Ecosystem Services of Sika Deer Hunting

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Sika deer

- Largely indigenous forest in Kaimanawa & Kaweka ranges
- Significant recreational resource
  - Provisioning services
  - Cultural services
- Negative effects on beech forest
  - Regulating services
Provisioning Services

• Commercial food harvest
  – Little direct commercial harvest
  – Some guided recreational “meat hunts”
Provisioning Services

• Recreational food harvest
  – May be commercially processed
  – Most is DIY
Provisioning Service Value?

- Typical online retail prices of farmed Red deer venison (14 April 2013)
  - $40 - $80 kg\(^{-1}\) for prime cuts
  - $20 kg\(^{-1}\) for diced meat
  - $14 kg\(^{-1}\) for sausages
  - $11kg\(^{-1}\) for mince

- But wild sika is a different product ....
  - Reputedly, Sika venison is tastier than Red Deer venison
  - It’s wild, not farmed
  - Butchery quality may be lower!
Provisioning Service Value?

• Say $40 kg$\(^{-1}\)

$\approx 12$ kg of meat recoverable sika$^{-1}$

$\Rightarrow $480 deer$^{-1}$

$\approx 15,000$ - $25,000$ sika killed year$^{-1}$ (Kerr & Abell, 2012)

$\Rightarrow $7m - $12m$ year$^{-1}$ if all meat is recovered

Recoverable meat based on estimates of Fallow deer meat recovery at Bromley’s Home Butchery Ltd. (pers. comm.). Fallow are of similar size to sika.
Cultural Services

- Some commercially guided hunting
Cultural Services

• Private hunting
• Diverse motivations
  – Trophy
  – Meat
  – Seeing animals
  – Social
  – Experiencing the outdoors

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Cultural Service Value

- **Value to HUNTERS** (not to businesses servicing hunters)
- **Kerr & Abell** – 2012 choice experiment
  \[\approx \$250 \text{ hunter}^{-1} \text{ day}^{-1}\]
  
  cf. 57 study international mean for deer hunting = \$246 \text{ day}^{-1} \quad (SE=\$36)  
  [Kerr & Woods, 2010]

  \[\approx 15,000 - 25,000 \text{ sika killed year}^{-1}\]

  \[\Rightarrow 75,000 - 130,000 \text{ sika hunter-days year}^{-1} \quad (0.19 \text{ kills/day})\]

  \[\approx \$19m - \$32m \text{ year}^{-1}\]

- **Nugent** – 1988
  \[\approx 53,000 \text{ sika hunter-days year}^{-1} \quad (SE=12,500)\]
  \[\approx 16,450 \text{ sika killed year}^{-1} \quad (SE=3,830)\]
Conclusions

• Recreational Sika deer hunting yields significant ES benefits
  – Provisioning: possibly up to $12m pa
  – Cultural: $19m - $32m pa
  – In addition, recreational hunting creates significant market economic impacts through purchases of gear, transport, and guiding services
    • Mean expenditure for big game hunters ≈ $3,700 p.a. (excluding transport)

• Potential double counting
Conclusions cont.

• Improved deer/hunter management might increase provisioning and cultural ES values, but what effect on regulating ES values?

• Or ....

• Improved forest management might increase regulating ES values, but what effect on provisioning and cultural ES values?

• The ES framework invites simultaneous consideration of all ES effects

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