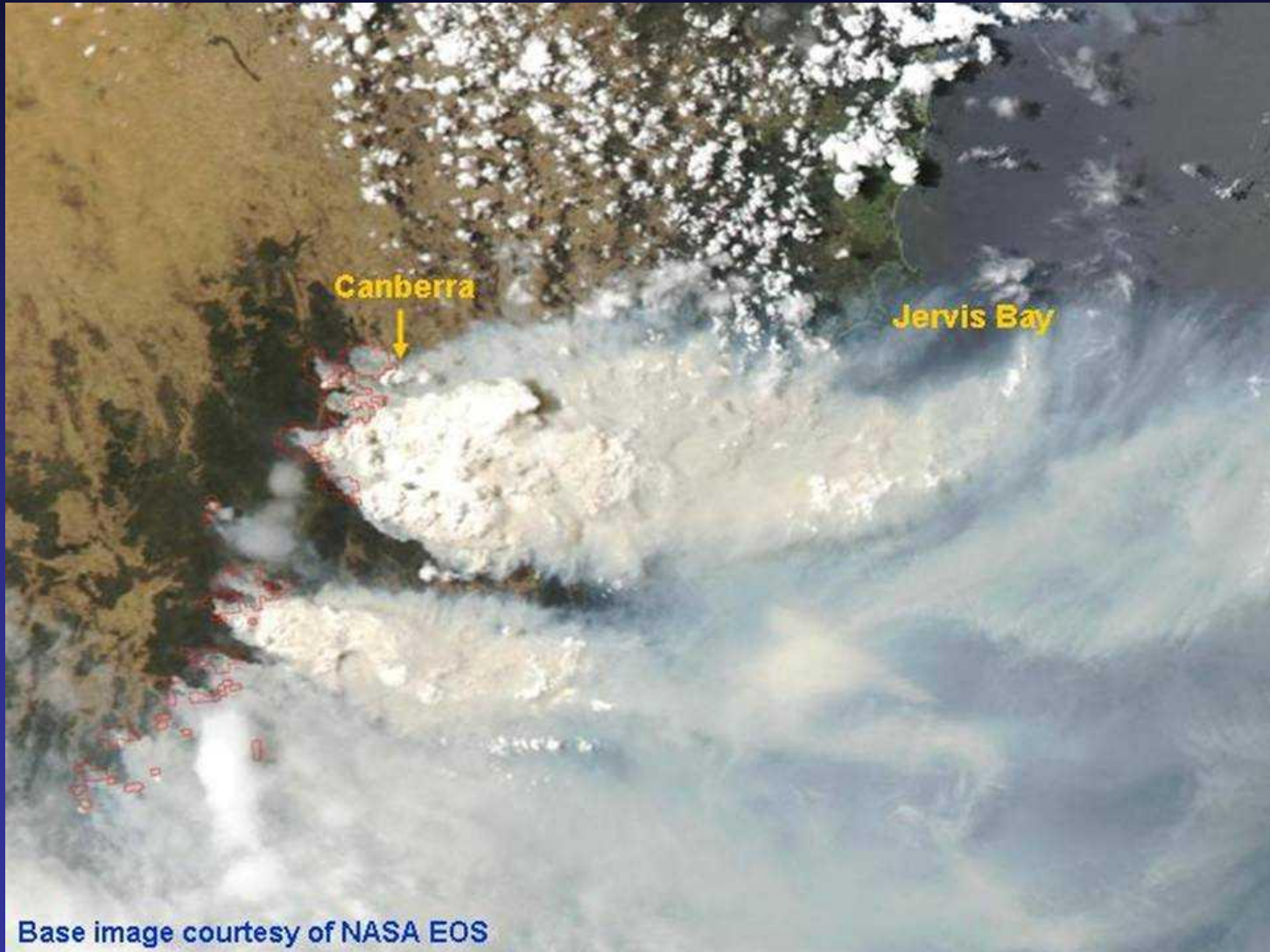
- **Climate + vegetation = fire risk**
- **Frequent and damaging**
- **2009: Victorian fires across 420,000 ha, 173 deaths**
- **Heavy reliance on volunteer bush fire brigades**
- **But ... government agencies responsible for fire control on public lands AND exogenous institutions**



# February 2009: Victoria 4029 houses + 173 deaths



# February 2003: Canberra 530 houses + 4 deaths



Base image courtesy of NASA EOS

- **Statutory authorities in each state:**
  - **New South Wales: Rural Fire Service**
  - **Victoria: Country Fire Authority**
  - **South Australia: Country Fire Service**
- **Funding sources:**
  - **State Government**
  - **Insurance companies**
- **Landowner responsibilities:**
  - **'reasonable care'**
  - **restrictions**



# Economic principles

- **Property rights are key**
- **Where fire's origin is in dispute, liability is not defined**
- **Fire control determined by owner's marginal benefits and costs of effort without recognition of losses to be incurred by others if it is not controlled**
- **Transaction costs are high when numbers grow**
- **Collective action – endogenous or exogenous?**



# Endogenous vs Exogenous

- **Volunteers**
- **Local, responsive BUT free riding**
- **Ostrom – small homogeneous groups can overcome free-riding incentive**
- **Professional state employed staff**
- **Larger scale operation, better trained, less flexible**
- **More costly**



# Australian trends

- **Volunteer effort in decline per head of rural population**
- **Professional state-funded staff rising**
- **Commonwealth effort also injected: Aerial fire fighting capacity**



# Volunteer trends

- **NSW - volunteer numbers have risen slightly:**
  - 1978 - 62,610
  - 2009 - 70,701.
  - percentage of the rural population who are members fell from 3.3 % to 2.7 %
- **Victoria - falls in volunteer numbers:**
  - 1958 - 98,307
  - 1972 - 120,000
  - 2009 - 59,180.
  - decline in volunteers per head of rural population from 3.6% to 1%.



# Professional trends

- **NSW - From 1990 to 2010 the number of career staff rose from 52 to 822.**
  - Real expenditure over the past decade more than doubled (\$67m to \$149m)
- **Victoria - between 1970 and 2010 the number of career staff rose from 289 to 1636.**
  - Real expenditure over the past decade increased from \$98m to \$241m



# Cause or effect

- **Significant negative correlation**
- **Fewer volunteers necessitates more professionals?**
- **More professionals ‘crowd-out’ volunteers**
- **Other examples of crowding out:**
  - LandCare
  - CEWH
  - Flood relief



# Crowding out

- **Stages of collective good provision (Goldsmith et al):**
  1. Private prevails
  2. Public 'crowds out' the private
  3. Public private partnerships
  4. 'Disruptive Transformative Innovation'



# Why worry?

- **Irrespective of cause or effect, be wary of reduced volunteer effort:**
  - **Loss of flexibility, rapid response**
  - **Loss of local knowledge and experience**
  - **Increased transaction costs**
  - **Increased operational costs**
  - **Incentive shifts (perverse?)**



# Reform options

- **Funding:**
  - **Remove reliance on insurance funding**
    - Lower premiums – greater coverage – less pressure on government to ‘rescue’ the uninsured with disaster relief
    - More flexible insurance products – lower transaction costs through interchange of information with local fire brigades
  - **Link funds sources to activities**
    - Local council land rates
    - Dollar-for-dollar grants
  - **State funds**
    - Fire prone poorer areas
    - Training
    - Coordination



- **Organisation:**
  - Don't 'crowd out'
  - Don't amalgamate
  - Do coordinate capital purchases
- **Regulation**
  - Review prescriptive specific regulations
  - Allow flexibility and innovation



# Conclusions

- **Develop policies to facilitate the lower transaction cost solutions offered by endogenous institutions**
- **Avoid policies that build exogenous institutions**
- **Allow for the ‘disruptive, transformative innovation’ that will come from greater reliance on endogenous, heterogeneous rules of coordination**



- For more information:

<http://www.crawford.anu.edu.au/staff/jbennett.php>

- Environmental Economics Research Hub:

[http://www.crawford.anu.edu.au/research\\_units/eeerh/index.php](http://www.crawford.anu.edu.au/research_units/eeerh/index.php)

