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Bovine TB – ecology and economics

Graham Smith
Quantitative Ecologist
Central Science Laboratory



Badger Management Requirements

- Is the badger responsible ?
- If so, for how much ?
- How do we manage the badger population ?

We must reduce future breakdowns not react to each breakdown



Is the badger responsible for TB in cattle?

- Circumstantial evidence – e.g. Thornbury, East Offaly
- Direct evidence – Lab. study; RBCT reactive; RBCT proactive; Irish 4AT

- Yes !!

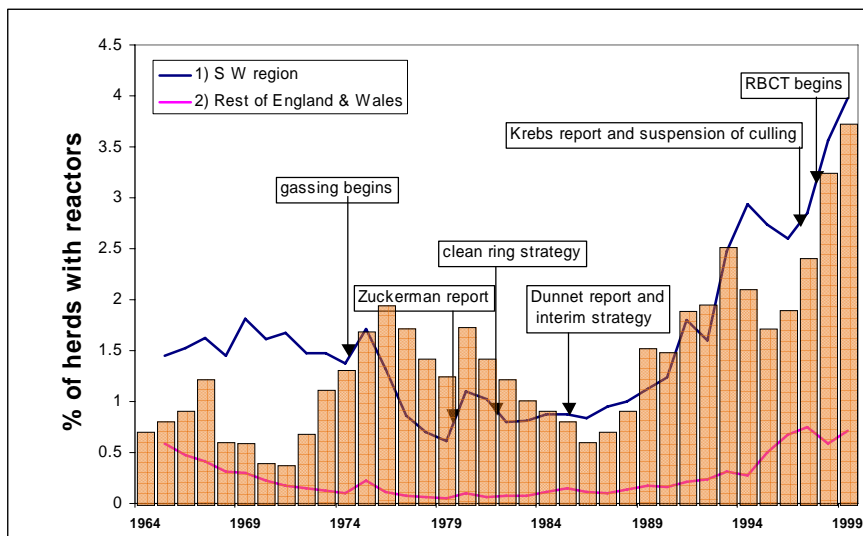


For how much TB is the badger responsible?

- RBCT proactive 26%
- Cattle movement 26-85%
<http://www.defra.gov.uk/science/documents/publications/BTB.pdf>
- Ireland ?
- We should not expect the same % as this is due to a combination of cattle movement, testing, badger density, and disease prevalence.



Historical badger culling in UK



So why is GB and Ireland different ?

- Who is right ?
- GB comparison proactive v's survey
Ireland proactive v's reactive,
- GB badger density and gp size larger,
- Farm and cattle density, spatial configuration,
- GB areas chosen at random
Ireland selected to reduce immigration,
- Both studies are 'right'. The real question is
what caused the difference ?



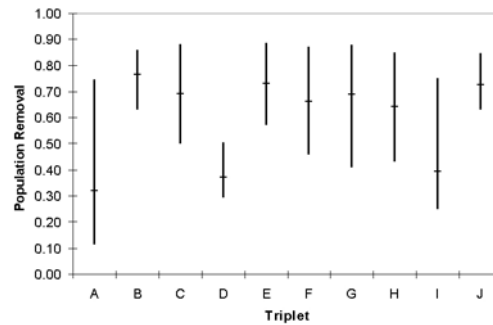
So does badger culling control TB?

- Yes, but ... (reactive and edge effect)
- Social Perturbation – what is it ?
 1. Immigration from edge (vacuum effect)
 2. Increased ranging and contact
 3. Increased disease prevalence
 4. Increased no. infected ?
 5. Increased transmission to cattle ?

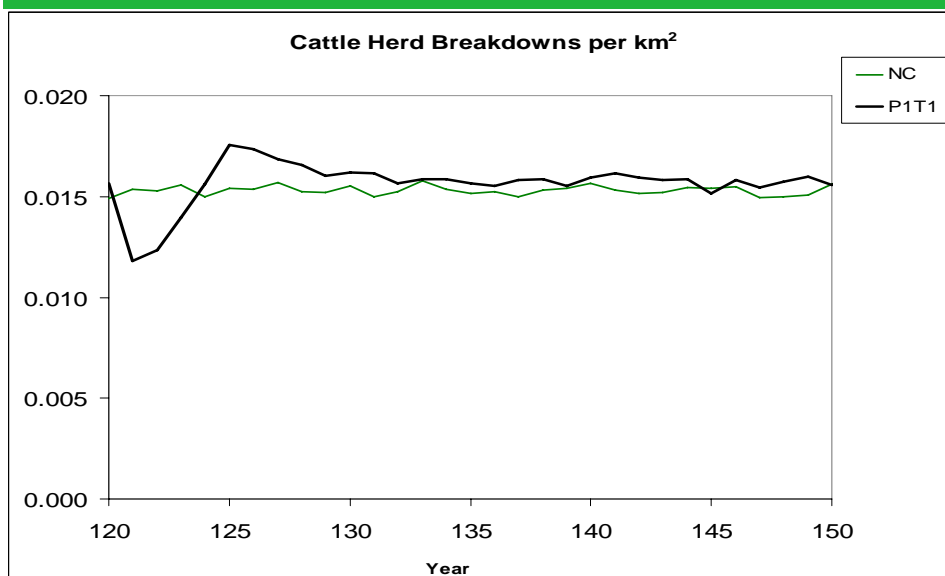


RBCT was just ineffective

- Lets increase culling efficacy !
- 1. More extreme culling will not remove perturbation (may increase or decrease it),
- 2. Best estimates of RBCT indicate 70% reduction,
- 3. Can we really do much better over a sustained time period?



Effect of perturbation (modelled)



Must be Economical

- For who – farmer, government, or society ?
- For society, economics show small chance of a benefit (in the absence of perturbation)
economic break-even point after 11-14 years
(Smith et al. (2007) TVJ 173)



Conclusion

- Badger culling *might* work,
- But must take account of:
BADGER ECOLOGY
perturbation (e.g. immigration)
sustainability
economics

