

Agricultural and Environmental Values

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Environmental Economics Research Hub

The past

- Economics of bio-security primarily focused on market impacts
- Cost-Benefit Analysis (CBA):
 - Surveillance and control expenditures
 - Avoided production losses
- Research effort devoted to estimating likely agricultural losses ... the benefits of keeping an invasive out are the avoided losses in farming profits if it came in



The present

- CBA developed into bio-economic modelling
- Recognition of the complexities of nature and the stochastic characteristics of events
- Integration of bio-physical models of incursions with the economic analysis of market costs and benefits
- Closer links between economists and bio-physical scientists



And the future?

- Growing recognition that invasives are not just a threat to agricultural production
- Other “non-market” values are impacted
- Inclusion of these NMVs into bio-economic models through “extended” CBA



Non-market values ...

- Recreation values
 - Fire Ants (already in Australia) and the backyard BBQ
 - Didymo (already in NZ, not yet in Australia) and the recreational angler
- Ecosystem services
 - Eucalyptus/Guava rust (in Hawaii, not yet in Australia) and the condition of catchments for water supply, flood protection, hydro power etc
- Biodiversity
 - “Non-use value” associated with species protection
 - Scotch Broom in National Parks



... can be estimated

- PLUS growing competence and capacity in the economics profession to include these values in extended CBA
- Revealed preference techniques:
 - Changes in property prices with an infestation
 - Costs of travelling to a recreational site
- Stated preference techniques:
 - Would you vote for improved surveillance at a cost?
 - Which bio-security plan would you like to see implemented?



RP techniques

- Hedonic Pricing
- Travel Cost Method
- Well-established conceptually
- Widely applied internationally in a wide array of contexts
- Few applications specific to invasives
- Limited to the estimation of 'use values'



SP techniques

- Contingent Valuation
- Choice Modelling
- Increasingly applied internationally but some conceptual scepticism remains
- Few applications relating to invasives (see EVRI)
- Flexibility to cover a wide range of contexts and value types (use and non-use)



Applications

- SP scepticism being overcome through a robust international research agenda PLUS some high profile domestic applications
- Choice Modelling ... choices across futures
- Victorian Environmental Assessment Council
 - River Red Gums of the Murray
- Australian Environment Ministers
 - E-waste recycling
- NSW Planning Assessment Commission
 - The Metropolitan Mine



...at this Symposium

- Applications starting to emerge
- NZ concern for environmental impacts ... Brian Bell, Geoff Kerr (Lincoln U), Basil Sharp (Auckland U)
- Environmental Economics Research Hub Projects ... Rolfe (CQU), Ghosh (AgWA)
- http://www.crawford.anu.edu.au/research_units/eeh/index.php
- Policy Brief

