

ADDRESSING CONFLICTS OVER NATURAL RESOURCES:

USING PARTICIPATORY GIS TO FACILITATE CONSENSUS OVER WILD DEER MANAGEMENT

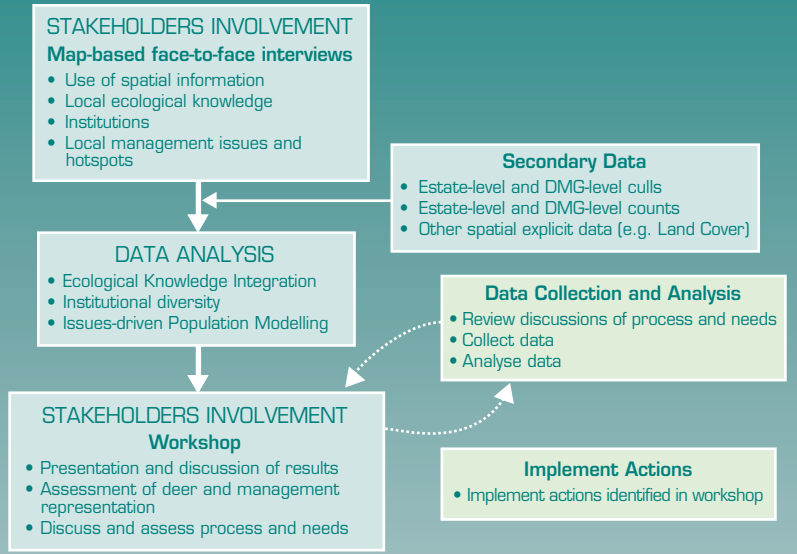


ISSUE:

- Deer range freely across ownership boundaries and landscapes and have a range of economic, social and environmental costs and benefits.
- Negotiation and consensus building over deer management is constrained by the lack of integration among scientific disciplines and poor communication between researchers, policy makers and practitioners.

APPROACH:

- Working with groups of deer managers in 2 case studies we developed a participatory approach (Fig 1) based on a Geographic Information System (PGIS).
- PGIS facilitated:
 - spatial modelling of specific deer populations at the landscape scale relevant to deer range use and management boundaries.
 - development of shared understanding and knowledge exchange by integrating stakeholder knowledge with scientific research across disciplines.
 - the process of developing an adaptive framework for incorporating new knowledge and evaluating the impact of land-use policy and climate change.



Green boxes and dashed arrows are suggested future steps

MESSAGE:

This work has shown that PGIS can facilitate the transformation of conflicts into challenges that the stakeholders could resolve by working together:

- Managers' knowledge can be effective for improving ecological modelling,
- Modelling can help assess the impact of heavy culls on neighbours by informing the debate over the occurrence of the "vacuum effect" (Figs 2 & 3)
- Modelling reveals that ecological and economic sustainability can be achieved with reduced deer population size.
- But, managers and agencies need to improve frequency and quality of data to improve evidence based evaluation of potential management solutions
- There is no single model of management that fits the needs of stakeholders with either similar or diverse interests therefore an adaptive, inclusive and locally relevant approach is more relevant (Fig 1)

Fig 2. Predicted deer numbers (solid lines) based on actual numbers and culling level. Differences from observed deer numbers (crosses) can help to inform debates over the effect of management on deer movement.

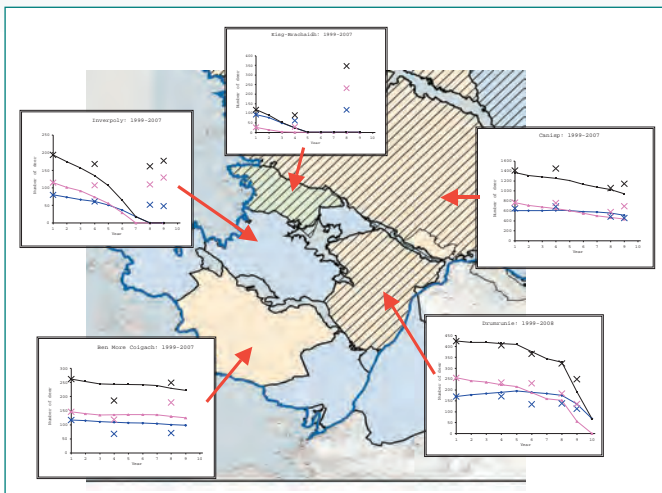


Fig 3. Distribution of preference scores (darker is higher preference) for two neighbouring estates: a) modeled as one unit and b) modeled as two separate units. This indicates that Estate 1 has a slightly higher proportion of higher preference habitat than Estate 2 and therefore ought to have a slightly higher deer density if deer are free-ranging.

