Landowner Preferences for Participation in Conservation Programs in North Carolina

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Conservation Challenge

- Private lands are critical for endangered species (ES) conservation
  - 60% of land is privately owned in US
  - over 75% of ES rely on private lands
- Population growth & sprawl leads to:
  - Loss of ES habitat
  - Increases in the # of ES
Issues with ESA

• Conservation challenges associated with US Endangered Species Act (ESA) of 1973
  • ESA restricts landowner use of land if ES or ES habitat is present
Issues with ESA

• Anti-conservation attitudes
  • Preemptive actions against ES to avoid ESA regulation
    • Famous case in Pender County, NC – 1970’s
Engaging Private Landowners

... is essential if ES habitat on private lands are to persist

So... how do we engage landowners???

- Incentives - pay them to manage land for ES habitat
- But are they interested...
Study Objectives

• Determine views on relative importance of ES conservation

• Gauge interest in a contract to restore & maintain ES habitat

• Assess preferences for:
  • Contract type (easements vs. contracts)
  • Agreement duration
  • Number of acres willing to enroll
  • Organization to administer a program

• Determine predictors of interest in ES habitat conservation contracts
Study Area - North Carolina

Good place to study incentives for ES habitat
- 5th fastest growing state
- ~80% is privately owned
- Several well known ES
- Threats to wildlife habitat
- Coastal counties
  - Estimated pop increase of 40% btw 2000-2030
  - Land conversion
Methods

• Case study
  • NCFB county advisory board members in 100 counties
    • Key opinion leaders at the county level
    • Member–elected
    • Represent ~86% of farm owners in NC
  • In-person survey administration
  • March – October, 2009
Data Analysis

• Logistic Regression

• Dependent Variables
  • Interest in ES habitat conservation contract

• Independent variables
  • ACRES OWNED in North Carolina
  • PAST PARTICIPATION in conservation programs
  • Property rights orientation (PRO) scale (Jackson et al, 2005)
  • IMPORTANCE of endangered species conservation
  • Total household INCOME
  • AGE
Results

• 93 counties participated
• n = 735
• Response rate = 78.3%
Typical Respondent

- Male (93%)
- Caucasian (96%)
- Married (88%)
- 59 years old (mean)
- Employed in farm/ag industry (77%)
- Owned 263 acres (mean)
- THH income of $87,500 (median)
- 57% of THH income from land (mean)
- Planned to own land for 25 yrs or longer (76%)
Relative Conservation Importance

![Bar chart showing mean Likert scale response score for different conservation areas.]

- Endangered Species Conservation
- Game Species Conservation
- Open Space Conservation
- Soil Conservation
- Wetlands Conservation

The chart indicates that Soil Conservation has the highest mean Likert scale response score, followed by Open Space Conservation and Game Species Conservation. Endangered Species Conservation has the lowest mean score.
## Interest & Acres

<table>
<thead>
<tr>
<th>Easements</th>
<th>RER Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
<td>39%</td>
</tr>
<tr>
<td>Acres</td>
<td>134</td>
</tr>
</tbody>
</table>
## Interest & Acres

<table>
<thead>
<tr>
<th></th>
<th>Easements</th>
<th>RER Contracts</th>
<th>ES Habitat Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td>39%</td>
<td>57%</td>
<td>45%</td>
</tr>
<tr>
<td><strong>Acres</strong></td>
<td>134</td>
<td>145</td>
<td>92</td>
</tr>
</tbody>
</table>
Duration Preferences

- Conservation Easement
- Real Estate Restrictions Contract

Percent (%) Interest

<table>
<thead>
<tr>
<th>Duration</th>
<th>1 year</th>
<th>5 years</th>
<th>10 years</th>
<th>15 years</th>
<th>20 years</th>
<th>25 years</th>
<th>30 years</th>
<th>50 years</th>
<th>Permanent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>35</td>
<td>30</td>
<td>25</td>
<td>20</td>
<td>15</td>
<td>25</td>
</tr>
</tbody>
</table>

(Duration preferences graph showing interest rates for different durations.)
Duration Preferences

- Conservation Easement
- Real Estate Restrictions Contract
- Endangered Species Habitat Contract

The chart shows the duration preferences with varying percent interest for different durations, including 1 year, 5 years, 10 years, 15 years, 20 years, 25 years, 30 years, 50 years, and permanent.
## Preferences for Administering Org

<table>
<thead>
<tr>
<th>Organization</th>
<th>Average Score (7 pt scale)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC Farm Bureau</td>
<td>4.55</td>
</tr>
<tr>
<td>NC Wildlife Resources Commission</td>
<td>4.53</td>
</tr>
<tr>
<td>NC Cooperative Extension Service</td>
<td>4.41</td>
</tr>
<tr>
<td>US Department of Agriculture</td>
<td>4.04</td>
</tr>
<tr>
<td>US Fish and Wildlife Service</td>
<td>3.79</td>
</tr>
<tr>
<td>The Nature Conservancy</td>
<td>3.09</td>
</tr>
<tr>
<td>US Department of Defense</td>
<td>2.17</td>
</tr>
</tbody>
</table>
### Predictive Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>Odds ratio</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRES OWNED</td>
<td>-0.012</td>
<td>0.988</td>
<td>0.041</td>
</tr>
<tr>
<td>PRO</td>
<td>-0.044**</td>
<td>0.957</td>
<td>0.017</td>
</tr>
<tr>
<td>PAST PARTICIPATION</td>
<td>0.762***</td>
<td>2.142</td>
<td>0.238</td>
</tr>
<tr>
<td>IMPORTANCE</td>
<td>0.426***</td>
<td>1.531</td>
<td>0.074</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.004*</td>
<td>1.004</td>
<td>0.002</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.209**</td>
<td>0.812</td>
<td>0.097</td>
</tr>
</tbody>
</table>

$R^2 = 0.215$

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$
Conclusions

• Higher level of interest in short-term contracts
  • Preference for obligations based in contract law
    • Used to contracts for commodities
  • Stigma associated with deed restrictions
  • Desire to maintain land use flexibility

• Willing to commit fewer acres to an ES habitat contract
  • Stigma related to ES label
  • Less land available for habitat
Conclusions

• Preference for NC Farm Bureau
  • Familiarity bias?

• Younger landowners
  • Over time more young landowners
  • More opportunities to engage landowners in conservation

• Past participation in conservation programs
  • Relative familiarity with programs
  • Know what to expect
Conclusions

• Rank ES conservation as important
  • Face validity
• PRO oriented towards social responsibilities
  • Conserving ES is a well know societal benefit
  • Provides face validity
• There’s interest in ES habitat contracts
  • Frame program as a real estate restriction program to increase participation
Sentinel Landscapes (Pilot) Program
Acknowledgements

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Citation:
Thank you!

Questions?

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