DEER COOPERATIVES

In Southern Michigan
Why study deer cooperatives?

- A growing trend
- Satisfied hunters
- Harvest goals
  - Lower sex ratio
  - Good age structure
  - Improved habitat
- There is potential for significant impact by these groups as they join forces (with each other as well as MDNR)
- New concept to the literature
Deer Cooperative Data

- n = 351 (406) members representing 16 co-ops
- 96% male
- ~ 46.8 yrs. old
- Avg. income: $50-75,000
- 71% at least some college edu.
- Member for ~ 5 years (new ~ 35 yrs)
- Acres: zero to 1,800
  - Avg. acres 127.6
- 2010 Harvest:
  - 262 Bucks
  - 596 Does (1 buck:2.3 doe) 1:1.1
- 2011 Harvest
  - 181 Bucks
  - 398 Does (1 buck:2.2 doe) 1:1.2
- Satisfaction:
  - Before joining: 44%
  - After joining: 75%

SLP: 46%  
* Frawley, 2011
Hypotheses

- Individual behavior is influenced by group membership

- Satisfaction levels increase as a result of being part of the cooperative
Measurements

- Social Networking
- Satisfaction Levels
- Harvest
- Demographics
Methods

- Meeting observations
- **Surveys** (2010 & 2011)
- Leader interviews
- Conversations with leaders and members

Red Creek Co-op
Social Network Analysis

**Group Influence**

Harvest Standard  
Mean Education  
Mean Age  
Mean Hunting Experience  
Mean Harvest

**Individual Influence**

Harvest Standard  
Education  
Age  
Hunting Experience  
Harvest  
“Fit”

**Hunter Behavior**

\[
y_{htc} = \beta_0 + \sum_{k=1}^{n} w_{hk} y_{ht-1} + \beta_1 \text{harstd}_{ht-1} + \beta_2 \text{edu}_{htc} + \beta_3 \text{age}_{ct} + \beta_4 \text{age}_{ht} + \beta_5 \text{huntyrs}_{ct} + \beta_6 \text{huntyrs}_{ht} + \beta_7 \text{avgd}_{c} + \beta_8 \text{avgd}_{h} + \beta_9 \text{avgb}_{c} + \beta_{10} \text{avgb}_{h} + \epsilon_{lht}
\]

\[
\beta_0 = \beta_{00} + \beta_{01} \text{avedu}_{c} + \beta_{02} \text{avgage}_{c} + \beta_{03} \text{avgd}_{c} + \beta_{04} \text{avgb}_{c} + \beta_{05} \text{avginv}_{c} + \beta_{06} \text{avgharstd}_{l,1c} + \beta_{07} \text{region}_{c}
\]
| Parameter                      | Estimate     | Standard Error | t Value | Pr > |t| |
|-------------------------------|--------------|----------------|---------|------|---|
| Intercept                     | 3.494866451  | 5.75349013     | 0.61    | 0.5450 |
| totesposedoe1                 | -1.666682340 | 1.86074923     | -0.90   | 0.3726 |
| bucks1                        | 0.013875479  | 0.20802800     | 0.07    | 0.9470 |
| does1                         | 0.621653058  | 0.07784225     | 7.99    | <.0001 |
| totesposedoe1*does1           | -0.100638621 | 0.04238642     | -2.37   | 0.0195 |
| edu                           | -0.044374133 | 0.10128475     | -0.44   | 0.6623 |
| income                        | 0.039236330  | 0.09582430     | 0.41    | 0.6831 |
| avgbuckage1                  | -0.007326374 | 0.12293818     | -0.06   | 0.9526 |
| Acres2                        | 0.001468454  | 0.00056569     | 2.60    | 0.0109 |
| Age2                          | 0.006709934  | 0.00812797     | 0.83    | 0.4111 |
| YearsCoop2                   | 0.080667884  | 0.06468107     | 1.25    | 0.2153 |
Social Networks
Additional Models

- Doe Harvest Model
- Buck Age Harvest Model
- Change in Harvest Standard
- Change in Satisfaction
Questions?

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